

Friday, July 4.

FIRST DIVISION.

[Lord Mackenzie, Ordinary.]

RICHARD DUDGEON AND ANOTHER AND
MANDATORIES v. WILLIAM THOMSON.*Patent Act (1852)—Infringement of Patent.*

Circumstances in which the manufacture of an instrument, embodying alterations upon a mechanical apparatus which was protected by letters-patent, was held to be an infringement of the patent.

Letters-patent—Title—Provisional Specification.

By letters-patent, dated 7th March and sealed 13th July 1866, George Tomlinson Bousfield, of Loughborough Park, Brixton, in the county of Surrey, secured for himself, his executors, administrators, and assignees, the sole and exclusive privilege, during the term of fourteen years from the date of the said letters-patent, of using, exercising, and vending within the United Kingdom of Great Britain and Ireland, the Channel Islands, and the Isle of Man, an invention of "Improvements in apparatus used in expanding boiler 'tubes,' a communication from abroad by Richard Dudgeon (the complainer), residing at New York, United States of America." The said letters-patent were applied for and obtained and held by the said George Bousfield on behalf of, and as trustee for, the said Richard Dudgeon, to whom they were afterwards assigned.

In pursuance of the proviso contained in the said letters-patent, the said George Tomlinson Bousfield, on 30th August 1866 duly filed in the Great Seal Patent Office a specification, dated 30th August 1866, particularly describing and ascertaining the nature of the invention, and in what manner the same was to be performed.

The specification set forth that "the object of the invention is to enable the ends of boiler tubes to be expanded in the holes in the flue-sheet. Previous to this invention, it has been customary to expand the ends of tubes by an expanding tool, composed substantially of a series of swages radiating from a common centre, and caused to diverge by means of a tapering plug driven into the centre of the tool by the repeated blows of a maul or sledge."

The specification then proceeds—"The principle of the invention, which constitutes the subject matter of this patent, is to expand the tube by rolling the metal, by the application of one or more pressure-rollers to the interior of the tube, so that the metal is expanded by rolling, in contradistinction to the old system of driving it outwards by hammering, and as the roller can be operated by hand, the use of mauls or sledges, and all the inconveniences that attend their employment, are dispensed with."

The specification after setting forth in detail the mechanism of the instrument patented, as well as the manner of working it, including descriptions of various modifications of the tool, concludes thus:—

"In all the above described modifications of the expanding tool, at least one roller combined with a tapering plug (or its equivalent, by whose action the roller is forced outwards in the tube), and with a stock or holder by which the roller is prevented

from twisting sidewise as it is turned round in the tube. These three instrumentalities are all that are absolutely essential to the construction of the roller expanding tool, but the cutter and ratchet handle constitute, with the said instrumentalities or implements, useful combinations which are supplementary to the aforesaid fundamental combination. What is claimed, therefore, as the invention to be secured by letters-patent, is the combination in an expanding tool of the following implements, viz., the roller, roller stock, and expanding instrument,—these three operating in combination substantially as set forth.

"Also the combination in an expanding tool of the following implements, viz., the roller, roller stock, expanding instrument, and cutter for trimming the tube, all operating in combination substantially as set forth.

"Also the combination in an expanding tool of the following implements, viz., the roller, roller stock, cutter, and a ratchet handle for turning it, all operating in combination substantially as set forth."

On the other hand, the respondent obtained letters-patent, dated 18th August 1868, and sealed the 16th February 1869, for an invention of an apparatus to be used in the same process as that of the complainer, but for which he claimed novelty and originality in the following particulars:—

"1st, The arrangement and construction of tube and ring expanders, in which expanding cones were placed in a reverse position to a central cone, having a proportional amount of taper, by which means the whole length of the sides of the expanding cones were brought to bear simultaneously against the sides of the ring or tube. 2nd, The method of expanding or pressing the cones against the tube or ring, by means of a nut placed on a central screwed spindle. 3rd, The arrangement and construction of apparatus for cutting metal tubes or rings, in which the cutting tool was pressed against the ring or tube by the tool holder being moved up on an incline. And 4th, The arrangement and construction of apparatus for withdrawing ferules from boiler tubes by means of hooks or claws situated inside of a cylinder and expanded by a central cone."

On 30th March 1872 the complainer brought the present note of suspension and interdict, praying that the respondent should be prohibited from making, vending, or issuing any apparatus for expanding boiler tubes, constructed or used in the manner described in the specification filed by the complainer, or in any manner substantially the same.

On the 31st January 1873 the Lord Ordinary (MACKENZIE) pronounced the following interlocutor:—

"The Lord Ordinary having heard the counsel for the parties, and considered the closed record, proof, and process, sustains the reasons of suspension, suspends, prohibits, interdicts, and discharges in terms of the note of suspension and interdict, and discerns: Finds the respondent liable in expenses, of which allows an account to be given in, and remits the same, when lodged, to the Auditor to tax and to report."

