

Case No. 7,082.

IRWIN ET AL. V. DANE ET AL.

[9 O. G. 642; Merw. Pat. Inv. 352.<sup>1</sup>]

Circuit Court, N. D. Illinois.

1876.

PATENTS—“IMPROVEMENT IN LAMPS.”

Irwin was the first inventor of a device for securing a blast of fresh air to the burner of a lamp, by means of an inverted funnel or bell, and one or more tubes, by which the air heated by the flame of the lamp is caused to rise into the tube, and be thence conducted into a close reservoir below the flame, and from thence supplied freely to the flame, so as to sustain combustion; in other words, the combination of the bell, tube, air-chamber, and burner, as shown by his first patent, was original with him, and all who use a bell and tube or tubes, substantially as and for the purposes Irwin used them, infringe his first patent So all who use a globe in combination with the bell and tube infringe the second patent; and all who use the bell, tube, globe, and perforated plate E at the bottom of the globe, infringe the third patent.

[Cited in *Steam-Gauge & Lantern Co. v. Miller*, 8 Fed. 315, 321, 11 Fed. 719, 21 Fed. 515.]

[This was a suit by John H. Irwin and others against James F. Dane and others to restrain infringement of five letters patent granted to the complainant Irwin for improvements in lamps and lanterns. A preliminary injunction was granted in Case No. 7,081.]

Mr. Coburn, for complainants.

West & Bond, for defendants.

Before DRUMMOND, Circuit Judge, and BLODGETT, District Judge.

OPINION OF THE COURT. The bill in this case charges the defendants with the infringement of five letters patent granted to John H. Irwin for improvements in lamps and lanterns. The first patent bears date May 28, 1867, and is numbered 65,230. The second bears date the 7th day of January, 1868, and is numbered 73,012. The third bears date May 4, 1869, and is numbered 89,770. The fourth bears date February 2, 1869, and is numbered 86,549; and the fifth bears date February 1, 1870, and is numbered 99,443. The title of the complainants to the patents in question is not disputed, and the proof shows that the patents have been duly assigned by Irwin to the complainants in the shares claimed in the bill by them respectively.

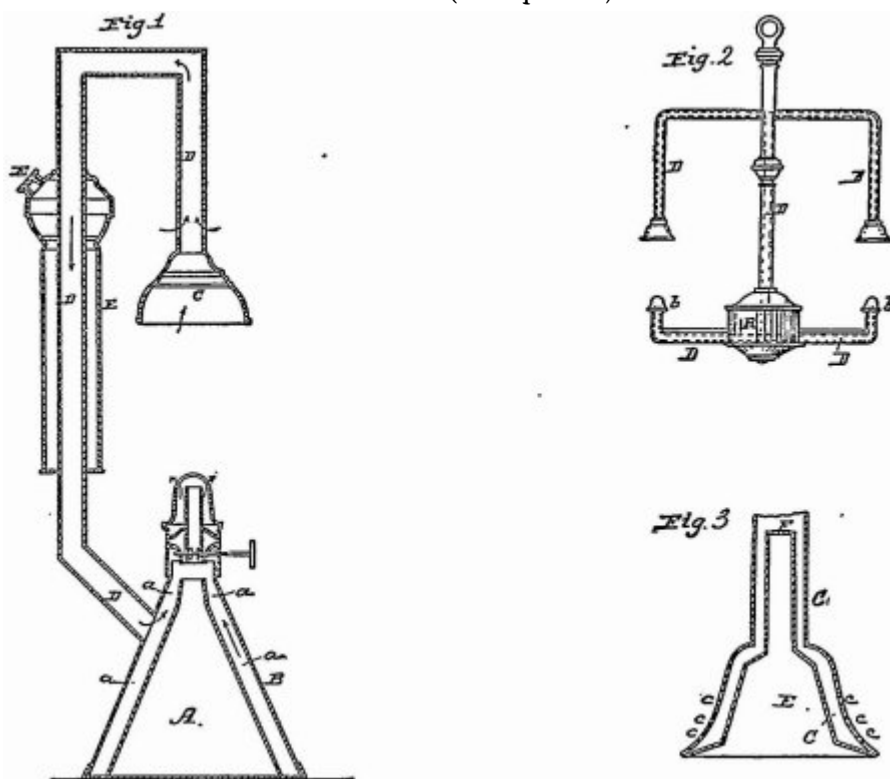
The defense set up is: 1. That the patents are void for want of novelty. 2. That the defendants do not infringe any of the valid portions, if there are any portions valid, of the several patents.

