[HIGH COURT OF AUSTRALIA.]

PALMER . . . . . APPELLANT;

PLAINTIFF,

AND

DUNLOP PERDRIAU RUBBER COMPANY LIMITED . . . . . } RESPONDENT.

DEFENDANT,

ON APPEAL FROM THE SUPREME COURT OF NEW SOUTH WALES.

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SYDNEY, *April* 7-9, 12, 15; *Aug.* 20.

Latham C.J., Rich, Dixon and McTiernan JJ.

Patent—Combination of known integers—Interrelation of integers—Novelty—Subject matter—Common general knowledge—Mechanical equivalent—Claim—Scope—Ambiguity—Infringement.

The appellant brought a suit against the respondent for the infringement of a patent for a machine which consisted in a combination of features for the performance of a series of functions, all necessary to produce the article desired, namely, a seamless vulcanized rubber box or container made in one piece. The material claim in the specification was: "In a rubber-moulding apparatus, the combination of a mould; a separable lining; a mould core; power-actuated

mechanism forcing relative movement between the mould lining and the core; means associated therewith disengaging the lining from the mould; and means subjecting the mould to vulcanizing heat." The respondent's machine, in a few respects, differed from the appellant's machine. The respondent disputed the validity of the patent and denied infringement.

Held, by *Latham* C.J., *Dixon* and *McTiernan* JJ., that the patent was not void for want of subject matter; and, by *Latham* C.J. and *McTiernan* J. (*Rich* and *Dixon* JJ. *contra*), that it did not fail on the ground that the claim was too wide.

British Celanese Ltd. v. *Courtaulds Ltd.*, (1933) 50 R.P.C. 259; (1935) 52 R.P.C. 171, *Lightning Fastener Co. Ltd.* v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.*, (1934) 51 R.P.C. 347, and *Mullard Radio Valve Co. Ltd.* v. *Philco Radio and Television Corporation of Great Britain Ltd.*, (1936) 53 R.P.C. 323, referred to.

The court being equally divided as to the result of the appeal, the decision of the Supreme Court of New South Wales (*Nicholas J.*) was affirmed.

APPEAL from the Supreme Court of New South Wales.

A suit was brought in the equitable jurisdiction of the Supreme Court of New South Wales by Theron Risser Palmer against Dunlop Perdriau Rubber Co. Ltd., claiming damages for alleged infringements by the defendant of the plaintiff's patent for improvements in or relating to rubber-moulding apparatus. The defendant denied the infringement and alleged that the letters patent upon which the plaintiff relied were invalid on the grounds: (*a*) that the alleged invention was not novel at the date of the alleged patent therefor by reason of (i) prior publication; (ii) prior common general knowledge; and (iii) prior user; (*b*) that the alleged invention was not the proper subject matter for a patent; (*c*) that the complete specification and claims did not adequately define the extent of the monopoly sought to be protected; and (*d*) that the specification was ambiguous and misleading as it was not clear what the words "means associated therewith disengaging the lining from the mould" referred to.

The plaintiff's patent was granted to him on a convention application under sec. 121 of the *Patents Act* 1903-1935, as from 18th June 1924, being the date of the first foreign application, namely, an

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application in the United States of America, in respect of an invention by one John Fuller Allen.

The complete specification was headed "Improvements in or relating to rubber-moulding apparatus" and was as follows:—

"I, John Fuller Allen, a U.S. citizen of 502 West Fifth Street, Erie, Pennsylvania, United States of America, engineer, hereby declare this invention and the manner in which it is to be performed to be fully described and ascertained in and by the following statement:— This invention is particularly designed to mould hollow rubber articles such for example as storage battery boxes. In moulding such articles the apparatus should be arranged for conveniently reloading the mould and conveniently discharging the same without distortion of the article. In the present invention this is accomplished by forming the mould with a detachable liner, placing the material to form the article in bulk in the mould and forcing it to the shape of the article by the telescoping action of the core of the mould within the mould, the mould being heated during this operation so that the rubber more readily flows. After the mould is finally closed by the press it is held in this closed position during vulcanization and then the core is forcibly stripped by the apparatus from the mould and the separable liners of the mould itself are stripped from the mould thus making the discharge of the finished box very rapid and very efficient. The invention is illustrated in the accompanying drawings as follows:— Fig. 1 shows a side elevation, partly in section, on the line 1—1 in Fig. 2. Fig. 2 a plan view, partly in section, on the line 2—2 in Fig. 1. Fig. 3 a side elevation of the head, the view being at right angles from that shown in Fig. 1. 1 marks the base, 2 the ram cylinder, 3 the ram, 4 the ram cap, 5 the press head, and 6 rods connecting the base and head. These are of usual construction. A mould case 7 is arranged on the ram cap. This is steam heated, the steam being admitted to the ram cap through openings 8 and the mould casing having steam cavities 9 connected with the openings 8. This mould case forms a box open at the top and on the ordinary press there would be a plurality of these boxes as shown. A mould lining is arranged within the box and comprises the bottom 10, the sides 11 and ends 12, the sides and ends being superimposed

upon the bottom and preferably set into a groove 13 in the bottom so as to hold them initially in place. With this arrangement of mould lining, the mould lining may be stripped out of the case by pressure exerted on the bottom. A knock-out pin 14 extends through openings 15 in the ram cap. These have heads which are arranged in sockets under the bottoms of the mould lining. Slides 17 are mounted in guides 18 in the base, the slides being adapted to be moved inwardly so as to be in the path of the knock-out pins 14. As the ram is lifted to complete a mould and held in lifted position so as to subject the moulding rubber to pressure during the moulding operation the slides 17 are moved inwardly so that as the ram cap returns under pressure by means hereinafter described the mould linings are forced out of the mould casings. In order that the slides 17 may be worked together I preferably provide the levers 19 which have the pivots 20 on the base. Links 21 connect these levers with a rock arm 22 so that both slides may be thrown simultaneously. The rubber mass for forming the box is put in the mould and the ram is lifted so as to form a telescoping action with the core. The core as it operates on the mass and as the mass becomes warm forces the mass to fill the mould cavity. The ram is held in its upper position subjecting the rubber to pressure during the moulding operation. This core may be heated in any preferable manner. In order to force the ram downwardly so as to assure the stripping of the mould lining I provide the following mechanism :—A hollow rod 23 is secured to the mould casing and connected with the cavity 9. It extends through an opening 23a in the head 5 and is secured to a piston 24. The piston operates in a cylinder 25. Steam is admitted to the cylinder through an opening 26. Steam remains on the piston constantly so that there is a sufficient pressure to force the ram downwardly to effect the stripping of the mould lining. Further steam is delivered in this way to the mould casing and ram cap. After the mould lining is forced out of the mould in this way the lining may be readily picked off of the sides of the finished box so that it may be readily and quickly removed. The core is made up of sections 27 and 28, the receptacle or battery box being formed with the mould exemplifying the invention having three compartments. The end

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sections 27 are formed rigid with the head while the central section 28 is preferably mounted on pins 29, the pins having heads 30 arranged with sockets 31 in the press head 5. This permits a limited movement of the central section 28 as the ram is retracted, thus separating the sections 27 prior to the separation of the section 28. This reduces the strain on the formed article and is less liable to result in a distortion of the article as the core is removed. Having now fully described and ascertained my said invention and the manner in which it is to be performed, I declare that what I claim is :—1. In a rubber-moulding apparatus, the combination of a mould ; a separable lining ; a mould core ; power-actuated mechanism forcing relative movement between the mould lining and the core ; means associated therewith disengaging the lining from the mould ; and means subjecting the mould to vulcanizing heat. 2. The invention according to claim 1 characterized by the fact that the power-actuated mechanism first forces the telescopic action between the core and the mould to fill the mould with the material and then holds the parts under pressure during the vulcanizing action. 3. The invention according to claim 1 in which the means for disengaging the lining from the mould is power-actuated and associated with the power-actuated mechanism for forcing the mould and core together. 4. The invention according to claim 1 characterized by the fact that the power-actuated mechanism first forces the telescopic action between the core and the mould to fill the mould with the material and then holds the parts under pressure during the vulcanizing action and the means for disengaging the lining from the mould is power-actuated and associated with the power-actuated mechanism for forcing the mould and core together. 5. The invention according to claim 1 characterized by the fact that the power-actuated mechanism is fluid-actuated. 6. The invention according to claim 1 characterized by the fact that the power-actuated mechanism not only forces the mould and core together to fill the mould with the plastic material but also power means strip the core from the mould. 7. The invention according to claim 1 characterized by the fact that the power-actuated mechanism not only forces the mould and core together to fill the mould with plastic material but power means also strip the core from the mould and the

lining from the mould. 8. The invention according to claim 1 characterized by the fact that the means for disengaging the lining from the mould comprises a knock-out device operating to discharge the mould on a backward movement of the mould. 9. In a rubber-moulding apparatus, the combination of a ram ; a mould case on the ram ; means for subjecting the mould case to vulcanizing heat ; a separable mould lining in the case ; and a knock-out acting on a backward movement of the ram on the mould lining to discharge it from the case. 10. In a rubber moulding apparatus, the combination of a ram ; a head opposed to the ram ; a mould mounted on the ram ; a mould core carried by the head ; and means mounted on the head for forcing a backward movement of the ram to disengage the mould from the core. 11. In a rubber-moulding apparatus, the combination of a ram ; a mould case on the ram ; a head opposed to the ram ; means for subjecting the case to vulcanizing heat ; a separable mould lining in the case ; a core mounted on the head and telescopically moving into the mould ; a knock-out device acting on a backward movement of the ram to discharge the mould lining from the case ; and power-actuated means forcing a backward movement of the ram to strip the mould from the core and the lining from the case. 12. The invention according to claim 10, characterized by the fact that the means is in the form of a steam cylinder having a hollow piston through which steam conveyed to the mould for heating the same to a vulcanizing temperature passes. 13. In a rubber-moulding apparatus, the combination of a ram ; a head opposed to the ram ; a mould mounted on the ram ; and a core mounted on the head, said core having a plurality of sections, one of the sections being movably mounted making the parting of the sections from the mould successive. 14. In a rubber-moulding apparatus, the combination of a mould case ; means subjecting the mould case to vulcanizing heat ; a separable mould lining in the case forming a parallel-sided mould ; and power-actuated means for ejecting the lining from the mould case upon the completion of vulcanization. Dated this 16th day of June, A.D. 1925."