"Note.—The questions raised for decision in the closed record are—

"First, Whether the respondent has wrongfully, and in contravention of the complainer's letters patent, used the invention described in the said

letters patent and in the relative specification, or any part thereof? and

"*Second*, Whether the letters patent are invalid, in respect (1) of the disconformity of the provisional specification with the letters patent and final specification, and (2) of the misrepresentation in the final specification, and of failure to make a full and true disclosure therein of what is necessary to render the invention effectual, and to enable a workman of ordinary skill to put the same into practice?

"1. The complainer's letters-patent for 'improvements in apparatus used in expanding boiler tubes' are dated 7th March 1866. On 18th August 1868 the respondent obtained letters-patent for 'improvements in tools or apparatus for expanding and cutting tubes and metallic rings, part of which improvements is applicable for withdrawing ferules from the ends of boiler tubes.' This tool or apparatus of the respondent has been extensively manufactured and sold by him since the date of his letters-patent, and the question is, whether the respondent's tube expander is either in whole or in part a tool of the description set forth in the complainer's specification, or of a description substantially the same.

"The Lord Ordinary is of opinion that it is clearly proved that the respondent's tool embraces in all substantial respects the combination or apparatus for expanding tubes patented by the complainer.

"Previous to the date of the complainer's letters patent, boiler tubes were fastened in the boiler plate by means of hammering out the tubes so as to make them fit the holes in the boiler plate, or by driving a conical iron mandril into the tubes with repeated blows of a heavy maul or sledge-hammer, or by means of placing in the tube a hollow iron cone cut into swages or segments, and driving with repeated blows of a heavy maul or sledge a tapered iron plug into the centre of the swages. For the purpose of ensuring tightness, a flat conical piece of iron, with a greater taper, was sometimes in addition driven into the tube by means of a hammer, and made to distend in succession still further the circumference of that part of the tube which was in contact with the boiler plate. In all these modes the expansion was obtained by percussion alone, and the disadvantage was not only that a very large percentage of the boiler tubes was split in the ends and spoiled, but that the adjoining tubes, which had been fixed in the boiler plate, were loosened. By the invention of the complainer these disadvantages were entirely removed. That invention consists in the expansion of the tube, as his specification states, 'by the application of one or more pressure rollers to the interior of the tube, so that the metal is extended by rolling it, in contradistinction to the old system of driving it outwards by hammering.' This was a novel and very useful invention. There is no objection stated by the respondent in the record either to the novelty or to the utility of the complainer's invention.

"The essential parts of the complainer's apparatus are the combination in an expanding tool of a roller stock, one or more rollers, and a tapering plug or expanding instrument. Various modes of carrying out the invention are set forth in the complainer's specification. But that which for general use he gives in preference

consists of a roller stock holding in radial slots three or more rollers, which are operated upon by means of a tapering plug passing through the stock and between the rollers. When the apparatus is inserted into the tube to be expanded, the tapering plug upon being forced inwards, and turned upon its axis by means of a wrench or spanner, forces the rollers outwards and causes them to rotate within and to expand the end of the tube.

"The Lord Ordinary is of opinion that the whole of these three essential parts of the complainer's expanding tool have been included by the respondent and claimed in his specification, and that they operate in combination in the respondent's tool substantially as set forth in the complainer's specification. The respondent's tool is, like that of the complainer, composed of a roller stock, three rollers, and an expanding instrument. His roller stock is called in his specification a 'hollow cylindrical body.' His rollers are called in one part of his specification 'expanding cones,' and in another part 'conic rollers, and his expanding instrument is called a 'central cone.' The sides of his roller stock, as originally constructed by him, were not extended so as to keep the rollers straight when caused to rotate, which made the tool unworkable, and he was obliged twice to extend the stock between the rollers so as to keep the rollers straight. The progress of the respondent's tool is well shown in the three productions, Nos. 28, 29, and 30 of process. The Lord Ordinary considers that all these are mere colourable variations of the complainer's roller stock, and that the last of them only wants a cap fitted on to make it identical. The complainer's rollers work in slots in the body piece. So also do the respondent's. The only difference in the mode of fixing the rollers is that the complainer's body piece having a cap, his rollers are formed with journals at each end so to work and to rotate in radial slots, while the respondent's body piece having no cap his rollers work only at one end in slots, these slots being made dovetailed, or wider below than above, and the rollers being formed with a head like a screw nail so as to catch and rotate in the dovetailed slots. But that mode of connecting the rollers with the roller stock or body piece is, the Lord Ordinary considers, a mere mechanical equivalent for and a colourable variation of the complainer's mode.

"The respondent maintains that his rollers are conical or tapered, and that his central cone or expander has a corresponding taper the reverse way, which produces parallel expansion of the tube, and that there is nothing in the complainer's patent corresponding to it. But the complainer's specification is not limited to tapered expansion or to parallel rollers, or to any particular form of roller. And while he states that 'in the drawings the rollers are represented with profiles adapted to expand the tube in the form commonly produced by the old expanding tools,'—that is, from within outwards,—he also states that the profile of the rollers 'should be the same as that of a longitudinal section of the interior of the extremity of a tube when properly expanded.' To use other words, that is to say, the nature of the expansion being determined on, and the tapering plug or expander being conical, the rollers must be constructed with such a profile as to produce the desired shape. If conical expansion is desired

then parallel rollers operated on by a tapering plug will produce it, and if parallel expansion is desired then the rollers must be so tapered in the opposite direction that the tapering expander and tapering rollers will be the complement of each other, and make together a parallelogram.