It was admitted on the hearing that the defendants had manufactured and offered for sale some lanterns constructed substantially as shown by the complainants' Exhibits Nos. 11 and 12. Upon the question of want of novelty, the defendants introduced certain English and French patents, as well as various devices and patents of this country. The first patent set up by the defendants is the French patent, granted June 2, 1826, to P. Tespaz, for smoke-consuming and vapor-condensing apparatus. The second is the French patent

issued to Messrs. Orry Nery and DeCorneille, dated the 4th of May, 1827. The third is the French patent to Henry Pape, dated August 20, 1841. The fourth is the French patent to Messrs. Martin and Marini, dated the 27th of April, 1853. The fifth, the English patent to John Braithwaite, dated in 1847. The sixth, the English patent to Edwin Edward Cassell, dated in 1838. Seventh, the American patent, No. 63,480, dated April 2, 1867, to A. R. Crihfield.

The scope and purpose of Irwin's first device, as shown by his drawings and specifications, attached to patent No. 65,230, is for a novel mode of producing a blast or current of air at the burner of a lamp, for the purpose of supplying oxygen thereto, and dispensing with the ordinary chimney in common use for that purpose; and it consisted in so constructing a lamp that the heated air, rising above the flame of the lamp, should cause a current of air to descend into a close air-chamber below the flame, and thence ascend to feed the

[Drawings of patent No. 65,330, published from the records of the United States patent office].  
(Frist patent.)



flame. The proposed result was accomplished by suspending at a proper distance from the flame, to catch the heated air, an inverted bell or funnel, C, from which a curved tube, D, was carried downward to the base of the lamp, where it opened into a close reservoir, surrounding the oil-pot, and communicating directly and freely under the cone of the burner, so as to supply the lamp at the point of combustion with the requisite amount of air to keep up a clear and steady flame. In order to secure the successful operation of this device, it was necessary that the bell or funnel, the tube, and the reservoir, into which the tube entered, should be close, and have no apertures for the escape of the air therefrom, except at the exit into the burner; the object being to create such an arrangement of the parts as that the sole supply of air should be forced through the funnel and pipe into the reservoir, and thence to the burner, as the same was needed to secure combustion. The evidence in regard to the state of the art shows that up to the date of this patent all the practical or successful lamps intended for the burning of the coal or carbon oils, had been fitted with chimneys by which the draft of air necessary to secure combustion, was produced, although of course some attempts had been previously made to dispense with the chimney by the use of the fan-blast, or by inducing a current of air through the burner from below, but those attempts seem to have been barren of successful results. The only claim in the first patent, which is in controversy in this case, is the first claim, which is,

“In combination with a lamp and its burner, the tube D or its equivalent, arranged and operating substantially as and for the purpose specified.” This tube D is shown and described in the specifications and drawings with the bell or funnel forming a part thereof, and we think the fair construction of the whole patent requires that the bell should be considered as part of the tube. It is not the tube D unless it has an inverted funnel at its upper end. It seems to have been the idea of the patentee of this device to secure a perfect combustion of such oils as require an unusual supply of oxygen, without the use of a chimney, and he accomplished this by a blast driven from the bell and tube down to the burner in the manner which his patent describes. The illustrations and exhibitions of the results produced by this burner, made upon the trial, show that the operation of these tubes, when not disturbed by external currents of air, was perfect, or nearly so, to accomplish the desired result. The flame was brilliant, without smoke or odor.

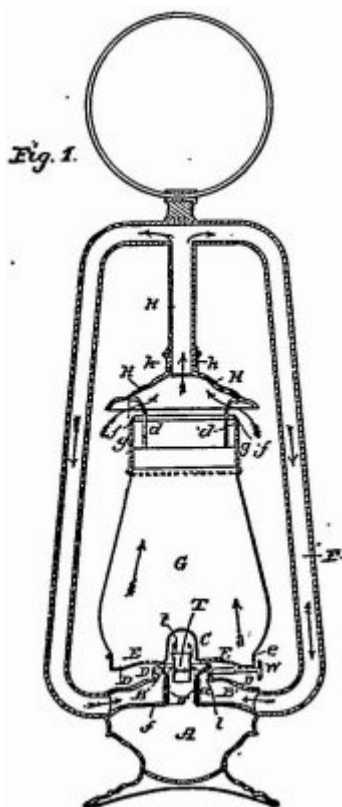
By his second patent, No. 73,012, Irwin claimed to have made an improvement upon the first device, by adding such parts thereto as made a portable out-of-door lamp or lantern. He accomplished this result mainly by the addition of what he calls a protector,