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The drawings accompanying the complete specification were as follows :—

FIG. 1

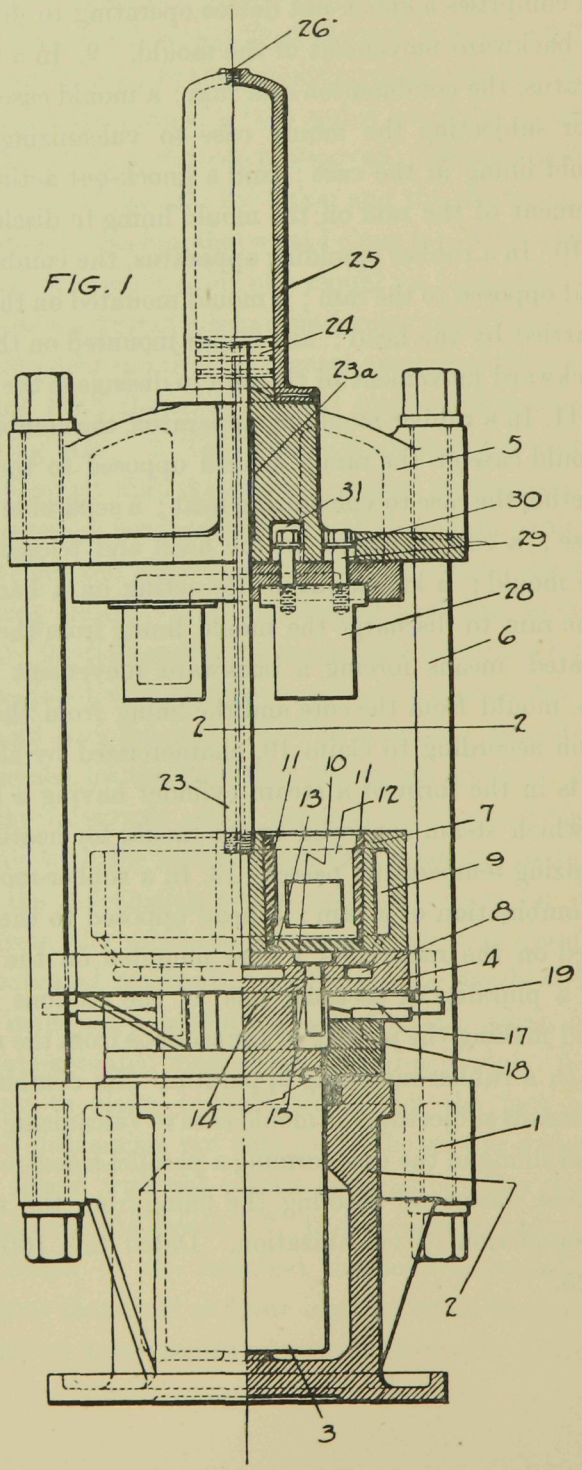


FIG. 2

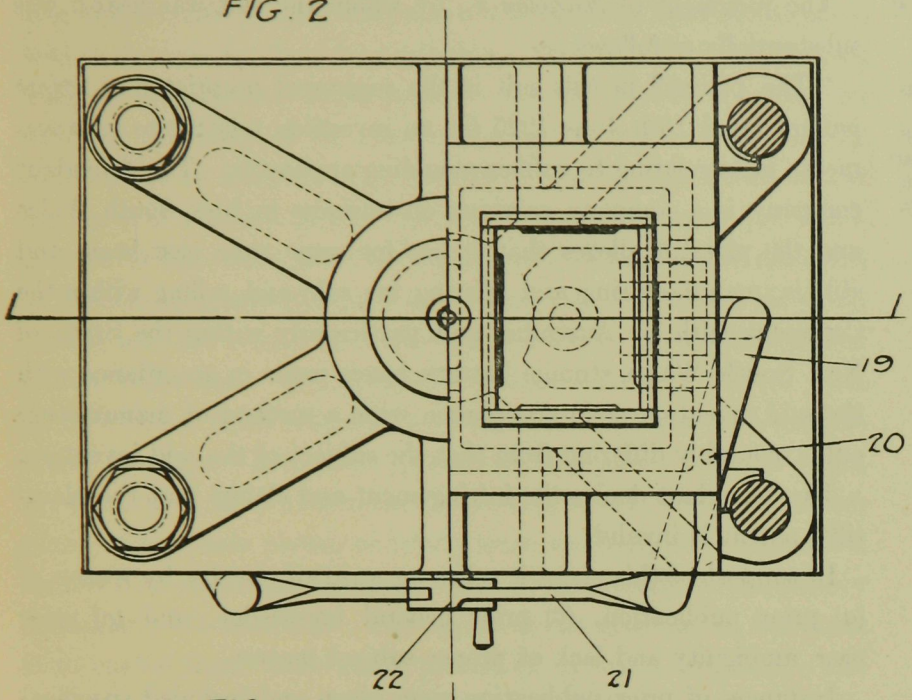
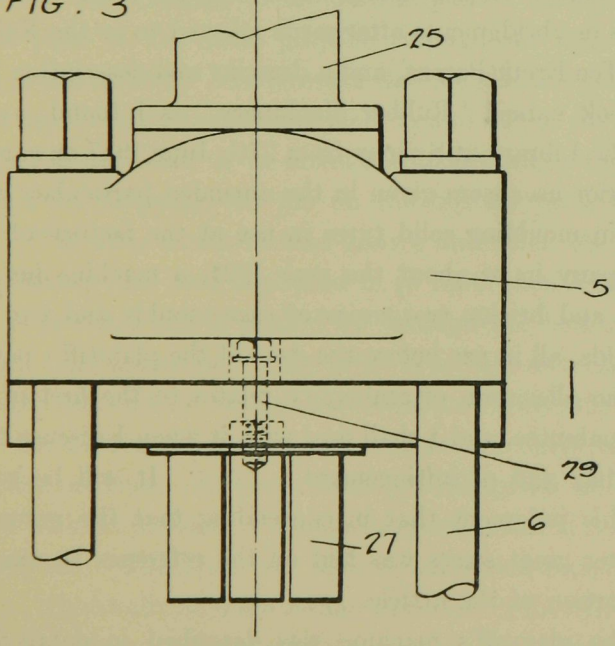


FIG. 3



A description of the defendant's machine sufficiently appears in the judgments hereunder.

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The judgment of *Nicholas* J., by whom the suit was heard, was substantially as follows :—

"The plaintiff in this suit is the registered proprietor of letters patent dated 16th June 1925 for an invention relating to improvements in or relating to rubber-moulding apparatus. The defendant company is a company carrying on business in New South Wales and the plaintiff alleges that it has for some time past been, and still is, manufacturing and offering for sale and selling within the Commonwealth of Australia, and particularly within the State of New South Wales, storage battery boxes made in accordance with the said invention or in accordance with a method of manufacture only colourably differing from that the subject of the said invention.

The defendant denies the infringement and claims that the plaintiff's patent is invalid.

In support of this claim it relies on want of novelty by reason of (*a*) prior publication, (*b*) prior general knowledge, and (*c*) prior user, ambiguity and lack of proper subject matter.

Instances of prior publication were given and included specifications or abridgments afterwards referred to as the Kelly Patent and the Ten Brink Patent, and a drawing and description to be found in a book named 'Rubber Machinery,' as I found, available in the Public Library at Sydney from 27th June 1917 onwards. Instances of prior user were given in the amended particulars as a mould for use in moulding solid tyres in use at the factory of the defendant company in or about the year 1924, a machine for making fancy tiles and bricks, two series of case moulds and two series of tyre moulds, all in use before the date of the plaintiff's patent.

The allegation of ambiguity relates to the first of the claims of the patentee, and I shall deal with it when I discuss the question of validity and of infringement. . . . It will be seen further on in this judgment that in contending that the patent had subject matter great stress was laid on the reference to discharge without distortion of the article. . . .

The plaintiff's machine was described in detail by the expert witnesses, Messrs. Wilkins and Clerk, called on behalf of the plaintiff, and Mr. Gibson called on behalf of the defendant. Mr. Wilkins' evidence is :—'This machine comprises an hydraulic press consisting

of a cylinder and a ram, with a ram cap and the head of the press held to the base by these four uprights. On the ram cap is mounted a mould box which is steam heated. On the head of the press are mounted two cores of the same shape as the inside of the battery container to be formed. The method of heating this mould case is by means of a hollow piston which works in this cylinder and which distributes the steam into that mould case. Steam is also admitted to the core by means of a pipe, not shown, into the head of the press. Fitting into the mould case are separable liners assembled together in this piece here. The separable liners comprise a bottom plate on to which is fitted a spindle and which is fitted also with grooves round its edges. Into these grooves fit side plates or liners which are tongued so as to fit into the groove and be held on to the bottom plate. These side plates, of which there are four, when assembled form a box, which has the same shape as the outside of the battery container to be moulded. The object of the grooving in the liners is to enable them to be easily picked off or taken to pieces. The grooving is to hold the side liner to the bottom plate. The spindle on the bottom plate of the liners projects through the ram cap, through a hole in the ram cap. Underneath that spindle and passing below the ram cap are slides which will slide in and out of the ram cap. The object of each slide is to arrest the downward motion of the bottom liner by stopping the pin on the bottom plate from falling further. The slide works in that groove and when the ram is in the top position that slide is pushed in so that when it drops again the pin is arrested and is pushed up through the bottom of the mould case. The operation of the press is as follows :—In its position at rest the ram and the cap and the mould case are a sufficient distance from the bottom of the core to enable the liners to be assembled in that position. As these liners are collapsible the one or more sides of each set of liners is taken away, and uncured rubber is placed in that box. The liners are then re-assembled round the uncured rubber. Hydraulic pressure is then admitted to the cylinder of the ram, which raises the ram carrying with it the cylinder of the mould case over the assembled liners. These liners have a slight taper so that when the mould case rises over the liners it wedges the liners into the mould case. As the upward motion is continued

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under hydraulic pressure, the uncured rubber, which has already been placed in a box, meets the bottom of the core. The core is generally divided into sections so as to make the compartments in the battery container. Under the continued pressure of the ram the uncured rubber causes the liners to fit more tightly into that mould, so that as it ascends to its full stroke the liners are very firmly held in the mould case. Further pressure being exerted on the ram, the core, which is heated by steam, causes the uncured rubber to press out and flow into the space between the core and the liners. At the top of its stroke the top of the liners hits against the projection on the head of the press, thus making the whole thing completely tight. Pressure is maintained on that press for a sufficient period to allow the rubber to become vulcanized. When it is judged the rubber is vulcanized, pressure is released from the hydraulic ram, and the ram and ram cap, mould case, liners and battery box begin to descend. On the top of this press is a steam cylinder having working in it a piston which projects down on to the top of the mould case and on which there is a pressure of steam maintained through the whole operation. As the pressure of steam is released from the ram the weight of this ram and the ram cap and mould case, together with the pressure which is exerted on this steam cylinder, causes the core to break from the inside of the battery box which has been vulcanized. Further descent of the ram is allowed to take place and in the meantime the slides are pressed in towards the centre. As the ram falls further the pins on the bottom plates of the sets of liners hit on to the slides and their motion is arrested. The weight then of the ram and the ram cap and the mould case, together with the steam pressure on this cylinder, causes a break between the liners and the mould case. The ram then continues to fall, and ram cap and mould case, and finally releases the whole of the assembled liners free of the top of the mould case. The liners are then picked off from the sides of the finished container and the container is taken out and the whole cycle of operations begun again.'

The defendant's press very closely resembles that of the plaintiff but differs from it in certain details. The main differences between them are that in the plaintiff's press the initial movement towards bringing pressure to bear in the act of moulding is upwards, in the

defendant's press it is downwards; in the plaintiff's press there is a steam piston which besides supplying heat supplements the action of gravity and assists in separating the liners from the mould, in the defendant's press there is no steam piston and the separation of the liners from the mould is assisted by manual action, i.e., by the use of a lever or crow-bar. Further, the defendant's press is equipped with dash pots, the object of which is to steady the descent of the ram.

The most convenient order in which to discuss the several questions raised will be :—

(*a*) What is the proper interpretation of the claims made by the plaintiff ?

(*b*) Are these claims infringed by the defendant's press, assuming the patent to be valid ?

(*c*) Is the plaintiff's patent valid ?

Mr. *Williams* did not contend that there was any infringement of claims 10, 12 or 13. He relied mainly on what he urged was the correct construction of claim 1, and on the relation of claim 1 to the remaining claims, although he did not abandon the argument that those claims which referred to particular means were infringed by mechanical equivalents. Mr. *Williams* maintained that claim 1 should be given a very general interpretation, and that a claim in these general terms was valid and that the claim made by Mr. Allen was infringed.

In another branch of this case he urged in support of the Allen patent that a claim in general terms was of the type that a majority of the justices of the High Court state that they would probably have been prepared to uphold had it been advanced in *Shave* v. *H. V. McKay Massey Harris Pty. Ltd.* (1).

On behalf of the defendant it was argued that the plaintiff was within the decision in *Shave's Case* (2), that in claim 1 and similar claims he had tied himself to a named piece of machinery and that as the defendant had not used this piece of machinery there was no infringement.