"The respondent also contended that while complainer's plug or expander is tapered inwards and is forced inwards, his expander or central cone tapers from within outwards, and operates by being pulled outwards. Such a distinction as this requires, it is thought, no remark.

"But the respondent further maintained as part of his invention the method of expanding or pressing his rollers against the tube by means of a nut working on a screw placed on his central cone, which nut when turned by a wrench pulls the central cone outwards, and causes it to expand the rollers. This superinduction of a screw and nut upon the tapering expander might or might not have been a good subject for a patent. As to that the Lord Ordinary is not called upon to express any opinion. But even although this had been the case, it cannot warrant the incorporation with it and the claim, as part of the invention, of the complainer's apparatus, or the essential parts thereof. Such an incorporation, and such a claim, as is made by the respondent for the combination patented by the complainer, may invalidate, but cannot strengthen, the respondent's patent, even as regards the screwed expander and nut, supposing these to be new and original, on the ground that the introduction of any one objectionable item into a patent is fatal to the whole."

"2. The respondent pleads as an objection to the complainer's patent that the title 'Improvements in apparatus used in expanding boiler tubes' is misleading, and does not sufficiently disclose the true nature of the invention claimed, which, in addition to claiming an apparatus for expanding boiler tubes, also claims a cutter for trimming boiler tubes, besides other combinations, so that its title and nature are inconsistent with and disconform to each other.

"The Lord Ordinary cannot adopt this objection of the respondent. What the complainer patented was improvements in expanding apparatus. One of the improvements so patented is thus described in his specification:—'In order that one tool may be used for performing the two operations of expanding the tube and of turning off its end, the expanding rollers and stock are combined with a cutter E, which is arranged to turn upon the stock of the expanding rollers, so that the compound tool thus formed may be used first to expand the tube, and then, by turning the cutter without withdrawing the tool, to trim off the end of the tube. In this case the rollers retain their positions in the groove which they have formed by rolling, and hold the tool in the tube while the cutter is operating.' That was, the Lord Ordinary conceives, such an improvement in the apparatus used in expanding as to be fully covered by the title of the patent. That is the case also as regards the other improvements claimed by the complainer, in reference to which the objection was not urged in argument. All these improvements are fully set forth both in the provisional and final specifications, and these specifications may be brought in aid to explain the title, which, in the opinion of the Lord Ordinary, they fully do.

"This is sufficient, it is thought, for the disposal of this objection. But further, the title of the patent, and the provisional specification, both received the allowance of the law officer acting in terms of the Patent Law Amendment Act, 15 and 16 Victoria, c. 83. By that statute (sections 6, 7, and 8), which for the first time required a provisional specification to be lodged with the petition for the letters patent, these are to be referred to the law officer acting under the statute; and it is provided that, 'in case the title of the invention, or the provisional specification, be too large, or insufficient, it shall be lawful for the law officer to whom the same is referred to allow or require the same to be amended.' The title and provisional specification received the allowance of the law officer, and the objection taken to them cannot, the Lord Ordinary thinks, now be urged. The final specification claims nothing that is not set forth in the provisional specification. The respondent's objection on this ground falls therefore to be repelled.—(*Penn v. Bibby*, 6th December 1866, Law Reports, Ch. App. 2. 127).

"3. The complainer's patent is also said to be bad in respect of misrepresentation in the final specification, and of failure in that specification to make a full and true disclosure of what is necessary to render the alleged invention effectual, or to enable a workman of ordinary skill to put the same into practice. The grounds of these objections are set forth in the seventh statement of the respondent, and are to the effect that whereas the complainer sets forth in his specification that by means of his invention the use of mauls and sledges, and all the inconveniences that attend their employment, are dispensed with, yet in practice it has been found that the invention cannot effect the object without the use of mauls or sledges, or *hammers*, as a means of forcing in the expanding plug—that any other mode of forcing in the same would be inadequate—and that no other means are provided.

"By the modes in use before the complainer's invention, boiler tubes were expanded by percussion alone. The most common modes were by driving with repeated blows from heavy mauls or sledges a tapered mandril into the tube, or a tapering plug into the centre of a hollow cone cut into segments and inserted in the tube. By the invention of the complainer, the tube is expanded by rolling the metal by the application of one or more pressure rollers to the interior of the tube, so that the metal is expanded by rolling in contradistinction to the old system of driving it outwards by hammering. These rollers are made to diverge and rotate by a tapering plug or expander being forced inwards and turned round and round. The complainer does not limit his mode of forcing the tapering plug or expander inwards to the hand of the operator. He only says, when describing the subject-matter of his patent, that 'as the roller *can* be operated by hand,' the use of mauls or sledges and their attendant inconveniences are dispensed with. It is, the Lord Ordinary thinks, proved that the complainer's tapering plug or expander can both be forced in and turned upon its axis by the hand. Some of the respondent's witnesses said that this could not be done. But numerous witnesses examined by the complainer deponed that they had successfully worked it by the hand. Further, the complainer gives two descriptions of tapering plugs with