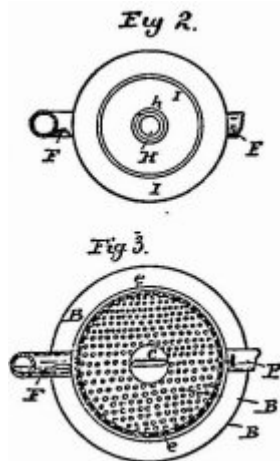
which is nothing more than an ordinary glass globe which surrounds the flame of the lamp and extends upward nearly to the mouth of the bell or funnel, thereby directing the current of air into the funnel, and preventing it from being diverted therefrom by external currents of air or any other disturbing cause. When the rising column of heated air was once protected from the external currents and disturbances, in its passage upward from the vicinity of the flame into the bell, the subsequent operation of the lamp was precisely the same in the device shown by the second patent, as in the first—that is, the heated air was conducted around from the bell underneath the burner by one or more tubes, so as to supply air to the burner in the same manner as is described in the first patent. The claim in this patent is as follows: “I claim, in combination with the burner of a lamp and the globe, a protector thereof, one or more tubes or passages, D, or their equivalent, arranged to operate substantially as specified and described.”

The third device, as shown in patent No. 89,770, is for various improvements which more nearly perfected the invention, and adapted it to use as a portable out-of-door lantern. The theory of, Mr. Irwin seems to have been, and is, that the products of combustion, such as carbonic acid gas, steam,

[Drawings of patent No. 89,770, published from the records of the United States patent office.]

(Third patent.)

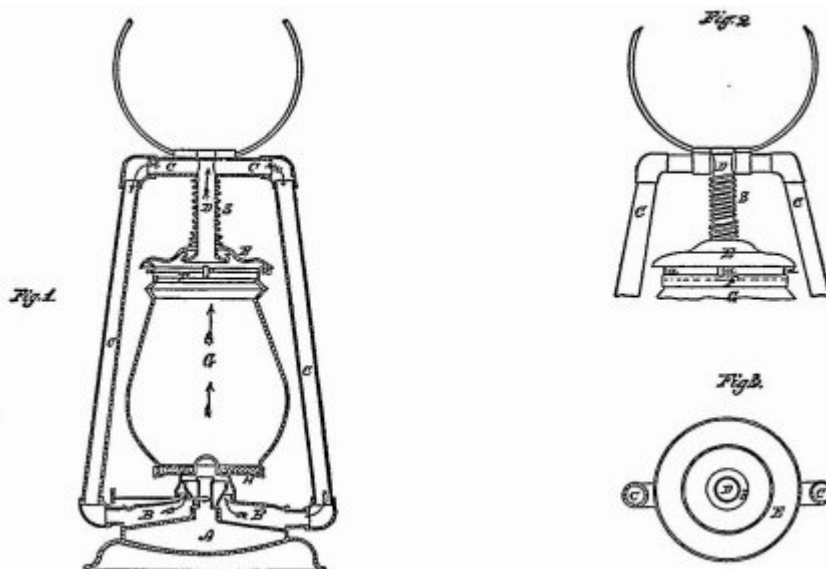




and other matters, rise with the current of air to the top of the protector, and are there thrown off from the outside of the rising column, and pass out over the top of the protector, and between it and the bell, while the air which passes into the bell is mostly pure atmospheric air, uncontaminated by, and unmixed to any considerable extent with, the products of combustion. In order to secure the exit of these products of combustion from the top of the lantern, a sufficient space is left between the protector and the bell, which is occupied by the perforated rim, g, and the top of the rim is so curved or deflected in, and upward, as to prevent currents of external air from passing down the globe and extinguishing the flame. The globe also rested upon a perforated plate or disk, B, which formed the bottom of the globe, and which also by its perforations, admitted the air freely, so that the same could become heated, and crowd, so to speak, into the bell, so as to create the blast required for furnishing the air to the burner. On the trial of this case several experiments were performed in the presence of the court, for the purpose of illustrating the operation of the various elements of this Irwin combination, which seemed to demonstrate: First, that it is essential to the operation of this lamp that a space should be left between the globe and bell sufficient to allow the escape of the products of combustion. If this space was wholly closed, so that the products of combustion were driven around into the air chamber and into the flame, the light was nearly extinguished, and the operation of the lamp defeated. Second, that provision must be made for admitting an ample supply of air into the globe at its base, so that it might rise in the globe, become heated; and be driven into the bell and tube. When this supply of air was cut off the flame died down, and the operation of the lamp was suspended. There was also shown in the patent a plate, t, fitting closely upon the top of the wick-tube, intended to prevent the air from coming so directly in contact with the