The critical words in claim 1 are 'power-actuated mechanism forcing relative movement between the mould lining and the core ;

(1) (1935) 52 C.L.R. 701, at pp. 706-708. (2) (1935) 52 C.L.R. 701.

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means associated therewith disengaging the lining from the mould.'

In my opinion the words 'associated therewith' refer to the power-actuated mechanism.

The argument that the following words refer to the steam piston may be supported by a reference to a piston in the specification, as well as by the omission of any reference to the action of gravity from the specification, but on the whole I have come to the conclusion that in claim 1 the inventor has claimed a machine in general terms and has not tied himself to any means of separating the lining from the mould, provided that the means is associated with the power-actuated mechanism. This interpretation is, I think, supported by the language of claim 3, in which it is stipulated that the means for disengaging the liner from the mould, besides being associated with the power-actuated mechanism, is itself power actuated. Claim 1, assuming the Allen patent to be valid on this interpretation, is, I think, infringed by the Dunlop press. Claims 3 and 7 are, in my opinion, not infringed, for I do not think that the means adopted in the Dunlop press for separating the liners from the mould are the mechanical equivalent of those used in the Allen press. Where the means of disengagement are defined in the claims, there the inventor has tied himself down, as the inventor did in *Shave's Case* (1), and he cannot claim that the use of a lever or crow-bar is the mechanical equivalent of a steam piston.

The difficulty of construction of claim 1 does not I think render the patent void for ambiguity. The test of ambiguity, such as would render a patent void, is described in the judgment of *Dixon* and *McTiernan* JJ. in *Kauzal* v. *Lee* (2) and by *Greene* L.J. in *R. W. Crabtree & Sons Ltd.* v. *R. Hoe & Co. Ltd.* (3). In the present case a reading of the specification suggests doubts whether a wide meaning should be given to claim 1, but in my opinion a wide meaning should be given and there is no ambiguity.

Then is the patent as claimed a valid patent? I do not think it is necessary for me to investigate the whole of the evidence and of the arguments on this issue. It was claimed that the Allen patent had been anticipated by paper specifications, that it lacked novelty,

(1) (1935) 52 C.L.R. 701.
(2) (1936) 58 C.L.R. 670.
(3) (1936) 2 All E.R. 1639.

having regard to the state of knowledge of those engaged in the art at the date of the patent, and that it lacked subject matter. The type of information which constitutes common general knowledge has been discussed in a number of cases, of which the latest are *British Acoustic Films Ltd.* v. *Nettlefold Productions* (1), *British Celanese Ltd.* v. *Courtaulds Ltd.* (2) and *Paper Sacks Pty. Ltd.* v. *Cowper* (3).

I have not been referred to any case, however, which helped me to determine the range of objects which may be taken into account in ascertaining what was common knowledge at the date of the Allen patent. Mr. *Williams* contended that the knowledge was that of persons only who were engaged in moulding plastic substances, and did not include foundry and pottery work. In my opinion, however, in considering what was common knowledge at the date of the patent in order to determine whether the Allen patent embodies an invention, I must consider the art of moulding as a whole and must ask myself whether any step forward was taken from the basis of the common knowledge of that art, and if so what was the nature of that step. I do not think that a man skilled in moulding plastic articles would be ignorant of the discoveries made in foundry and brickwork.

The instances of prior publication given by the defendant were five. Of these reliance was placed chiefly on what were referred to as the Kelly Patent, the Ten Brink Patent and the figure and description to be found in the book by *Pearson* in the Sydney Public Library already referred to. I do not think that any of the paper anticipations contained in the specifications or abridged specifications would have given an inventor all the information he required, though each made a contribution to common knowledge. That one of the alleged anticipations which contains most of the features of the Allen patent was the Kelly press, a machine for making solid rubber heels. This device, though it contained almost all the features of the Allen press, did not contain the means of ejecting a finished article which is found in the Allen press and on which Mr. *Williams* relied. The Ten Brink Patent refers to moulding or pressing

(1) (1935) 53 R.P.C. 221, at p. 251. (2) (1933) 50 R.P.C. 63, at pp. 90,103.
(3) (1935) 53 R.P.C. 31, at pp. 53, 54.

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machines, and particularly to machines designed for forming battery jars of hard rubber. Its general object is 'to provide a machine whereby the handwork necessary to use in the formation of battery jars will be largely eliminated, and whereby a more perfect battery jar will be turned out than is at present possible, this battery jar being seamless, having practically no irregularities of contour or formation and having walls of a uniform thickness throughout their entire extent.'

The inventor of this patent did not attempt to provide a machine in which moulding and vulcanizing could be carried out in the one operation. Mr. Gibson said that the patent contained the mechanical ideas of the Allen patent, though the machine itself was 'rotten,' but I did not understand Mr. Gibson, or any other witness, to say that the Ten Brink specification would have given a mechanic all that he needed to know in order to make the Allen machine.

The passage quoted from *Pearson* on *Rubber Machinery* showed a device for making water plugs and other solid objects for baths, basins and sinks. There is a mould box into which rubber is inserted by hand. This rubber is then subjected to vulcanization within the mould, and after vulcanization the several parts of the mould box are removed manually from the finished article until the finished article is left to be removed itself. This article differs from the Allen press in the absence of a core, in the absence of an impress on the liner, in the absence of a ring and in the method of removal of the article, differences which, according to Mr. Gibson, follow from the complexity of the operation involved in moulding an article having internal divisions and a pattern on the moulded article.

The first instance of prior user was a mould for use in moulding solid tyres, in use at the factory of the defendant prior to 1924. It contained separable liners and an outside frame similar in principle to the liners and box in the subject patent.

There are no doubt important differences between the operation of moulding and vulcanizing tyres, as described by the expert witnesses, and that of making battery boxes by the Allen press. In moulding tyres there is no telescopic action between the core and the mould and the rubber is put in and taken out by hand,

but, in my opinion, the operation of moulding tyres makes an important contribution to common knowledge.

In my opinion there has been no anticipation of the Allen patent either by paper specifications or by prior user.

The objection that the Allen invention was within prior general knowledge, and that the patent lacks subject matter, depends, however, on somewhat different considerations. On this second objection I have not to consider whether a mechanic would find all the detail he required in the prior specifications, or whether he could find a complete guide in articles in use at the date of the patent. What I have to consider is, in the first place, whether the integers used in the Allen patent were part of common general knowledge in the year 1924, and whether the functions which they perform in the Allen patent were also known in that year.

I have already held that in considering what was common knowledge I am entitled to look beyond the moulding of rubber and rubber compounds to the moulding of solid objects, a number of instances of which were given by the defendant in its further objections. I need not examine these instances in detail because I think that whether I give a narrow or a wide interpretation to the art, it is clear that each integer used in the Allen patent was known prior to 1924 and that in the Allen machine it performs a function which it was known to perform prior to that date.

Mr. *Williams* urged that the use of liners as a sheath so that they prevent the distortion of the moulded article was new in 1924, but I think his claim is answered by three comments : (*a*) that on the evidence in this case it is clear that the use of separable liners was old, (*b*) that the practice of ejecting the liners with the finished article is also old, and (*c*) that the use of liners to maintain stability or to protect the finished article is merely a consequence of the liners being ejected with the finished article.

Mr. *Williams* made two other suggestions in support of his contention that one or more of the integers in the Allen patent was performing a new function. He claimed that the use of the downward movement of the ram to separate the battery box from the core and then from the mould was new at the relevant date, but on the evidence of Mr. Gibson it was clear that the use of the upward and

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downward motions of the press was not new, and the use of the downward moving press, with or without the assistance of steam, to force the liner and the mould apart was not new and was disclosed in the patents of Kelly and Ten Brink.

Mr. *Williams* also urged that the idea of using telescopic action of core and mould to cause the battery box or any other hollow rubber article to take its complete shape under pressure was new in 1924. But the use of telescopic action of core and mould appears to have been a matter of common knowledge at that date and to have been used in tile moulding and brick making. Then was the combination as claimed new and did the combination of old integers disclose a step taken beyond common knowledge ?

Two expert witnesses denied any invention to the complete machine. Mr. Gibson said that the idea of making a battery box out of a vulcanized rubber compound was a worth-while idea, but that once the idea was formed it would be an easy matter to construct a machine to carry it into effect. Professor Sutherland, Associate Professor of Mechanical Engineering in the University of Sydney, was asked shortly before the hearing of the suit to design an apparatus or machine to mould boxes having undercuts and he arrived at a machine which very closely resembled the defendant's press.

In dealing with this evidence I have to bear in mind the warning of Lord *Moulton* in *British Westinghouse Electric and Manufacturing Co. Ltd.* v. *Braulik* (1) and similar statements collected by Lord *Hanworth* in *British Celanese Ltd.* v. *Courtaulds Ltd.* (2) against judging the validity of a patent by knowledge acquired since it was granted.

Professor Sutherland's evidence in particular is open to the criticism that it must have been difficult for him in 1936 to dissociate his mind from knowledge acquired since 1924. But Professor Sutherland is corroborated by Mr. Gibson and, to a very large extent, by Mr. Wilkins, and I think that I should accept his evidence.

Further, there is not in this case any evidence that before the plaintiff's machine was invented other persons had been endeavouring to solve the problem of a machine in which hollow rubber articles would be moulded and vulcanized in one operation (See *Longbottom*

(1) (1910) 27 R.P.C. 209.

(2) (1933) 50 R.P.C., at p. 269.

v. *Shaw* (1)). It may be, as was argued by Mr. *Williams*, that the Allen machine has been adopted to the extent that one might expect that a machine for moulding battery boxes would be adopted, but I do not think that this evidence of commercial success is sufficient for me to hold that there was a genuine inventive step which marks the difference between invention and the use of common general knowledge. Further, I hold that the Allen patent fails to satisfy the test propounded by Lord *Tomlin* in *British Celanese Ltd.* v. *Courtaulds Ltd.* (2): 'It is accepted as sound law that a mere placing side by side of old integers so that each performs its own proper function independently of any of the others is not a patentable combination, but that where the old integers when placed together have some working inter-relation producing a new or improved result then there is patentable subject matter in the idea of the working interrelation brought about by the collocation of the integers.'

I hold, therefore, that the Allen patent as claimed in claim 1 and the claims which follow claim 1 is invalid for lack of subject matter, and I dismiss this suit with costs."

From that decision the plaintiff appealed to the High Court.

Dudley Williams K.C. (with him *Thomas*), for the appellant. The invention discovered was that the downward movement of the ram could be used to effect the double operation of separating the battery box from the core and also separating the liners from the solid mould case with the battery box inside. In this patent it was for the first time disclosed that the downward movement of the ram could be used with adequate mechanical means, such as any mechanic could devise once the idea had been disclosed to him, to effect the double separation. After vulcanization has taken place the method adopted in the respondent's machine is the same in principle and function as the method adopted in the appellant's machine. The words "means associated therewith" in claim 1 refer to the whole of the preceding integer. At the date of the patent the appellant's machine was a big advance on the then knowledge of the art in Australia. The claim is adequate and, although

(1) (1891) 8 R.P.C. 333, at p. 337. (2) (1935) 52 R.P.C. 171, at p. 193.