shallow flat screw threads, which draw themselves inwards when turned by the hand, and also an apparatus with the axis of the rollers slightly skewed to the axis of the tube, the effect of which is, as was demonstrated before the Lord Ordinary, to cause the tapering plug when turned in one direction to draw into the tube, and to expand the tube, and when reversed, to loosen itself within the rollers. These three apparatus are worked more easily than the others, but it is proved that the others can also be worked by the hand. It is not, the Lord Ordinary considers, a good objection to the patent, that the workmen, instead of using the hands alone to force the tapering plug inwards, find it easier to give it a slight blow with a light hammer or wooden mallet (not a heavy maul or sledge), so as to place the rollers in position, or to bite the tube before they proceed to turn the tapering plug round, in order to cause the rollers to revolve within the tube, and to expand it by rolling. That is a very different thing from the old practice of expanding by driving an expander into the tube with heavy mauls or sledges. The invention of the complainer is 'the combination in an expanding tool of the following implements, viz., the roller, roller stock, and expanding instrument, these three operating in combination substantially as set forth.' It is clearly proved that they do so operate in combination, and produce the required expansion. The mode of applying the requisite power to force the expander inwards is no part of the patent. That may be done by a common brace, or in various other ways. But even if the complainer had by his specification limited his mode of forcing in the expander to the hands of the workman, it is proved that the said three implements operating in combination can be worked by the hands alone, and that when so worked they will produce the desired expansion. There is thus, the Lord Ordinary is of opinion, no misrepresentation in the specification, and no failure to make a full and true disclosure therein of what is necessary to render the alleged invention effectual, or to enable a workman of ordinary skill to produce the effect set forth in the specification."

The respondent reclaimed, and argued—"1. The suspension and interdict ought to be refused, as the letters-patent founded on by the complainers are invalid, in respect (1) of the disconformity of the provisional specification with the letters-patent, and final specification; (2) of the misrepresentation in the final specification above stated; and (3) of the failure in the said specification to make a full and true disclosure of the invention, such as would enable a workman of ordinary skill to put the same into practice. 2. The suspension ought also to be refused, in respect the respondent has not infringed the letters-patent founded on by the complainers.

Authorities cited—Hindmarch on Patents, p. 43; *Lord Cochrane v. Smethurst*, 1 Starkie, 205; *King v. Wheeler and Alderson*, 2 Barnwell, 345; *Croll v. Edge*, 19 L. J.; C. P. 261; *Nelson v. Househill Coal Company*, 4 D. 470, and 5 D. 86.

Authorities cited by Complainer—Patent Act (1852), secs. 6 and 8; *Newall v. Elliot*, 1858, 4 Scott's C. B. Reports (N.S.) 269 and 288; *Penn v. Bibby*, 2 L. R. (C. App.) 127; *Sturz v. De la Rue*, 5 Russell's Ch. Repts., 322; *Nelson v. Harford*, Webster's Patent Cases, 331; *Pratt v. Millar*, 1 Macph. 450; Coryton on Patents, p. 133.

At advising—

The LORD PRESIDENT—This is an application for interdict against an alleged infringement of a patent for improvements in apparatus used in expanding boiler tubes. The respondent, besides denying the alleged infringement, has stated three objections to the validity of the patent, and it is desirable to dispose of these in the first place before proceeding to the question of infringement. He says that the letters patent are invalid—First, in respect of the disconformity of the provisional specification with the letters patent and final specification. Now that plea as stated is altogether futile, nor do I think it a relevant plea in law, because if the letters patent and complete specification are in accordance with one another, and the two together make a valid and complete patent, then an imperfection in the provisional specification, I apprehend, would be altogether immaterial. But the objection as argued assumed a somewhat different form, and I understood the Solicitor-General to contend on the part of the respondent that there was a disconformity between the title and specification, but whether he meant to say that the disconformity was between the title on the one hand and the provisional and complete specification on the other hand, or whether he meant to say that the title and the provisional specification on the one hand were disconform to the complete specification on the other, I could not even to the end ascertain. I shall consider the matter in both these lights. The title, as already mentioned, is "Improvements in apparatus used in expanding boiler tubes," and the first question is whether that title is in accordance with the complete specification, the objection stated by the Solicitor-General being that the complete specification covers more than is covered by the title—that there is a certain part of the invention which is not within the title and cannot be covered by the title, because, as he says, it is not an improvement in apparatus used in expanding boiler tubes, but an improvement in apparatus used for a different purpose than expanding boiler tubes. The complete specification describes very distinctly the nature of the invention, and gives one a very clear view of its object. The patentee says—"The object of the invention is to enable the ends of boiler tubes to be expanded in the holes in the flue-sheet. Previous to this invention, it has been customary to expand the ends of tubes by an expanding tool composed substantially of a series of swages radiating from a common centre, and caused to diverge by means of a tapering plug driven into the centre of the tool by the repeated blows of a maul or sledge." And then—"The principle of the invention which constitutes the subject matter of this patent is to expand the tube by rolling the metal by the application of one or more pressure-rollers to the interior of the tube so that the metal is expanded by rolling, in contradiction to the old system of driving it outwards by hammering; and as the roller can be operated by hand the use of mauls or sledges and all the inconveniences that attend their employment are dispensed with." So far I think this specification is expressed with almost exceptional clearness. The old system of expanding tubes when they reached the flue-sheet was by driving in a tapering plug by means of repeated blows of a maul or sledge, and causing the swages which radiated from a common centre to diverge in that way and so ex-