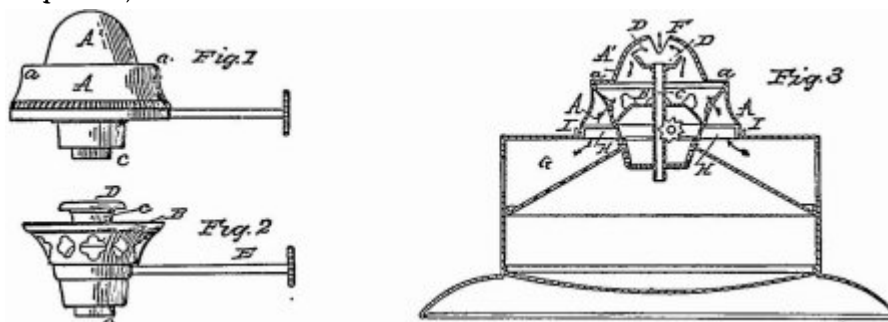
[Drawings of patent No. 86,549, published from the records of the United States patent office.]

(Fourth patent.)



[Drawings of patent No. 99,443, published from the records of the United States patent office.]

(Fifth patent.)



flame at its base, or at the mouth of the wick tube, as to extinguish it by any sudden gust or increase in velocity.

The fourth and fifth patents have reference to minor devices, all intended to perfect and improve the Irwin lantern. By the fourth patent he provided for holding the globe in place, and, in fact, holding the whole lantern together by means of a sleeved tube, fitting on to the tube, D, and held in place by a spring, S. The fifth patent has reference to some improvements in the burner, and the construction of the cone and jacket in one piece.

It will be seen from this brief explanation of each of the five patents, that Irwin claims to have entered a new field of invention, to have devised by his first step a new method by which a sufficient blast of fresh air could be supplied to the burner of a kerosene-lamp, or lantern, without a chimney. For although he doesn't expressly say that his lamps are only for the purpose of burning kerosene, yet it is a matter of common experience and knowledge, that these carbon or earth oils are the only ones now in general use which

require any special devices for supplying air, in order to secure their combustion, for illuminating purposes; and by the second step, he protects the flame thus produced from being extinguished by external blasts or air, by surrounding the same with a globe or protector. By the third step, he claims to construct a lantern which will withstand not only the ordinary currents of wind out of doors, but which may be swung or moved rapidly in a lateral or vertical direction without danger of extinguishing the light—an important element of which is the perforated plate or disk E at the bottom of the globe. In other words, he claims to supply a blast by means of the inverted bell and



the tube; and to secure the regularity of the blast by the protector or globe, and the perforated plate E at the bottom of the globe. He claims, broadly, the invention of the bell and tube or tubes for the purpose of producing the results aimed at; and the important question in this case is: Does the evidence shown entitle him to this broad claim? Of course funnels and tubes were old, and we find in the evidence in this case on the state of the art, that an air-chamber at the base of the flame, and through which the air was admitted to the burner was not new to this inventor. Cassel and Crihfield had both conducted the air into an air-chamber through tubes, and drawn the same by means of an induced blast through the burner—the globe acting as a chimney to induce the blast—but it is claimed for Irwin, in this case, that he was the first to conceive the idea, and reduce it to practice, of making an operative lamp, which should dispense with the chimney, and be supplied with fresh air by means of the bell and tube, as shown in his device, and for an operative combination of the globe and perforated bottom to the globe, by which a clear burning lantern was produced, in which carbon oils could be burned without the use of a chimney. All the French and English patents which are shown in this case, were ostensibly devices for burning smoke, or for the condensation of the products of combustion in such a manner, as to prevent their escape into the room, to the discomfort of persons, or the injury of goods or furniture, and none of these inventors, either Tespaz, Orry Nery and De Corneille, Edwin Pape, Martin and Marini, or Braithwaite, claimed that their devices were for supplying air to the flame for the purposes of combustion. On the contrary they all make specific provision for the supply of air from other sources, and nowhere in their devices, either by drawings or specifications, do either of them intimate that the device is intended to do what Irwin seeks to do—that is, to supply the air for the purpose of feeding combustion solely by the bell and tubes. All these various devices show, in some form, bells and tubes by which it was proposed to catch, or, as the witnesses say, “entrap,” the products of condensation, as they arise from the flame of the lamp, and carry them either to the flame, where it was claimed they would be burned, or into some bulb or other reservoir, where they would be condensed; and although upon trial of this case we had various exhibitions and experiments, tending to show that by very slight alterations these old smoke-consumers could be made to perform substantially the function of Irwin’s device, yet it is most palpably evident that none of the inventors even intended they should perform such functions. They never intended that their bells and pipes should be the sole source for the supply of air to support combustion—which is the leading idea in the Irwin device; but on the contrary, their one leading and only thought seems to have been to carry the products of combustion around to the flame, and deliver them there for reburning, while the flame was supported by air from other sources; and the various devices are contrived apparently with much ingenuity and purpose to that end. There is no such provision for allowing the products of combustion to escape as is shown in the