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broad, is not stated too broadly nor too narrowly (*Shave* v. *H. V. McKay Massey Harris Pty. Ltd.* (1)). All the integers stated in the claim are contained in the respondent's machine. Where, as in claim 1, a claim is in broad terms it should not be cut down or limited by a reference to the body of the specification (*Ingersoll Sergeant Drill Co.* v. *Consolidated Pneumatic Tool Co. Ltd.* (2)). Claim 1 should be read in accordance with the principle of construction laid down in *Lightning Fastener Co. Ltd.* v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.* (3), that is, in the light of the specification. If, however, the claim should be construed more narrowly, and the words " means associated therewith disengaging the lining from the mould " refer to the means that are described in the body of the specification, then the appellant's claims are still infringed under the doctrine of mechanical equivalent (*Walker* v. *Alemite Corporation* (4) ; *Rheostatic Co. Ltd.* v. *Robert McLaren & Co. Ltd.* (5) ; *R.C.A. Photophone Ltd.* v. *Gaumont-British Picture Corporation Ltd. and British Acoustic Films Ltd.* (6)). The respondent's machine is merely colourably different and, as a whole, is intended to produce, by the same means, the same result as the appellant's machine. The art should be limited to the art of rubber moulding, and should not be extended to the art of moulding generally. Although prior to the invention containers had been imported into Australia, nothing was known here as to the machine in which those containers were made. In view of that absence of knowledge it cannot be said that the appellant's invention was not a decided advance, or lacked subject matter. Four inventive steps are shown in the appellant's patent. The judge of first instance was in error in holding that this invention came within the first part of the judgment of Lord *Tomlin* in *British Celanese Ltd.* v. *Courtaulds Ltd.* (7). He should have held that it came within the second part, that is, assuming that it consisted entirely of old integers. What is required for subject matter in the case of a combination is shown in *Albert Wood Amcolite* v. *Gowshall Ltd.* (8). From the principles there laid

(1) (1935) 52 C.L.R. 701.
(2) (1907) 25 R.P.C. 61, at pp. 82, 83.
(3) (1934) 51 R.P.C. 349, at p. 367.
(4) (1933) 49 C.L.R. 643, at p. 657.
(5) (1935) 53 R.P.C. 109, at pp. 118, 119.
(6) (1935) 53 R.P.C. 167, at pp. 189, 197.
(7) (1935) 52 R.P.C., at p. 193.
(8) (1936) 54 R.P.C. 37, at p. 39.

down it is clear that the combination in this case, even if it does consist entirely of old integers, if those integers are taken separately, was by no means obvious. There is no evidence of anticipation of the principal features of the invention. The Ten Brink and Kelly specifications and the statement in *Pearson's* book are only paper anticipations and there is no suggestion in the evidence that they became part of common knowledge. The test as to anticipation is as laid down in *Pope Appliance Corporation* v. *Spanish River Pulp and Paper Mills Ltd.*, (1), and referred to in the *Rheostatic Case* (2). The judge of first instance was in error in holding that the three paper anticipations relied upon became part of common knowledge. In order to determine whether in view of the common knowledge in the art the inventor's claim in this patent was obvious or not, the court should look only at the art of moulding plastic substances. " Common general knowledge " was discussed in *British Acoustic Films Ltd.* v. *Nettlefold Productions* (3) ; see also *Terrell* on *Patents*, 8th ed. (1934), p. 401. Even if regard be had to the whole of the art of moulding, on the evidence the combination claimed in the patent is not obvious in view of the common knowledge in those arts. A scintilla of invention is sufficient to give a patent subject matter (*Manbre & Garton Ltd.* v. *Albion Sugar Co. Ltd.* (4)). Expert witnesses should not be asked as to whether a thing is obvious or not ; such evidence is inadmissible. The limits of permissible evidence are laid down in *British Celanese Ltd.* v. *Courtaulds Ltd.* (5). Claim 1 claims the integers which constitute the invention in broad terms ; it claims a number of integers which work together and will produce the result the inventor aimed at of moulding and vulcanizing the battery box. Three of the integers, namely, the relative movement, the means associated therewith, and the vulcanization, do not appear in the Ten Brink specification.

Menzies K.C. (Attorney-General for the Commonwealth), *Bonney* K.C. and *Gain*, for the respondent.

Bonney K.C. If the integers in claim 1 are to be limited in any way they can only be limited in the way indicated in the body of

(1) (1929) A.C. 269 ; (1928) 46 R.P.C. 231.
(2) (1935) 53 R.P.C., at p. 115.
(3) (1935) 53 R.P.C. 221, at p. 250.
(4) (1936) 53 R.P.C. 281.
(5) (1935) 52 R.P.C., at p. 196.

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the specification. So limited the claim would be void for ambiguity (*Ingersoll Sergeant Drill Co.* v. *Consolidated Pneumatic Tool Co. Ltd.* (1)). If claim 1 comprises integers not limited in any way then it is void for want of subject matter. The other claims also are bad. Claim 1 is not infringed unless it is given the broadest interpretation possible. The doctrine of mechanical equivalent cannot be called in aid because (*a*) in patent law an equivalent is not anything which gives the same result but anything in alternative which does the same thing in the same way, and (*b*) the doctrine of equivalence only applies to unessential factors and has no application to factors which form part of the essence of the claim and that depend on the claim itself. Although it is true that reference may be made to the body of the specification as a dictionary (*Lightning Fastener Co. Ltd.* v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.* (2)), for the meaning of a term in a claim which is technical, or of a term which is peculiar to that specification, if a claim, absolutely general on the face of it, can be interpreted only by importing modifications or limitations from the body of the specification, that claim must be void for ambiguity (*Ingersoll Sergeant Drill Co.* v. *Consolidated Pneumatic Tool Co. Ltd.* (3)). The trial judge correctly applied the principle laid down in *British Celanese Ltd.* v. *Courtaulds Ltd.* (4). As to subject matter, there is not any suggestion in the specification that the advantage obtained and the inventive act employed was the separation brought about by the downward movement of the ram cap. To be patentable a combination must be new ; an invention based on an old combination is bad (*Cannington* v. *Nuttall* (5)). There must be inventive ingenuity. The physical integers in claim 1 are old, separately and as a combination. There is no inventiveness even in applying for the first time power machinery to a new apparatus. Claim 1 is void because of the vagueness and ambiguity of the words "power" and "associated therewith." No assistance on this point is obtainable from the body of the specification. The principles proper to be applied in this case are as stated in *Mullard Radio*

(1) (1907) 25 R.P.C. 61.
(2) (1934) 51 R.P.C. 349.
(3) (1907) 25 R.P.C., at pp. 82, 83.
(4) (1935) 52 R.P.C., at p. 193.
(5) (1871) L.R. 5 H.L. 205, at p. 216.

Valve Co. Ltd. v. *Philco Radio and Television Corporation of Great Britain Ltd.* (1). There is a distinction between that which is a desideratum and a principle. The appreciation of desideratum may give subject matter to a particular claim but not to a general claim, except where it is supported by the discovery of a new and valuable principle (*British United Shoe Machinery Co. Ltd.* v. *Simon Collier Ltd.* (2); *British United Shoe Machinery Co. Ltd.* v. *Standard Rotary Machinery Co. Ltd.* (3)). The only new principle that can be discovered here is explained but not claimed. No mechanical principle is involved in " power-actuated mechanism " and " means associated therewith disengaging the lining from the mould," two of the factors in claim 1. The application of vulcanizing heat is well known. The ambit of an invention depends upon the means of how to do, or use, it.

[DIXON J. referred to *Arnold* v. *Bradbury* (4).]

The claim in that case is not similar to the claim in this case. The validity of a convention patent in no way depends upon the validity of the original patent. On the issue of subject matter the test should not be confined to the state of the rubber art only, but should extend to the state of the moulding art generally. The evidence shows that the various physical features in claim 1 were well known and that the claim does not involve any inventiveness. It also shows that it is part of the fundamental equipment of an engineer or a mechanic to do these things, and that to those persons the task is merely one of plain mechanical designing. Claims 2, 5, 6 and 7 add nothing to what is claimed in claim 1, and are void for the same reasons. Claim 8 is limited to a particular form of power-actuated machinery, namely, a ram, which was always the form used; therefore that claim was not infringed. Claim 9 is void on all the grounds urged against claim 1. The appellant's machine contains features which are not present in the respondent's machine and vice versa; therefore claims 1, 2, 5, 6, 7 and 9 are not infringed.

Menzies K.C. The evidence establishes the existence and sale in Australia, before the relevant date, of battery boxes of various

(1) (1936) 53 R.P.C. 323, at pp. 346-348, 353.
(2) (1908) 26 R.P.C. 21.
(3) (1917) 35 R.P.C. 33, at p. 46.
(4) (1871) 6 Ch. App. 706, at p. 713.

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makes identical for all purposes with battery boxes made under the appellant's patent. Every particular integer, e.g., telescopic action to mould battery boxes, in the appellant's machine was well known in the art. Any competent person armed with the common general knowledge of the art presented with the Ten Brink or Kelly specifications would then be put in such a position that no inventive step would therein be required to evolve the appellant's machine. The question whether a claimed feature was an inventive step and therefore constituted subject matter, or, on the contrary, was something obvious to a competent person, and, also, the question of paper anticipations, were dealt with in *Paper Sacks Pty. Ltd.* v. *Cowper* (1). The only matters in issue in *Pope Appliance Corporation* v. *Spanish River Pulp and Paper Mills* (2) were as to anticipations. Generally speaking, all the elements contained in the appellant's patent appear in the Ten Brink and Kelly specifications. Such elements as may not so appear do not involve ingenuity. The Ten Brink machine showed elements in combination and in use, and thus prevents the combination of the appellant's machine from being invented. A combination of a similar nature is also shown in the Kelly specification. The law as to the bearing of these specifications severally on the question of subject matter is shown in *Société Anonyme Servo-Frein Dewandre* v. *Citroen Cars Ltd.* (3), *Clorius* v. *Tonner* (4), and *Gillette Safety Razor Co.* v. *Anglo-American Trading Co. Ltd.* (5). The doctrine of mechanical equivalent is a doctrine which applies only to incidental matters ; it does not apply to those matters which the claim makes essential (*R.C.A. Photophone Ltd.* v. *Gaumont-British Picture Corporation Ltd.* (6)). If claim 1 is to be read at large, without reference to the specification, for the purpose of determining what is the point of the power-actuating mechanism, then it goes beyond the disclosure in the specification and, therefore, is invalid. Relative movement disengaging is a movement which covers the whole article. The expression " means associated therewith disengaging the lining " must refer to power-actuated mechanism. The specification supports the view that the " means

(1) (1935) 53 R.P.C. 31.
(2) (1929) A.C. 269.
(3) (1929) 47 R.P.C. 221, at p. 242.
(4) (1922) 39 R.P.C. 242, at pp. 250, 251.
(5) (1913) 30 R.P.C. 465, at p. 481.
(6) (1935) 53 R.P.C., at p. 197.

associated therewith " are means associated with relative movement which is in turn forced by power-actuated mechanism. Claims 7 and 9 are not infringed by the respondent's machine unless the doctrine of mechanical equivalent is applied to the one factor stated as an essential ingredient in those claims. On any interpretation of the appellant's specification his alleged invention is bad for want of subject matter. The respondent relies upon the common general knowledge—which has been abundantly proved in this case—not only of the integers as such but of the functions of those integers in association with each other. All that has been done is to bring about a simple piece of engineering design based on knowledge all of which was available generally. If claim 1 is interpreted contrary to the foregoing submission as being a claim for the principle of bringing these various integers into association by using some mechanical means, the submission is that that is not a statement or claim of a principle but is a mere statement of a general desire to have a machine to bring all these factors together. Thus, in any view of the appellant's specification there is a complete failure for want of subject matter. The ultimate distance to which the court can go in upholding a challenged patent was shown in the decision of this court in *Kauzal* v. *Lee* (1).

Dudley Williams K.C., in reply. The Ten Brink and Kelly patents never became part of common general knowledge and are merely paper anticipations. The test of a paper anticipation is: What does it convey to the instructed mind? (*British Thomson-Houston Co. Ltd.* v. *Metropolitan-Vickers Electrical Co. Ltd.* (2); *Rheostatic Case* (3)). Common knowledge and analogous user were dealt with in *Paper Sacks Pty. Ltd.* v. *Cowper* (4). The law on invention and mechanical equivalent was discussed in the *Rheostatic Case* (5). Even assuming, but not admitting, that the integers in the claim were all well-known principles, the skill and ingenuity of the inventor are shown in the application of those principles (*Cannington* v. *Nuttall* (6); *British Acoustic Films Ltd.* v. *Nettlefold Productions* (7)). The

(1) (1936) 58 C.L.R. 670.
(2) (1927) 45 R.P.C. 1.
(3) (1935) 53 R.P.C., at p. 115.
(4) (1936) 53 R.P.C., at p. 53.
(5) (1935) 53 R.P.C. 109.
(6) (1871) L.R. 5 H.L., at p. 216.
(7) (1936) 53 R.P.C., at p. 251.