panding the tube. This was an inconvenient system, for reasons which are afterwards explained, that the violent percussion which was applied was very apt to split the tubes instead of expanding them, and it also was apt to have the effect of disturbing the other tubes in the flue-sheet which had already been expanded and fixed. The detailed description which follows with reference to the figures it is not necessary at present to read, but the claim at the conclusion of the specification is for the purpose of the present question the most important question. He says—"These three instrumentalities," which he has several times mentioned—the roller, the roller stock, and the expanding instrument—"are all that is absolutely essential to the roller expanding tube; but the cutter and ratchet-handle constitute with the said instrumentalities or implements useful combinations which are supplementary to the aforesaid fundamental combination." Now this cutter and ratchet-handle he has previously described as something which may be usefully employed in combination with his expanding tool for the purpose of finishing off the end of the pipe at the same time or by means of the same apparatus which is used to expand. And therefore he claims first of all in combination the roller, roller stock, and expanding instrument, these three operating in combination substantially as set forth. In the second place, he claims the combination of the roller, roller stock, expanding instrument and cutter for trimming the tube, all operating in combination; and the third combination merely adds to all these a ratchet-handle for turning the cutting instrument. Now the objection which is taken is, that the cutter and the ratchet-handle for turning it are not part of an expanding apparatus, but something different and additional, and that therefore they do not fall under the title. But the title is not for an expanding apparatus. The title is "Improvements in apparatus used in expanding boiler tubes," and it would rather appear to me, if it were at all necessary to decide that question, that an improvement in the apparatus used in expanding boiler tubes may be not to produce expansion but to do something else. But, in short, it is quite needless to pursue that line, which would have been a sufficiently important one before the Act of 1852 was passed, because I apprehend this question must be determined upon a different view altogether since the passing of that Act. There was here lodged in terms of that Act a provisional specification. But now the provisional specification comes into existence at the very same time as the title. The first step that is taken by a patentee in order to obtain a patent is to present a petition at the office of the commissioners, and in that petition he sets forth the title, accompanied by a declaration in which he undertakes to show it is new and useful, and by the provisional specification which the statute requires he describes the nature of the invention. Now, a great object of that provisional specification, introduced for the first time by the Act of 1852, was to avoid difficulties which had frequently occurred and which were embarrassing both to the patentee and to the public, or those members of it who were engaged in investigations and improvements in the same line of work or business as the patentee. The great object of the provisional specification was to secure less of a distinct statement of the patentee's claim

than was to be found in the final specification and more than was to be found in the mere title of the invention as it used to be presented, and upon which letters patent were granted, and accordingly the provisional specification must state the nature of the invention. It does not go so far as the complete specification, which must state not only the nature of the invention but the manner in which the same is to be performed; but in stating the nature of the invention the provisional specification necessarily goes a good deal further than the title does, and so it gives additional information to the public of what it is that is claimed, and at the same time it secured a certain benefit to the patentee in this way. The petition with the provisional specification is submitted to the law officer, and it is part of his duty to see that the provisional specification and the title correspond with each other, and if the one is too large or is insufficient, then it is his duty under the statute to amend it or to allow it to be amended so as to bring the two into harmony. When that has been done, then the patentee has a provisional specification, and he goes on under that provisional specification until the warrant is issued for the letters patent, and he obtains the actual letters patent themselves. It appears to me that in these circumstances the true question under a plea of this kind is whether the complete specification goes beyond the title and provisional specification, for these two must be taken together. The one is to interpret or to explain the other, and they are taken together therefore and are in the same position in a question of this kind now as the title would have been alone previous to the passing of the Act of 1852. Is there, then, something more claimed in the complete specification than was claimed and disclosed in the title and provisional specification? It is quite impossible to say that, because in the provisional specification, there is just the same statement about the cutting implement and the ratchet-handle by which it is turned. He says—"In order that one tool may be used for performing the two operations of expanding the tube and of trimming off its end, the expanding rollers are combined with a cutter which is arranged to turn upon the stock of the expanding rollers," and so on. In short, he stops short, as he was entitled to do in exercise of proper caution to go into details of the manner in which the invention was to be performed, and confines himself to a general statement of its nature, but he very distinctly brings out that its nature is that in the one tool, to operate expansion of rolling, there may be and will be combined a cutter to trim off the end of the tube. I think, therefore, that the plea here altogether fails, that there is nothing in the complete specification which goes at all beyond the title and provisional specification, and consequently that the patent is not assailable upon that first ground. But then, in the second place, the respondent contends that the patent is invalid in respect of misrepresentation in the complete specification, and that raises a point of a different kind. He says it is proved in evidence that the patent apparatus or expanding tool cannot be used without percussion—that while the patentee in his specification professes to dispense altogether with blows of a maul or sledge hammer to drive in the tapering plug, it is not possible in actual work, however it