Irwin device. On the contrary, the whole effort seems to have been to drive the products of combustion into the tube, and carry them around to the flame, or to the point of condensation; and the experiments shown upon the trial of the case demonstrated that if the products of combustion are thrown or driven into the tube and brought down to the base of the flame, and no other air is supplied to the flame than what comes with the products of combustion, flame cannot be supported.

We do not deem it necessary to dwell longer on these devices. They were evidently, as we have already intimated, intended for another purpose. It was not in the mind of any of those who conceived these French or English patents to do what Irwin was seeking to do; but they were seeking another and different end. How successfully they might have attained that end it is not our province here to inquire or determine. Of course, if we could find that these old French and English patents contained the principle of the Irwin patent, they would defeat the broad claim of his patent for the use of the bell and tubes; although the inventors of those old devices may not have understood the principle on which they operated. But it is objected that in the second step in which Irwin has placed the protector or globe around his flame, he is not entitled to a patent, because globes were old, and protectors to the flames of lamps, and especially of lanterns, are as old as lanterns themselves; and this position is undoubtedly sound, unless it appears that the globe in Irwin's lantern performs a different function from that heretofore performed by globes in lamps or lanterns. So far as we have been able to ascertain, the only function performed by globes prior to this device of Irwin's was to act as a shade for the purpose of softening the light, or perhaps in some cases as a protector for the purpose of preventing it from being blown out by drafts of air. Although in all the drawings which were shown in evidence in this case, where globes appear, and also in the drawings of lamps, under the title of lamps, in Appleton's Dictionary of Mechanics, the globe is shown with the chimney inside; the chimney acting substantially as a protector, and not requiring the globe for that purpose. We think, however, that the globe in Irwin's combination, in his second patent, and in all the subsequent patents where the globe is shown, performs a function in addition to that of merely protecting the flame from external currents of air.

It directs the rising current of air into the funnel, and, by keeping the rising column of air surrounded and isolated from the external air, assists in heating it, and thereby causes it to rise more rapidly and freely into the bell, and by its pressure in the tubes produces a stronger and more steady blast. This is a new function performed by this globe, and as such, it seems to us, entitles Irwin to a patent upon the globe, in combination with the bell and tubes, as shown in his second patent; because it not only secures a better operation of the bell and tubes, but it makes the bell and tube operative under circumstances where they would not be operative without the globe. The globe operates not only to do what other globes had done before, but it does more. It creates a current, or assists materially in creating a current, by which the flame is fed, and not in the manner in which a chimney does that, for, if it did, and if the function of this globe was the same as that of the ordinary lamp-chimney, then no patent could be claimed for it; but it does its work differently, and does different work from that which is accomplished by the lamp-chimney. The chimney carries away, almost entirely, the products of combustion—the burned air—which has passed through the burner; but the globe in Irwin's combination carries a supply of fresh air, for the purposes of carrying the same into the bell, and thence down by the tubes into the air-chamber and burner. The same line of remark will apply to the perforated plate E, forming the bottom of the globe. Galleries and other devices for holding the bottom of the globes, and holding the globe in its place, were old; but this perforated plate, while allowing the entrance of an ample supply of air into the globe, at the same time breaks up the currents by the perforations, so as to prevent the rash of an air-current which would extinguish or endanger the flame; and as an element for securing the perfect and complete operation of the Irwin device as a practical operative lantern, we think the plate B may be considered as a patentable device when used in the combination and for the purposes shown. The rim, g, and the spring by which, under the third and fourth patents, the lantern is held together, and the globe secured in place, are obviously mere adaptations by which the leading idea is utilized, and are, as far as we can see in the evidence in this case, valid patents for the purposes to which applied, but do not necessarily cut off other parties from holding their lamps together by different methods; and the device of the defendants for the same purpose does not seem to us to be covered by the patent. So, too, the plate, t, upon the end of the wick-tube, undoubtedly performs an important function in securing a practical out-door lantern, which is not readily extinguished by currents of air, or by the swinging or vertical motion, as it guards the base of the flame from those sudden drafts and blasts of air to which the wind or the motions which we have suggested would otherwise subject it. But it seems to us, from the evidence in the case, that the plate, t, is not new to the art. It seems to have been used in various burners prior to the Irwin invention; and we do not find that it performs any new function in this combination. Unlike the globe or the perforated plate at the base of the