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test as to combination was laid down in *Albert Wood and Amcolite* v. *Gowshall Ltd.* (1) and *Benton & Stone Ltd.* v. *Thomas Denston & Son* (2). The four inventive points in the appellant's machine are (*a*) the combination of the integers as a whole to achieve the desired result; (*b*) the idea of telescoping the core and the mould under pressure so as to make the material flow to take the shape of the moulded article; (*c*) using the downward pull of the machine to cause a double separation to take place; and (*d*) complete separable liner having the unusual function of acting as a sheath, or core, or protection to the battery box during the taking of the liners from the mould. Subject matter exists in all those four points and those are all new ideas. As regards the generality of claims, see *No-Fume Ltd.* v. *Frank Pitchford & Co. Ltd.* (3); see also *Shave* v. *H. V. McKay Massey Harris Pty. Ltd.* (4). The expression "means associated therewith" refers to the preceding integer. A benevolent construction should be given to the claim (*Submarine Signal Co.* v. *Henry Hughes & Son Ltd.* (5)). Although claims 3, 4, 6 and 7 may not be infringed they are material on the question of construction. Claims 8 and 9 are infringed under the doctrine of mechanical equivalent.

Cur. adv. vult.

Aug. 20.

The following written judgments were delivered:—

LATHAM C.J. This is an appeal from a judgment of *Nicholas* J. for the defendant in an action for infringement of the plaintiff's letters patent. The learned judge held that the invention was novel, that the patent was not void for ambiguity, that on the true construction of the letters patent the defendant had infringed, but that the patent was void for want of subject matter.

The patent was granted to the plaintiff on a convention application under sec. 121 of the *Patents Act* 1903-1935 as from 18th June 1924, the date of the first foreign application, namely, an application in the United States of America. The inventor was one Allen and the machine made in accordance with the letters patent may be conveniently referred to as the Allen machine.

(1) (1936) 54 R.P.C. 37.
(2) (1925) 42 R.P.C. 284, at p. 297.
(3) (1935) 52 R.P.C. 231, at pp. 240, 243.
(4) (1935) 52 C.L.R. 701.
(5) (1931) 49 R.P.C. 149, at p. 174.

The patent relates to the moulding of hollow rubber articles such as battery boxes. A machine made in accordance with the method disclosed in the specification begins with shapeless pieces of rubber and ends by turning out a moulded seamless vulcanized battery box. Before the introduction of the plaintiff's machine, such boxes were made by manually wrapping sheets of rubber round a former and vulcanizing under the necessary pressure, the rubber being held in position by plates and wrapped in a strained cloth. Battery boxes were also made in steel moulds, without the use of a wrapping cloth, the sides of the mould being screwed up to give the necessary pressure. In both processes sheet rubber was cut approximately to the size of the sides and bottom of the box to be made.

In a machine made according to the plaintiff's specifications all these operations are done mechanically. A mould case is mounted on a ram. Inside the mould case steel plates (liners) are assembled on the sides and at the bottom. A suitable quantity of uncured rubber is placed within the receptacle formed by the assembled liners. At the top of the machine is a core or cores, according to the number of boxes to be made. When the boxes are made with compartments the cores are split so as to allow the rubber to be forced into the desired shape and position. The mould case and the core are steam heated so that the rubber is softened. When power is applied, the ram, carrying the mould case, with the liners and the rubber therein, is pressed hard up against the core—which is then inside the receptacle formed by the liners. The rubber is pressed into the vacant spaces between the core and liners so that it assumes the desired shape of a battery box, with compartments if the core is a split core. Everything remains in this position, under pressure and subject to heat, until vulcanization is complete. The power is then released and the ram, with the mould case and liners and box, descends. It is assisted in its descent by a steam piston, a rod attached to which helps to push the above-mentioned assembly downwards. The core, a non-movable object, remains where it is, and this downward movement of the ram pulls the box off the core, the box being still contained in the liners, which are still contained in the mould case. The liner at the bottom has a rod attached to it extending downwards. As the ram descends, the bottom end of

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this rod comes down upon a slide which is pushed in for the purpose of intercepting it. The result is that the bottom liner is held, while the ram continues to descend. The lower edges of the side liners are so placed upon the bottom liner that the whole assembly of liners, containing the vulcanized box, still soft and hot, is held, while the ram with the mould case falls away from it. The liners can then be picked off without running the risk of distorting the box. The result is a completely machine-made seamless moulded vulcanized battery box.

The operation is described in general terms at the beginning of the specification in the following words :—" This invention is particularly designed to mould hollow rubber articles, such for example as storage battery boxes. In moulding such articles the apparatus should be arranged for conveniently reloading the mould and conveniently discharging the same without distortion of the article. In the present invention this is accomplished by forming the mould with a detachable liner, placing the material to form the article in bulk in the mould and forcing it to the shape of the article by the telescoping action of the core of the mould within the mould, the mould being heated during this operation so that the rubber more readily flows. After the mould is finally closed by the press it is held in this closed position during vulcanization and then the core is forcibly stripped by the apparatus from the mould and the separable liners of the mould itself are stripped from the mould thus making the discharge of the finished box very rapid and very efficient."

The specification continues : " The invention is illustrated in the accompanying drawings as follows :— " [Then follows a detailed description of a particular machine by reference to drawings]. Claim No. 1, which is the most important, is in the following terms:

" In a rubber-moulding apparatus, the combination of a mould ; a separable lining ; a mould core ; power-actuated mechanism forcing relative movement between the mould lining and the core ; means associated therewith disengaging the lining from the mould ; and means subjecting the mould to vulcanizing heat."

It is necessary to construe letters patent before approaching any question of infringement.

In the first place the claim is for a combination, not for separate elements. Rubber moulding was a known art. Liners were well known for moulding articles in clay and rubber where some desired pattern or indentation made it impossible simply to pull or push a moulded article out of a mould. Power-actuated mechanism, of course, is known in many forms. Cores have always been used in moulding when a hollow article is required. Vulcanizing was a well-known operation. The claim is not a claim for any of the elements mentioned in it, but for the use of all these elements in combination in a rubber-moulding operation.

It has been argued that claim 1 is ambiguous because the meaning of the phrase " means associated therewith disengaging the lining from the mould " is not clear. I agree with the learned trial judge that the phrase refers to means associated with the before-mentioned power-actuated mechanism. The " means " may be power-actuated or not, so long as it is used in conjunction with—associated with—the power-actuated mechanism—so long as it performs an operation which is not completely outside the operation of that mechanism, as would be the case if it came into play only before or after the power-actuated mechanism had done its work.

Claim 3 is as follows: " The invention according to claim 1 in which the means for disengaging the lining from the mould is power-actuated and associated with the power-actuated mechanism for forcing the mould and core together." The words of this claim show that the associated means referred to in claim 1 need not necessarily be power-actuated.

Claim 1 is general in its terms, but it is not uncertain. The meaning of the claim as a whole is clear, and the meaning of each part of it is readily ascertainable by reading the specification in the light of ordinary knowledge of the art. The claim is more precise than that held not too large upon its face in *Arnold* v. *Bradbury* (1). In that case a patentee claimed to do by machinery what had never before been done by machinery and he described the machinery by which he did it. It was held that, apart from extrinsic evidence, it could not be said that such a claim was so vague as to be unsupportable. A very similar claim was upheld as valid in

(1) (1871) 6 Ch. App. 706.

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Lightning Fastener Co. Ltd. v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.* (1). The claim was: "A machine for making fasteners having means for feeding a tape step by step, means for feeding fastener members into position to be compressed on to the said tape, and means for compressing the fastener members thereon." A particular form of such a machine was described in the specification as a preferred form. The objection raised to this claim was that which is raised in the present case. It is thus put in the judgment of Lord *Tomlin*:—The respondents "say that claim 1 is in the widest possible terms and covers every sort of machine which could be used to make fastener stringers and which had the three integers mentioned in the claim, the novelty of each of which integers they deny. They point out that the machine is not in terms particularly described nor are the means to be employed in relation to the three integers specified. Upon this footing they say that the claim is so wide as to be ambiguous or alternatively that it can only mean a claim for doing by one machine a number of well known operations which in the past have been done separately, and that there is no inventive quality in the idea of putting into one machine a series of operations without at any rate indicating with some measure of definitiveness how it is to be done, for it is, they say, obvious that, if it can be done, it would be desirable to do it." His Lordship answers the objection by saying that "the body of the specification cannot be ignored, and the claim in question, read as it ought to be read in the light of what is present in the body of the specification, is in their Lordships' opinion a claim to a machine of the type indicated by the description in the specification for making fastener stringers with means for producing the three results mentioned in the claim, that is to say, it is a claim for a general mechanical idea a preferred form of which is described in the body of the specification" (2). These words, in my opinion, are applicable to the present case. The only distinction that I can see is that in the present case the patentee has not in precise terms said in the specification that his invention can be carried out otherwise than as therein specifically shown. In the present case, however, the invention is said to be only "illustrated" by reference to a

(1) (1934) 51 R.P.C. 349.

(2) (1934) 51 R.P.C., at p. 367.

specific machine and the claim is (as in the *Lightning Fastener Case* (1)) for the application of a general method of doing mechanically by a combination of known elements what had not been done mechanically before. The claim is not, in my opinion, invalid upon its face.

I agree with the learned judge that the alleged invention was novel. The moulding and vulcanizing of rubber articles was a known art—which is substantially all that the citation from *Pearson's* book shows. Kelly showed a method of making solid boot heels of rubber. Nothing is said about vulcanizing them, but the witnesses thought that some holes shown in a drawing might indicate vulcanization because they indicated steam heating—which, however, would be necessary for moulding apart from vulcanization. No liners are used for any purpose. No difficulty arises, as in the case of hollow objects, from the risk of distortion. It is, in my opinion, impossible to say that Kelly comes up to the test of Viscount *Dunedin* in *Pope Appliance Corporation* v. *Spanish River Pulp and Paper Mills Ltd.* (2) : " Would a man who was grappling with the problem solved by the patent attacked, and having no knowledge of that patent, if he had had the alleged anticipation in his hand, have said, ' That gives me what I wish ' ? "

Similar observations apply to Ten Brink, which shows a method of pressing rubber, surrounded by liners, into shape round a mandrel. The mandrel and the moulded box round it are then taken away to be vulcanized. The liners are not used to take pressure bringing about the extraction of the box. There was much dispute in evidence as to the real significance of Ten Brink's specification and drawings, particularly as to the means of detaching or undoing the mould box after the moulding had been completed. It is, I think, impossible to say that Ten Brink " gives the same knowledge as the specification of the invention itself " (*British Thomson-Houston Co. Ltd.* v. *Metropolitan-Vickers Electrical Co. Ltd.* (3)).

The most difficult question in this case is that of subject matter. There is no doubt that the alleged invention is novel and that it successfully achieves a commercially useful purpose. Machine-made

(1) (1934) 51 R.P.C. 349.
(2) (1929) A.C., at p. 276.
(3) (1927) 45 R.P.C. 1.

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battery boxes had been brought to Australia before June 1924, but nobody here knew how to make them. The witness Massey, after making inquiries in Australia without result, had to go to America to find out how they were made. There he learned of the Allen machine. The introduction of the machine undoubtedly brought about a marked advance in the art as known in Australia.