may be in experiment, to drive it in without the blow of some hammer. Now it may be admitted, I think, that in practice workmen using this apparatus do use a hammer to drive it into the roller stock, so as to enable it to bite the inside of the roller stock. At the same time, it is proved, I think, that it can be made effectually to do its work without the blow of a hammer. Probably the respondent is entitled to say that in practice it never will be, because it is much more difficult to do it without the blow of a hammer, and therefore that in any proper practical sense it is not true that the roller can be operated by the hand alone; and he says that the patentee has pledged himself to dispense with percussion altogether, and to operate by the hand only. The part of the specification to which he refers in regard to this is that which I read at the commencement of the specification, where the patentee is describing the principle of the invention. He says—"The principle of the invention which constitutes the subject matter of this patent is to expand the tube by rolling the metal by the application of one or more pressure-rollers to the interior of the tube, so that the metal is expanded by rolling, in contradiction to the old system of driving it outwards by hammering, and as the roller can be operated by hand the use of mauls or sledges, and all the inconveniences that attend their employment, are dispensed with."

Now that is the misrepresentation complained of. It appears to me this is a somewhat narrow point, but upon the whole I cannot think there is a misrepresentation. I think it is true that the use of mauls and sledges is dispensed with, because mauls and sledges are hammers of a very heavy kind, the use of which produces very violent percussion. We in Scotland are not very familiar with these words "mauls" and "sledges," but I take it that when translated into Scotch they mean mells and fore-hammers, and everybody knows that these are the two heaviest of the class of hammers as used by human hand with which we are acquainted, the one being the heaviest kind of wooden hammer, and the other the heaviest kind of metal hammer. Now I think that the use of such heavy instruments as these is dispensed with by the patentee's mode of expanding. It may be that the slighter percussion is very convenient and is commonly used to put the tapering plug into its place and enable it to bite the metal in the inside of the tube, so as afterwards, by means of the roller attached to it, to expand the metal of the tube all round. But all that the patentee has said upon that subject is that the roller can be operated by the hand, and so it can. It is capable of operating by hand, and therefore the percussion by hand is so slight that the use of mauls or sledges is altogether dispensed with, and, what is of more consequence still, the inconveniences that attend their operation are got the better of and altogether avoided. That is in evidence before us. There is no longer such an amount of percussion as to lead to the splitting of the tube and the displacement of other tubes that have already been placed in the flue-sheet; and therefore I think that while perhaps the patentee here was a little too sanguine in believing he could do without a hammer at all, he was not guilty of any misrepresentation, in any proper sense of the term, in the words he has here used. That disposes of the second objec-

tion to the validity of the patent; and the only remaining objection is, that the patent is invalid in respect of the failure in the said specification to make a full and true disclosure of the invention, such as would enable a workman of ordinary skill to put the same into practice. I understood that objection to be founded on the same ground as the second—that the misrepresentation in regard to the mode in which the tapering plug has to be got into its place would prevent a workman of ordinary skill from making use of the apparatus until he had found out for himself, but must resort to the hammer again. But there again I think the objection is not good, and the best proof is that many workmen of ordinary skill, and many who were examined here as witnesses, had no difficulty whatever in using this patent apparatus, and had no difficulty whatever, when they found that the tapering plug would not go very readily into its place, in taking a small hammer handy for the purpose and giving it one or two slight blows to put it in. The only question that remains for consideration is the question whether the respondent has infringed the patent, and here there is really no room for doubt. It is quite true that the tool which is used by the respondent differs in some respects from that which is described in the specification, but that is by no means sufficient. It may be—I do not say that it is—that the respondent's is a better tool, but that would not prevent him being an infringer if he has adopted the principle of the patent invention. Now there is no doubt in the world that although the respondent in his specification adopts different language from that which is used in the complainer's specification, he does use in combination rollers and a roller stock and a tapering plug for the purpose of expanding tubes by rolling, and that is the subject matter of the complainer's patent. It is quite true that in the case of the respondent's tool there is produced what he calls perfectly parallel expansion, while a tool made in terms of the complainer's specification will not be perfectly parallel expansion. That may be, for aught I know, an improvement. But then observe how that improvement is brought about. It is by a slight modification of that which is the subject matter of the complainer's patent. He tapers the roller as well as the tapering plug, and makes the taper of the one correspond precisely with the taper of the other, so that the effect is that the tube is expanded exactly to the same extent for the whole length of the roller. Each roller produces exactly an equal expansion throughout its whole length, and the roller of the complainer, not being tapered so as to correspond with the taper of the plug, produces not an equal or parallel expansion of the tube, but an expansion which in the tube is of a tapering nature. Now, the one may be better than the other; but the question is, whether this variation, whether for good or evil, is not just simply a variation upon the patent of the complainer, and therefore is the use of a patent invention. If a man discovers a great improvement upon an invention already patented he is very well entitled to take a patent for it, and can obtain a patent for it, but he must come to terms with the original patentee, and pay him a duty or in some other way satisfy his right. Then, again, it is said that the one differs from the other in this, that whereas the tapering plug is inserted from the outside and is