globe in this combination, this plate, t, does for Irwin's light just what it did for Adams and Bary, Johnson and Ambrose, and various other inventors who preceded Irwin in this field of invention. So, too, it seems to us that the cone and jacket A, formed of one piece, with the shoulder, as described in the fifth patent, are old devices applied to Irwin's combination, with no new functions performed by them. True, we do not see in any of the burners which have been exhibited to us the idea of the shoulder, a, and the perforated frame B, for the purpose of supporting the burner and gaging the wick-tube; but the idea of forming the jacket and cone of one piece and causing it to engage with the rim H, so as to form a tight air-chamber, was accomplished by Gerstine long before Irwin's fifth patent was applied for; and we do not find in the device used by the defendants in their burner, the frame B described in the Irwin burner, as shown in the patents now under consideration. The defendants' burner shows that the corners of the plate, to are turned downward so as to form a rest for the cone, and perhaps to guide the adjustment of the wick-tube; but we do not think the evidence shows that Irwin, with reference to this device of merely guiding the adjustment of the wick-tube, stands in any position to invoke the doctrine of equivalents, and although the defendants' device may accomplish the same result, yet as it is accomplished by a substantially different mechanism, there is therefore no infringement.

It was objected that the second patent is void, because it does not give any specific directions for the space to be left between the top of the globe and the bell; but we think that when the drawings and specifications are taken together, they show the relation which the inventor intended the globe should bear to the bell with sufficient clearness to enable any skillful workman to construct an operative lamp, embodying Irwin's principle.

We then come to the conclusion that Irwin was the first inventor of a device for securing a blast of fresh air to the burner of a lamp, by means of an inverted funnel or bell and one or more tubes, by which the air heated by the flame of the lamp is caused to rise into the tube, and be thence conducted into a close reservoir below the flame, and from thence supplied freely to the flame, so as to sustain combustion; in other words, the combination of the bell, tube, air chamber, and

burner, as shown by his first patent, was original with him, and all who use the bell, and tube, or tubes, substantially as and for the purposes Irwin used them, infringe his first patent So all who use a globe in combination with the bell and tube, infringe the second patent and all who use the bell, tube, globe, and perforated plate E at the bottom of the globe, infringe the third patent. The plate, t, at the top of the wick-tube, shown in the fourth patent, seems to us to be an old device which performs no new function in Irwin's combination. The method of holding the parts of the lantern together by means of the sleeve and spring, shown in the fourth patent we do not find in the defendants' lantern, nor do we find in the defendants' lantern the frame B used for the purpose of gaging the wick tube, the defendants' device for that purpose being the prolongation of the corners of the plate, t, from the top of the wick-tube. The combination of the cone and jacket shown in the fifth patent is identical with the Gerstine cone and jacket, which is older than Irwin's cone and jacket. The defendants' lamps-complainants' Exhibits Nos. 11 and 12—contain the Irwin bell and tube, made operative by a close air-chamber communicating with the burner in the same manner as Irwin's bell, tube, and chamber and burner operate. They contain the globe or protector, and the perforated disk or plate at the bottom of the globe, and these parts perform exactly the same office, and no other, that they perform in Irwin's lantern. The defendants then infringe by using in their lantern all the parts covered by Irwin's first three patents, which make his lantern operative, viz.: The bell, tube, globe, and plate E.

{For other cases involving these patents, see *Irwin v. Dane*, Case No. 7,081; *Irwin v. McRoberts*, Id. 7,085; *Steam-Gauge & Lantern Co. v. Miller*, 8 Fed. 314, 11 Fed. 718, 21 Fed. 514.}

<sup>1</sup> [Merw. Pat. Inv. 352, contains only a partial report.]