The learned judge held, however, that the patent was invalid for want of subject matter. His Honour approached this question by asking first, whether the integers in the Allen patent were part of common knowledge in the year 1924, and secondly, whether the functions which they perform were also known in that year. It is true, as already stated, that every separate integer of the Allen machine was known in the year 1924. This fact does not appear to me to be very important in the case of a mechanical patent. What is claimed is not to be found in the separate integers, but in the combination. Even the most original machines consist of wheels, levers, screws and other well-known elements arranged in a particular way. Similarly it is true that each integer performs the function for which it is adapted. The steam produces heat, the ram exerts pressure and then descends, the core " telescopes " into the mould. The claim, however, is for the combination of all the integers as set forth. There is no doubt that, prior to Allen's patent, no machine existed in Australia which could do the work which it accomplishes. But it may still be the case that no ingenuity was required to devise such a machine.

The attack is made from two points of view. In the first place reference is made to expert evidence called for the defendant to show that any engineer with experience of machine design could readily have designed an apparatus to do what the Allen machine does and that such a machine would naturally and almost as of course have been in a form very like that of the Allen machine. Other expert evidence was to the effect that there was real inventive ingenuity in the invention. It has been pointed out that *ex post facto* analysis of a patent is not a satisfactory method of determining whether it displays invention. The learned trial judge in this connection referred to *British Westinghouse Electric and Manufacturing Co. Ltd.* v. *Braulik* (1) and *British Celanese Ltd.* v. *Courtaulds Ltd.* (2). In

(1) (1910) 27 R.P.C. 209.

(2) (1933) 50 R.P.C., at p. 269.

my opinion it is particularly necessary for courts to keep these warnings in mind in cases where, after the event, many intelligent persons, being informed not only of the object to be achieved, but being aware that it has been achieved both by a patentee and by an alleged infringer, are inclined to have difficulty in discovering any invention anywhere. When an objective, such as making a vulcanized battery box in one operation by machinery, is conceived, a real step may even at that stage have been taken along the road of invention. But the matter wears a different aspect when evidence is presented to a court some years after the objective has been attained by means which have then become well known. It is frequently possible to take, as it were, a patent to pieces, and then, beginning with one piece, to show how, in order to obtain one result, step A must be taken ; in order to obtain another particular result, step B must be taken—and so on until one has the whole combination for which inventive quality is claimed. If the analysis is taken into sufficient detail, every single step in the development of an invention, taken separately, can be shown to be obvious. The fact that an expert engineer, speaking after the event, can show clearly " how it is done " and, indeed, given an initial definition of " it," how it must be done, does not, in my opinion, establish absence of inventive ingenuity. Indeed, the ingenuity of such witnesses themselves is often very striking. I attach much more importance to evidence showing that, until the patentee came along with his ideas, the thing which he succeeded in doing had never been done by anybody, though it was obviously a useful and profitable thing to do. Of course there is no invention if, as soon as the question of how to do a thing is asked, any intelligent practical man acquainted with the relevant art can, with little trouble, provide the solution. Again, if a man versed in the relevant theory can readily devise means of accomplishing the desired end by an application of general knowledge, there is no invention. But, in the present case, the evidence of the expert witnesses for the defendant is really a reconstruction of an inventive process step by step, each step, when it is known that it must be taken and that it must be taken in a certain direction, being obvious enough in itself. Such evidence does not,

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in my opinion, displace the uncontested evidence that Allen's machine for the first time efficiently produced a good article which was new in certain respects and that it did so by means of which no person had previously thought, though the advantages of the new method are plain, once the method has been discovered. I take this evidence in conjunction with the expert evidence for the plaintiff to the effect that the invention displayed real ingenuity.

In the second place, the learned judge held that Allen's patent did not answer the test propounded by Lord *Tomlin* in *British Celanese Ltd.* v. *Courtaulds Ltd.* (1): "It is accepted as sound law that a mere placing side by side of old integers so that each performs its own proper function independently of any of the others is not a patentable combination, but that where the old integers when placed together have some working inter-relation producing a new or improved result then there is patentable subject-matter in the idea of the working inter-relation brought about by the collocation of the integers." This statement was particularly applicable in the *Celanese Case* (2) where four quite independent operations were found to be combined in one apparatus. But the position is very different here. The Allen machine consists of interacting parts, so arranged that what is accomplished by one part is quite useless unless the other parts also contribute their share to the total. The parts are functionally interdependent. The action of each integer depends upon the action of other integers—the ram and core are essentially interacting, the heating is related, and necessarily related, to the whole operation, the upward movement of the ram is meaningless except as a preliminary to the downward movement, the downward movement is rendered possible only by the prior upward movement, the liners are operative throughout the process for the purpose of giving form to the box, of making disengagement possible and of preventing distortion after disengagement. In my opinion, the objection based upon the *Celanese Case* (2) is not sustained in this case. I therefore hold that claim 1 is valid. It accordingly becomes necessary to consider the question of infringement.

It was not disputed that the defendant's machine infringes claim 1 if that claim is construed generally, not being limited to

(1) (1935) 52 R.P.C., at p. 193. (2) (1935) 52 R.P.C. 171.

the particular apparatus described in detail in the specifications. I read the claim as a claim to a general method of manufacture which is new, one method of carrying it into effect being described by the inventor (*R. C. A. Photophone Ltd.* v. *Gaumont-British Picture Corporation Ltd. and British Acoustic Films Ltd.* (1)). The defendant's machine falls within the terms of claim 1 which I have already quoted. It is true that the downward movement of the ram in the defendant's machine is brought about by gravity, an initial break between core and box being made when necessary by the manual use of a pinch bar. But the addition of the use of a pinch bar to make the defendant's machine work does not prevent that machine from containing all the elements mentioned in claim 1. The same observation applies to the use of the pinch bar to make the initial break towards releasing the lining from the mould. The patentee, in the machine which he uses for purposes of illustration, uses a steam piston for this purpose. But, as I have already pointed out, his claim does not limit him to a power-driven mechanism for this purpose. The other distinction relied upon by the defendant as an answer to the allegation of infringement depends upon the fact that, in the defendant's machine, the liners, containing the box, are pulled by the ram downwards out of the mould case. In the plaintiff's machine as illustrated, the liners, containing the box, are prevented by slides or stops from descending with the ram; the ram is pulled away from the liners, instead of the liners being pulled away from the ram as in the defendant's machine. But, as in the case of the pinch bar, this difference does not prevent the defendant's machine from answering completely the description contained in claim 1. As I am of opinion that claim 1 is infringed, it is not necessary to consider any other claim.

In my opinion the judgment for the defendant should be set aside, a judgment should be entered for the plaintiff for an injunction and for the other relief claimed. As, however, the court is equally divided in opinion the appeal will be dismissed and the judgment of the Supreme Court affirmed (*Judiciary Act* 1903-1937, sec. 23 (2) (*a*)).

(1) (1935) 53 R.P.C., at p. 186.

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RICH J. The facts of this somewhat difficult patent case are already in statement and I do not propose to encumber the record with a further relation of the nature of the mechanical appliances now in question. Like so many other cases of this description the decision turns on the specification and in particular on the formulation of the claims. The respondent, who is the defendant in the suit, succeeded before *Nicholas* J. on the ground that no inventive step was disclosed in the combination described in the specification and upon the ground that the alleged invention failed to satisfy the test propounded by Lord *Tomlin* in *British Celanese Ltd.* v. *Courtaulds Ltd.* (1). That test is stated as follows :—" It is accepted as sound law that a mere placing side by side of old integers so that each performs its own proper function independently of any of the others is not a patentable combination, but that where the old integers when placed together have some working inter-relation producing a new or improved result then there is patentable subject matter in the idea of the working inter-relation brought about by the collocation of the integers." The chief claim in the specification is the first. It is expressed in very wide terms and its interpretation occupied a substantial part of the argument. It is as follows :—" In a rubber-moulding apparatus, the combination of a mould ; a separable lining ; a mould core ; power-actuated mechanism forcing relative movement between the mould lining and the core ; means associated therewith disengaging the lining from the mould ; and means subjecting the mould to vulcanizing heat." In point of grammar I agree with the construction of *Nicholas* J. that the words " associated therewith " refer to the " power-actuated mechanism." But this does not throw much light on what is meant by the vague words " associated therewith." Each of the integers referred to in the claim is old and in one form or another is represented in the moulding arts. The claim can be sustained only as a combination producing a new result. When an invention depends upon a new principle it is enough for the patentee to describe one or more embodiments of the principle and having thus shown its practical application he may by a properly framed claim secure for himself a monopoly in all similar applications of his invention. But in combination claims it

(1) (1935) 52 R.P.C., at p. 193.

is very difficult to cover validly more than the particular aggregation of integers actually made by the inventor. It must be rare for a combination to consist in such an application of principle that the inventor can exclude from the field all combinations of mechanical equivalents of the integers producing the same result. In the present case, as I understand it, *Nicholas* J. was of opinion that the machine, as disclosed by the drawings and the body of the specification, exhibited no proper subject matter for a patent, his reason being that it comprised an association of well-known elements which although co-operating together acted each in its old way and combining them involved no inventive step. I am not prepared to say that if the claim had been confined to the integers seen in the machine as shown in the drawings, and had been properly drawn so as to insist in the co-action of those elements as they appear in the machine, the claim would necessarily have been invalid. But as claim 1 stands it attempts to describe in general words mechanical steps or functions with a view no doubt of covering every machine which endeavours to bring together the performance in one series of operations of all these functions by any mechanical means. The expression " power-actuated mechanism forcing relative movement between the mould lining and the core," strikes me as indefinite in the extreme. It covers all kinds of movement of the two parts mentioned so long as the movement relates one part to the other. But even more indefinite is the next phrase " means associated therewith disengaging the lining from the mould." This covers and no doubt was intended to cover any device discovered or discoverable by which the lining can be freed from its container. Both in the case of relative movement and disengagement the inventor shows only one way of doing these things. He might perhaps make that way of doing it part of a combination claim. But I cannot believe that he can validly make a combination claim consisting of any way which the mind of man discovers for performing these functions. The claim seems to me too wide and to be subject to the objection *Nicholas* J. made to it based upon the *Celanese Case* (1). For *non constat* that all the ways of forcing relative movement by mechanical power and disengaging the lining from the core have " a working inter-relation " between

(1) (1935) 52 R.P.C. 171.

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themselves and with other integers " producing new or improved results."

So far I have dealt with the claim as if it bore the interpretation which the natural meaning of the words suggest. It was argued, however, that it should be given a construction like that adopted by the Judicial Committee in the case of *Lightning Fastener Co. Ltd.* v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.* (1). This case appears to have created great interest among those concerned with the administration of the patent laws. Mr. *A. K. Gill* in a discussion of " The effect of recent decisions in patent cases " makes the following interesting observations :—" The claim supported in the Privy Council in the case of *Lightning Fastener Co.* v. *Colonial Fastener Co.* (2) was of a very functional character. That was an appeal upon a Canadian patent and perhaps it does not necessarily follow that the same claim under English law would have been upheld. Every element in the claim was defined as ' means for ' feeding or ' means for ' compressing, but the tape had to be moved step by step so that the feeding and compressing had also to be in steps. The claim was held to be for a general mechanical idea but it had to be read with the body of the specification, and the idea of combining in one machine all the necessary operations for making and assembling the ' Zip ' fasteners was held to be novel and useful. Evidence showed that such a combination was not obvious but was only achieved after years of work upon the problem. In spite of this judgment, there must be very few cases in which a claim defining a combination entirely by a functional statement, in the form of ' means for ' doing this and that, can be valid. It can only be so when there is a broadly novel idea in the combination." I can find no broadly novel idea in the combination relied upon by the present patentee. Further, if claim 1 were restricted by construction to the form of machine shown in the body of the specification and the drawings, I should think that there would be no infringement. For the respondent's machine does not expel the lining from the " mould " case in the same or any similar way as the patentee's. It drags the ram head with the liners from underneath the " mould " case leaving the

(1) (1934) 51 R.P.C., at p. 366.