driven in in the case of the complainer's patent, in the case of the respondent's tool it is introduced from the inside and drawn outwards by means of a screw and nut. That is quite true. "And the effect of that," says the respondent, "is that percussion is not only not required in any instrument, but is impossible, because the head of the tapering tool not being outside but inside the tube to be expanded, it is impossible to get at it for the purpose of percussion, and you are therefore driven of necessity to depend entirely upon the screw and nut." That is another change which may or may not be an improvement; but suppose it be an improvement, it is still an improvement upon a patent invention, and it is impossible to use the improvement without using the patent invention; and there again the respondent in his own very description of these differences is practically confessing that he is using a patent invention. The infringement is therefore a matter of fact I apprehend, and attended with no difficulty whatever; and upon the whole matter I am satisfied that the Lord Ordinary's interlocutor is one which ought to be adhered to.

LORD DEAS—As your Lordship has stated, the answer of the respondent resolves itself into three heads. In the first place, objections to the disconformity between the title and the provisional and final specifications; in the second place, misrepresentation of the nature of the invention; and, in the third place, that the patent of the respondent is not an infringement upon that of the pursuer. I adhere to the views stated by your Lordship on all those three points, and I think there is really no difficulty except upon this second point. It is said that the expansion is not produced entirely by the pressure of the roller on the interior of the tube, but it is to some extent produced before that pressure begins to operate. In the second place, it is said that the expansion is represented as operated by the hand; and, in the third place, it is said that it is represented that the use of mauls and sledges is entirely dispensed with. I do not think expansion can really be said to be produced before the roller begins to operate. What takes place before that is simply the introduction of the roller to produce the expansion.

Then, the difficulty is mainly as to whether it is here represented that the expansion is here operated by hand and without the use of mauls and sledges. Now I think the words used are certainly not very cautious. The roller can be operated by the hand so that these words may be said to be according to the fact; but then, if it is meant that the use of mauls of all kinds is dispensed with, that would not be a correct representation of what takes place. There is a nicety here and a difficulty, but I am disposed to agree with your Lordship that the real meaning of that is, in the first place, that it is possible to do it altogether by the hand, and, in the second place, that at all events the use of mauls and sledges—that is, the use of heavy hammers either of wood or iron—is dispensed with, meaning that sort of heavy hammers which give rise to risk of splitting and of injury. As your Lordship has said, a maul may be taken as equivalent to a melle, and a sledge, with which we are not so familiar here, is an appropriate enough word for a fore-hammer. However, it means a heavy hammer,

and both of these things are now dispensed with. In the next place, it is said that an ordinary workman could not follow this description. That is entirely connected with the question whether it would or would not mislead him by making him think that expansion was produced entirely by rollers, and making him think that the use of the hammer is dispensed with. Upon this I also think that your Lordship's judgment is correct, and I have no difficulty in concurring.

LORD ARDMILLAN—I have, after attentive consideration of most able arguments on both sides, formed the same opinion as the Lord Ordinary and your Lordship. If there is no good objection to the complainer's letters patent, then I am of opinion that infringement has been proved, and that the complainer is entitled to succeed. On the evidence before us, and on a comparison of the tool or instrument used by the respondent, with the tool or instrument for which the complainer has a patent, I really entertain no doubt that the complainer's rights under his letters-patent, if the patent is itself valid, have been infringed. I do not know whether the respondent's instrument is or is not in some respects an improvement on the complainer's. But in its most essential and important features it is a copy, obviously a borrowing of that for which the complainer holds a patent. On this question I have nothing to add.

But the more difficult part of this case is—the attack which has been made by Mr Thomson, the respondent, on the letters-patent held by the complainer.

It is not necessary to decide whether the respondent's objection, in respect of disconformity between the title and the specification, would have been conclusive before the date of the statute of 15 and 16 Victoria. I am not satisfied that the objection would even then have been conclusive. But since the date of that statute the title is legitimately explained by the provisional specification, and the title and provisional specification, read together, are to be compared with the final specification. That is really the comparison which we must make. The title plus the provisional specification must be carried on to be compared with the final specification. As the result of that comparison, I arrive at the conclusion that there is no such disconformity as can render these letters-patent invalid. I think that the true nature of the complainer's invention, and of the mechanical instrumentality by which he practically works it, are sufficiently disclosed. The "cutter" and the "ratchet handle" are subordinate, and merely for the purpose of trimming and turning, and both are set forth in the provisional specification as well as in the final specification.

Another objection is that the specification is inaccurate and deceptive, because it sets forth that the principle of the invention is expansion by rolling, whereas, in point of fact, the "tapering plug" is first introduced into the tube by propulsion or insertion, and then, after "the bite" on the sides of the tube have been got by the insertion of the plug, the expansion by internal rolling commences. This, it is said, is not entirely expansion by rolling. I am of opinion that this objection, however ingenious, is not well founded. It must be assumed that in the process of rolling a certain amount of displacement of surface, which workmen call "a bite," must precede the rolling which pro-

duces the desired expansion. No expansion could take place if the "tapering plug" or "mandril" were so much less than the tube as to have no "bite." The first insertion of the expanding instrument must take effect in producing a "bite," but however that mere insertion is accomplished, it is only introductory to the "expansion by rolling," which is the invention, and which is promoted and introduced by the invention which secures a "bite."