(2) (1934) 51 R.P.C. 349.

" mould " case suspended. The difference in the ways in which this operation is performed is very clearly shown by a comparison between the diagrams of the two machines contained in exhibits 1 and 2 respectively. For these reasons I think that claim 1 is bad and if by a restricted construction it could be made good there would be no infringement. Of the remaining claims relied upon by the patentee claims 2, 5, 6 and 7 seem to me to depend upon claim 1. Claims 8 and 9 have not, I think, been infringed. There is no knock-out device operating upon a backward movement of the ram.

For these reasons I am of opinion that the appeal should be dismissed.

DIXON J. The invention claimed under the patent put in suit is for a machine. It consists in a combination of features for the performance of a series of functions, all necessary to produce the article desired. The product is a seamless vulcanized rubber box or container made in one piece.

The usual questions are raised. The validity of the patent is disputed and infringement is denied.

Against the validity of the patent it is said that there is no subject matter because every integer is borrowed from one or other of the many arts in which moulding is practised, if, indeed, its source is not in rubber moulding itself. Some paper anticipations are cited. It is denied that the combination involves any inventive step. Further, it is said that to provide a mechanical means of performing successive functions in manufacturing a complete article does not satisfy the test of inventive combination. For to constitute such an invention it is not enough, it is contended, to gather together and execute in one series of mechanical movements the separate steps of a process. The old integers that are utilized must be combined so as to react or interact one with another and thus produce a new result, that is, a new way of achieving an old purpose or the fulfilment of a new purpose. Then the claims are compared with the disclosure in the specification and it is said that they attempt, not without ambiguity, to cover a field much wider than the invention specified.

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In support of these contentions much reliance is placed by those who attack the patent upon *British Celanese Ltd.* v. *Courtaulds Ltd.* (1) and *Mullard Radio Valve Co. Ltd.* v. *Philco Radio and Television Corporation of Great Britain Ltd.* (2). But, if the attack on validity fails, then it is denied that the rival machine constitutes an infringement. Substantially the denial is based upon a difference in the mechanical performance of one of the steps distinguishing, it is said, the machine from that described in the specification. Whether the alleged infringement falls outside the claims depends upon the interpretation placed upon them.

The work of the machine described in the specification is done in one operation. It heats raw rubber to make it plastic. It does so inside a mould consisting of liners in a mould case borne upon a ram. It brings the ram up to the fixed core, which, on entering the lined mould case, presses the raw material into the required shape. It holds ram and core together until the heat vulcanizes the rubber. It then withdraws the ram and, on its backward journey, knocks out the liners from the mould case by means of a pin, so that the box formed by the liners may be picked off the moulded and vulcanized article. The heat is supplied by steam circulating through ducts or channels in the mould case. The mould case forms the head of a ram upon a shaft shown as vertical which is raised by hydraulic or other pressure. The liners are five detachable plates grooved so as to assemble as the five sides of an open box fitting into the mould case. They may bear patterns on their inner sides. The mould case holding the liners and containing the raw rubber is carried by the shaft up to the fixed core. The core is held at the top of the machine over the ram and when, on the ascent of the ram head, it fits or telescopes into the box made by the lined mould case, it leaves sufficient room for the softened rubber to spread under pressure round the core and thus assume the form of a box. The pressure is maintained and the mould kept closed until enough time has elapsed for the steam heat to complete vulcanization and then the ram retreats bearing the mould case with its liners containing the moulded and vulcanized box. In the press described in the specifications, it would seem that the descent of the ram is aided,

(1) (1935) 52 R.P.C. 171. (2) (1936) 53 R.P.C. 323.

if not substantially effected, by gravity when the hydraulic or other pressure is withdrawn and no longer sustains the heavy ram head and shaft. But the machine includes a steam piston for forcing the ram down. When vulcanization is complete, it is necessary to strip from the core the lined mould case containing the moulded article and, as rubber is apt to stick, a puff of steam upon the piston may be required to break apart the fixed core and the travelling ram before the weight of the latter can cause it to descend. Under the bottom liner in the mould case is a pin projecting vertically downwards through a hole in the floor of the mould case. It is a knock-out pin for the purpose of removing the liners from the mould case. Before the ram head bearing the mould case descends again to its first position a slide at that point is moved into the path of the projecting pin so that the liners are thrust out of the mould case as it returns to rest. The liners are then removed and stripped or picked off the moulded and vulcanized article.

The great distinction between the alleged infringement and the press I have described lies in the means adopted for freeing the finished article. There is in the alleged infringement no knock-out pin. The liners are not thrust from the floor of the mould case. In fact, the fifth liner forming the bottom of the box made by the liners is attached to the ram head. The liners are taken from the mould case by withdrawal from beneath. The four sides of the mould case are not fixed to its floor upon the ram head. On the contrary, they consist merely in a cavity in a block of metal resting upon the ram head. The block is called the die case. When the ram descends, after an interval, two claws or catches at the side intercept the block of metal, the die case, and hold it. The ram head continues its descent carrying with it the box formed by the liners which thus is withdrawn from the suspended block, or die case, constituting the sides of the mould case. The four liners are then picked off the sides of the moulded and vulcanized article, which is lifted from the bottom liner forming the floor of the mould. The suspended die case is then let down, its descent being moderated by dash pots. Another difference between the presses lies in the absence of any downwardly operating piston or other automatic means of forcing apart the core and the mould case before, under

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gravity, the shaft and the ram head begin to fall. Instead, a lever or pinchbar is inserted by hand between the ram head and the top of the press and the two parts wrenched asunder manually.

Much turns in the present case upon the nature of the claims, not only in relation to the question of infringement, but also in relation to the validity of the patent. But, before stating their effect, it is, I think, convenient to describe briefly the sources of the knowledge upon which the combination forming the machine may be supposed to have drawn.

In many arts moulding is practised. Both to provide a pattern or impress and for the purpose of lessening wear on the mould case and facilitating work, liners have long been in use. In the making of articles which include a cavity a mould usually implies a core. The core may be suspended in the mould and the material of which the article is composed may be poured round it in a liquid condition. But with plastic material the core is often thrust into the mould. Machines are used to telescope the core into the mould and to exert pressure. All this has long been known and practised. In rubber working, the moulding of rubber under heat was well known. The vulcanizing of rubber in a steam-heated press was also well known. But in the actual manufacture of vulcanized rubber boxes a comparatively crude method was in use in Australia before the date of the patent. The purpose for which such boxes were required was to contain batteries. The rubber was simply wrapped round a core or former of the desired shape and size. It was swathed in fabric and steam heat was applied to fuse together the edges of the rubber. Plates were screwed and bolted round it before vulcanizing, which involved a long period of heating. Chemical accelerators have since made it possible to vulcanize with a relatively brief application of heat and it is said that it is only because of this improvement in chemical treatment that such a machine as those now in question could have any practical and economical use in rubber moulding. Until then an article could not be left in an expensive press for the time required for vulcanization. Before the introduction of chemical accelerators, it was necessary to take the article away and vulcanize it separately.

In manufacturing tyres, a steam-heated hydraulic press containing a number of tyres was in use. It was called an autoclave and combined moulding and vulcanization under pressure. It is scarcely necessary to say that in it there was no telescoping action and that the machine was of a construction altogether different from those now in question.

Of the alleged paper anticipations, the nearest is one of 1920, a specification of an American invention by patentees named Ten Brink and Martin for moulding or forming battery jars of hard rubber. One manifestation of their machine provided for lifting out of the mould case, by a piston from beneath, the liners containing the completed battery jar and for the detachment of the side liners. But the inventors did not provide for the insertion, by a ram, of the core into the mould whether by telescoping or otherwise. Another paper anticipation, an invention of 1884 by one Kelly, shows a press for making rubber heels in which the completed heels were thrust out of their moulds by knock-out pins on the descent of an upward moving ram head to its position of rest. There were no liners and, so far as appears, no vulcanization, and the articles, although receiving from the upper part of the press a slight depression where the human heel would go, needed no telescoping core to make them.

In support of the present invention, the patentee relies on what he says are four inventive steps. If the combination is considered as a whole, it will be seen to embody the idea of making a single machine to perform the entire operation of making from raw rubber a completely moulded and vulcanized box or other hollow article. This, he claims, is in itself a new step. The appliance includes the mechanical telescoping of a core into a mould under pressure. That, too, is said to be in itself an advance having the quality of invention. Thirdly, there is the double use of the downward movement of the ram, viz., for the purpose of discharging the core from the box containing and retaining the moulded and vulcanized article and for the purpose of discharging that box formed, as it is, of the liners from the mould case. These uses of the downward movement of the ram mean, it is said, the exercise of ingenuity, both in conception and in carrying them out. Lastly, the patentee

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claims invention for the use of the liners as a sheath protecting the box or hollow article from distortion as it is disengaged first from the core and then from the mould case.

Before dealing with the form of the claims and the disclosure made by the specification, the sufficiency of these steps to afford subject matter may, I think, now be considered.

Regarded alone, the idea of using liners as a sheath to prevent or avoid distortion of a moulded article when a core was withdrawn or the thing itself was extracted from the mould may at once be put on one side. These purposes formed part of the reason for the use of liners in all sorts of plastic moulding. The use of liners to answer the needs arising from the nature of the patentee's machine may make a contribution to the subject matter of the whole. But applying liners to rubber moulding by means of a telescopic core does not appear to me in itself to amount to invention. Much the same criticism may be made of the claim to invention in adopting a mechanical means of telescoping a core into the mould. But, in dealing with the question whether the whole appliance does not exhibit subject matter, one cannot but compare the picture presented by the patentee's machine with the prior state in Australia of the particular part of the art. The comparison must carry great weight. Every element in the machine is open, no doubt, to the observation that the general practice of moulding or the expedients in use in power-driven presses and other machines supply the ideas that element represents. But, by the arrangement of upward-moving ram head, of ducts or passages therein for steam heating, of mould case, liners, core, and, on the retreat of the ram head, knock-out pins and slides, the patentee has brought into being an implement moved by mechanical power which performs in an entirely new and greatly improved manner the work of moulding and vulcanizing a box or other hollow article. To my mind the difficulty in reference to subject matter in the present case does not lie in the availability of the expedients to which the patentee has resorted, nor in the obviousness of the idea that a single machine should be made for the performance of the entire work of producing a vulcanized box, if one could be devised, but in the nature of the combination. The machine combines the doing of things which formerly had been done separately and it does

so by effecting a series of mechanical movements or operations the purpose of each of which may perhaps be regarded as a separate thing. " A proper combination for a patent is the union of two or more integers, every one of which elements may be perfectly old, for the production of one object which is either new, or at any rate is for effecting an old object in a more convenient, cheaper or more useful way. But the point in a combination patent must always be that the elements of which the combination is composed are combined together so as to produce one result " (*In the matter of Klaber's Patent* (1), per Lord *Davey*).

In applying the test thus stated, it is always important to determine what is the result which the combination achieves. In the present case, it may be said the result is a vulcanized box produced in a different and more efficient manner. But the characteristic which a combination of known integers must possess in order to afford subject matter is mutual relation in the operation of such integers. Separate elements may be brought together and yet each may continue to operate as it did before. In other words, all that the patentee may have done is to assemble together things or ideas which apart from sequence, order, position and proximity of association continue to perform their known functions as before. He may in such a case have produced a more convenient and a better appliance or process but he has contributed nothing in doing so which amounts to invention. In an often-cited passage from the judgment of *Buckley* L.J. in *British United Shoe Machinery Co. Ltd.* v. *A. Fussell & Sons Ltd.* (2) the distinction is drawn between the production of a simple and of a complex result. " For this purpose," his Lordship says, " a combination, I think, means not every collocation of parts, but a collocation of inter-communicating parts so as to arrive at a desired result, and to this, I think, must be added that the result must be what, for the moment, I will call a simple and not a complex result. I will explain presently what I mean. It is not every combination of parts which is for this purpose a combination. To take the old illustration of the watch, the watch case, the bow, the glass, the hands, the face, the internal machinery and its bearings, the escapement, and so on, may all be said, in a sense, to form a

(1) (1906) 23 R.P.C. 461, at p. 469. (2) (1908) 25 R.P.C. 631, at pp. 657, 658.

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combination, but it is not a combination for the present purpose. It is not a collection of inter-communicating parts with a view to arrive at a simple result. If, for instance, a man invented an improved composition of metals for making the case, or an improved method of attaching the bow or the like, that would be no improvement of the machinery which measures the time, and the machinery which measures the time is not necessarily one combination. The driving machinery in the main spring, the control in the escapement, the collocation of the wheels so adjusted *inter se* as to achieve the desired result, may each be a separate combination. The gridiron pendulum and the other mechanism may not constitute a new combination in the sense of a new combination of all the machinery which serves to measure the time. Further, the result to be achieved by the main spring is the production of force; the result to be achieved by the cog-wheels is to distribute and utilize that force; the result to be achieved by the escapement is to control the rotation of the wheels under the exercise of that force; the result to be achieved by the whole mechanism is to measure the flight of time. The latter I call a complex result. Each of the former I call a simple result. Whether the particular improvement is so added to the parts, or substituted for some of the parts, of an existing machine (which may be a combination, or an aggregate of combinations) or of an existing combination, meaning a combination in its proper sense, so as to form a new combination is in each case a question of fact."

A striking application was made of the principle in question by the House of Lords in *British Celanese Ltd.* v. *Courtaulds Ltd.* (1). There a combination claim for a process of producing threads from cellulose compounds was held bad for want of subject matter. Lord *Russell of Killowen* states the combination as follows :—" The process claimed is a process of manufacturing artificial silk and like threads or filaments from all solutions of cellulose derivatives which contain volatile liquids as described in the patent, the essential feature of which is that it combines four integers—(1) downward spinning or extrusion, (2) in an air-enclosing casing, (3) evaporation of the solvent in warm air, and (4) winding outside the casing. The

(1) (1933) 50 R.P.C. 259; (1935) 52 R.P.C. 171.

apparatus claimed is an apparatus for the manufacture of artificial silk and like threads or filaments according to the process claim (i.e., from solutions of cellulose derivatives containing the said volatile liquids) comprising in combination the four integers above described. In each case the essence of the claim, whether process or apparatus, is the collocation of the four integers" (1). It is manifest that these integers were associated in the inseparable manufacturing process of forcing from the cellulose liquor or dope the fine jets which solidified as filaments for winding as threads. The ground on which the claim failed is put very shortly by Lord *Tomlin* thus: "In truth and in fact there is no inter-related working between the integers in the sense that any one of the integers is doing something which it could not do without the presence of one or more of the others. Each integer is in fact performing its own part and is not functionally dependent upon the presence of any other integer at all. I think, therefore, that the invention lacks subject-matter" (2).

It is by the application of these principles that *Nicholas* J., from whom this appeal comes, reached the conclusion that the patent was void for lack of subject matter. On my part, however, I have formed the opinion that the combination contained in the patentee's machine falls outside the class where the integers continue, so to speak, their independence and within that where a new co-operation is established so that by an adaptation of each integer to the working of every other integer an entirety is provided which is new and implies invention. In saying this, I am speaking of the machine described in the specification as distinguished from the combination or combinations stated in the various claims. This actual machine does, I think, bring the integers sufficiently into relation in the production of the one article as an entirety. In the first place, at one and the same time and in one operation all the qualities required for a vulcanized box are bestowed upon it. When the ram head reaches the core, it contains raw and amorphous rubber. When it withdraws, it contains a complete vulcanized box. The features of the machine by which, up to that point, the result is produced co-operate and interact in a new way. The steam in the ram head, the liners in

(1) (1935) 52 R.P.C., at pp. 198, 199. (2) (1935) 52 R.P.C., at p. 194.

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the mould case, the shaft supporting it and the power behind it, together with the core, interact and combine to do one entire thing. But that thing requires for its success the disengagement of the article from the machine. I do not think that the disengagement can be regarded as a separate function. Not only does the nature of the operation make it necessary but the way in which it is to be done must depend upon the devices employed to perform the operation. The ascent of the ram means that the extraction of the article must be done on its return. In the descent of the ram the inventor finds a means of extracting it by introducing the knock-out pin and the slide. That means is dependent on the liners, which, indispensable for moulding, thus perform an additional function as well. I am, therefore, of opinion that the appliance, as I have described it, has proper subject matter for a patent. Without doing violence to accepted principles, the alleged paper anticipations, in my opinion, cannot be pieced together to make a real anticipation of the combination, however much common knowledge may be called upon to fill up the spaces between the bits of mosaic.

The chief difficulty in the patentee's way is the form of his claims. The first and leading claim is expressed as follows : " In a rubber moulding apparatus, the combination of a mould ; a separable lining ; a mould core ; power-actuated mechanism forcing relative movement between the mould lining and the core ; means associated therewith disengaging the lining from the mould ; and means subjecting the mould to vulcanizing heat."

In *Mullard Radio Valve Co. Ltd.* v. *Philco Radio and Television Corporation of Great Britain Ltd.* (1), a claim was held invalid because it sought a wider area of protection than was warranted by the actual invention made. Lord *Macmillan* said : " A patentee may make a most meritorious discovery and may give an entirely adequate description of his inventive idea and of the manner of putting it into practice, but when he comes to formulate the claim to his invention he may claim a monopoly wider in extent than is warranted by what he has invented " (2). Lord *Roche* describes as follows the actual point which the case decides :—" The substance of the

(1) (1935) 52 R.P.C. 261 ; (1936) 53 R.P.C. 323.
(2) (1936) 53 R.P.C., at p. 345.

objection to claim 2 of the plaintiff's specification is that, whereas the plaintiff's invention related to and related solely to a screen grid tube, the claim extended to cover an area which included one known and different thing which was in use at the date of the patent in suit, namely, the space-charge-grid tube and any number of other things and combinations which might in the future come into existence and be essentially different in character to a screen-grid tube. In short the claim was more extensive than the invention and was, as it is compendiously expressed, too wide and therefore invalid. If the premises are correct, I cannot doubt that the conclusion is correct also" (1). He refers with approval to the judgment of Lord *Hanworth* in the Court of Appeal and the authorities there cited. They include the well-known statement of Lord *Loreburn* in *Ingersoll Sergeant Drill Co.* v. *Consolidated Pneumatic Tool Co. Ltd.* (2): "The idea of allowing a patentee to use perfectly general language in the claim, and subsequently to restrict, or expand, or qualify what is therein expressed by borrowing this or that gloss from other parts of the specification, is wholly inadmissible."

The first claim in the present patent appears to sin against both these connected principles. It describes the function performed by various integers present in the machine disclosed by the specification. But it seeks to cover every means by which these functions separately conceived may be accomplished. Instead of claiming the actual vertical movement of the head bearing the mould case so that the core held above telescoped into it, a vague claim is made for relative movement between the mould lining and the core. This would cover any kind of core that may be mechanically propelled to or towards any kind of mould or vice versa. It covers a simultaneous movement of both core and mould towards one another. Any mechanism may do it so long as it is done by power, which I take to mean mechanical power. For the actual means provided by the mechanism for lifting the liners from the mould case there is substituted "means associated therewith disengaging the lining from the mould." This attempts to take all means available in the present, past, and future for freeing liners from the mould. The word "associated" is most indefinite and allows almost any

(1) (1936) 53 R.P.C., at p. 350. (2) (1907) 25 R.P.C., at p. 83.

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connection, however independent the functions of the mechanism may be. It is not hard to understand the desire of the specifier to cover all possible mechanical equivalents of the things contributing to the merit of the invention. But in an invention the patentable merit of which lies in the combination of particular interacting parts all old, this is almost as difficult as too close and detailed a claim is dangerous. To restrict the claim by construction is tempting. There is, too, the example afforded by the decision of the Privy Council in the *Lightning Fastener Co. Ltd.* v. *Colonial Fastener Co. Ltd. and G. E. Prentice Manufacturing Co. Ltd.* (1), reversing the decision of the Supreme Court of Canada, (2) and of *Maclean* J. (3), where additional information as to the invention may be obtained. Their Lordships read a claim expressed very widely in the setting of the specification and treated it as a claim to a machine of a particular type (4). But to apply this principle to the present case appears to me to involve special difficulties. It is plain that the object of drawing the claim widely was to extend the monopoly beyond the actual definite features combined in the machine disclosed and to cover variations in integers. But, unfortunately, except for the operation together of those very integers, subject matter would fail. By attempting to cover every means of performing the same function, the specifier necessarily includes means which involve no adaptation, no functional interdependence, no mutual co-operation, of the elements combined in the claim. Again, if a restrictive interpretation of the claim were adopted, no certain or definite criterion of infringement could be found. The limits of the monopoly would be anything but apparent and the exact thing which Lord *Loreburn* condemns would have been done. If, contrary to the view I have expressed, the precise machine described in the body of the specification were taken as the thing protected, then in my opinion, there would be no infringement. For, in that event, it would be impossible to treat the mode of withdrawing the liners in the alleged infringement as the mechanical equivalent of the knock-out pin operating on the descent of the ram head. Nor could the manual use of the pinch bar be regarded as equivalent to the steam piston in breaking the die case from the core.

(1) (1934) 51 R.P.C. 349.
(2) (1933) S.C.R. (Can.) 363.
(3) (1932) Ex. C.R. (Can.) 89.
(4) (1934) 51 R.P.C. 349; see at p. 351, line 11; at p. 365, line 28; and at p. 367, line 23.

Of the other claims relied upon by the patentee, the second condescends to detail upon two features and to that extent lessens the objections to the first. But it does not go far enough. It leaves unqualified the vague or wide claim for " means associated therewith disengaging the lining from the mould." The fifth and sixth claims are no better. The sixth claim deals more definitely with the operations at, so to speak, the top of the press but leaves untouched the difficult words in claim 1, which it incorporates. The seventh claim also incorporates the first and adds characteristics, the important one of which is contained in the description, not altogether grammatically expressed : " power means also strip the core from the mould and the lining from the mould." But again I think this is too wide. Claims 8 and 9 are as follows :—" 8. The invention according to claim 1 characterized by the fact that the means for disengaging the lining from the mould comprises a knock-out device operating to discharge the mould on a backward movement of the mould. 9. In a rubber moulding apparatus, the combination of a ram ; a mould case on the ram ; means for subjecting the mould case to vulcanizing heat ; a separable mould lining in the case ; and a knock-out acting on a backward movement of the ram on the mould lining to discharge it from the case."

I should be disposed to think that claim 9 is valid. But neither of these claims appears to me to have been infringed. The reference to the " knock-out device," or " knock-out " in each of them is undoubtedly to the slide and pins and cannot, I think, on its natural meaning cover the withdrawal of the liners from beneath the die case. In such claims, so expressed, I find myself unable to regard the difference as one which does not go to the inventive combination actually claimed. It appears to me no mere mechanical equivalent (Cf. *Shave* v. *H. V. McKay Massey Harris Pty. Ltd.* (1) and *Walker* v. *Alemite Corporation* (2)).

For these reasons I think the appeal fails.

McTiernan J. In my opinion the appeal should be allowed. I agree with the conclusions of the Chief Justice.

Appeal dismissed with costs.

Solicitors for the appellant, *Minter, Simpson & Co.*

Solicitors for the respondent, *Dawson, Waldron, Edwards & Nicholls.*

J. B.

(1) (1935) 52 C.L.R. 701.

(2) (1933) 49 C.L.R. 643.