The third objection taken is that the complainant's instrument is falsely described, because the instrument is represented as wrought, or capable of being wrought, by the hand, and as dispensing with the use of "mauls or sledges," and the inconveniences that attend their employment. Now, I think that the specification is not very happily expressed. But reading and construing it fairly, I am of opinion that we should not sustain the objection. It is proved that the complainant's instrument can be wrought by the hand, and has been sometimes so wrought. But it is, I think, also proved that "mauls," by which I understand heavy wooden hammers, and "sledges," by which I understand fore-hammers, or smith's hammers, are no longer used or required, but small mallets or light hammers are found to be practically useful, and are generally used. In consequence of the inaccurate expression used in the specification, a difficulty has here arisen. But, bearing in mind that the heavy hammers, "mauls and sledges," with the attendant inconvenience arising from their weight and power, are really dispensed with, and that expansion by rolling—possible by hand, and yet more effectively accomplished by the aid of light mallets—is within the intelligence and the power of a workman of ordinary skill, I think that we should not do justice to the complainant if we refused to acknowledge and to support his letters-patent.

LORD JERVISWOODE—During the progress of this cause I had at first considerable difficulty in coming to a conclusion upon the matter; but after hearing the whole discussion, and considering all that has been brought before us, I have come to the same conclusion as your Lordships.

The Court accordingly adhered to the interlocutor of the Lord Ordinary.

Counsel for the Complainant—Balfour and Hunter. Agents—Ronald, Ritchie, & Ellis, W.S.

Counsel for the Respondent—Solicitor-General (Clark), Watson, and Asher. Agents—Macnoughton & Finlay, W.S.

Wednesday, July 9.

SECOND DIVISION.

SPECIAL CASE—THE REVEREND ALEXANDER IRVINE AND JOHN IRVINE.

Settlement—Construction—Conditio si sine liberis.

Where a share of succession was appointed by a testator to be invested by his executors for behoof of C, one of his nieces, and her husband in life and her children in fee, and, failing children, the share was directed "to go to the survivors of my nephews and nieces, or the families of such as may have

predeceased on the death of C without issue."—*Held* that descendants of nephews and nieces predeceasing C were included in the terms of the settlement, and entitled to participate in the succession.

The facts of this case, as stated on record, were as follows:—The late Mr Alexander Irvine, merchant in Aberdeen, died on the 19th day of December 1849, leaving five holograph testamentary writings, of dates the 8th October 1842, 10th December 1844, 1st April 1846, 24th December 1847, and 7th November 1849, all recorded as probative writs in the Sheriff-court books of Aberdeenshire, 12th December 1849. Some of the executors named in the earlier writings having died, others were substituted by the testator in their place, and the Reverend Alexander Irvine, minister of the parish of Crimond, Aberdeenshire, the first party, is now the sole surviving executor. By the testamentary writing dated 8th October 1842, along with the dated 10th December 1844, the testator, after leaving some annuities and a legacy, all of which lapsed by the predecease of the annuitants and legatees, disposed of the residue of his means and estate. After the testator's death a state of his affairs was made up, showing the value of his estate, and the amount of debts due by him; and the executors thereafter gave up an inventory of the estate. The estate consisted entirely of moveable property. Shortly after the testator's death the executors drew up a scheme of division of the estate according to the terms of the will, and proceeded to realise the estate, and to pay the proceeds as realised to the residuary legatees, in terms of the directions to that effect contained in the will, with the exception of the shares falling to the testator's nephew, Thomas, and nieces, Margaret and Ann, all of whom survived the testator. The Reverend Alexander Irvine, the first party, and his co-executors, retained those shares falling to Thomas, Margaret, and Ann, in virtue of the powers to that effect given by the testator, and the same were invested by the executors, as realised, in heritable securities and otherwise, in their own names, as executors of the testator; the interest or income thereof, and also portions of the principal, being paid over to those residuary legatees, who were made aware from time to time, by the executor's agent, of the nature of the investments from which the interest remitted to them was derived. The amount of the funds now in the hands of the first party, as executor foresaid, is £2181, 11s. 11d., or thereby. Thomas Irvine died on the 12th February 1862, leaving no children, but survived by his wife, when the portion of his share left in the hands of the executors came to be divided, in terms of the said Alexander Irvine's will. In consequence of a claim by the said Thomas Irvine's executors on the funds in the hands of the said Alexander Irvine's executors, they raised an action of multiplepoinding, in which action the Lord Ordinary (BARCAPLE) pronounced an interlocutor which is now final. The persons preferred to the fund were, with one exception, either the testator's nephews and nieces, or the families of such as predeceased. The exception was the case of the executors of a child of one of the families who had predeceased; but as said child was unmarried and left no will, the other members of the family participated equally in the share preferred to said child, it being thus the same whether said child's executors claimed or the survivors of the