

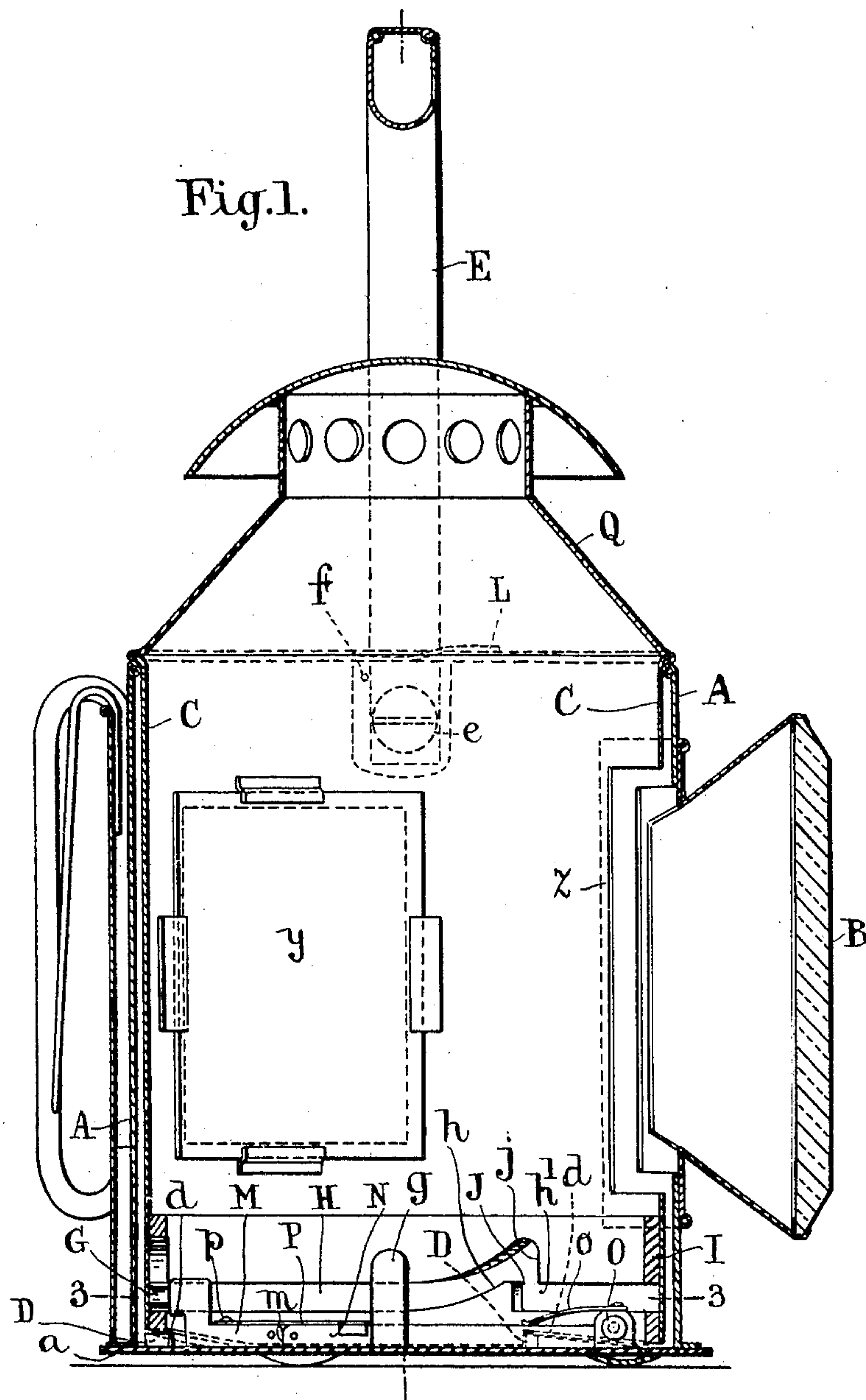
No. 878,431.

PATENTED FEB. 4, 1908.

E. M. TOMLINSON.
HAND SIGNALING LANTERN.

APPLICATION FILED APR. 26, 1907.

5 SHEETS—SHEET 1.



WITNESSES :

W. M. Avery
J. P. Davis

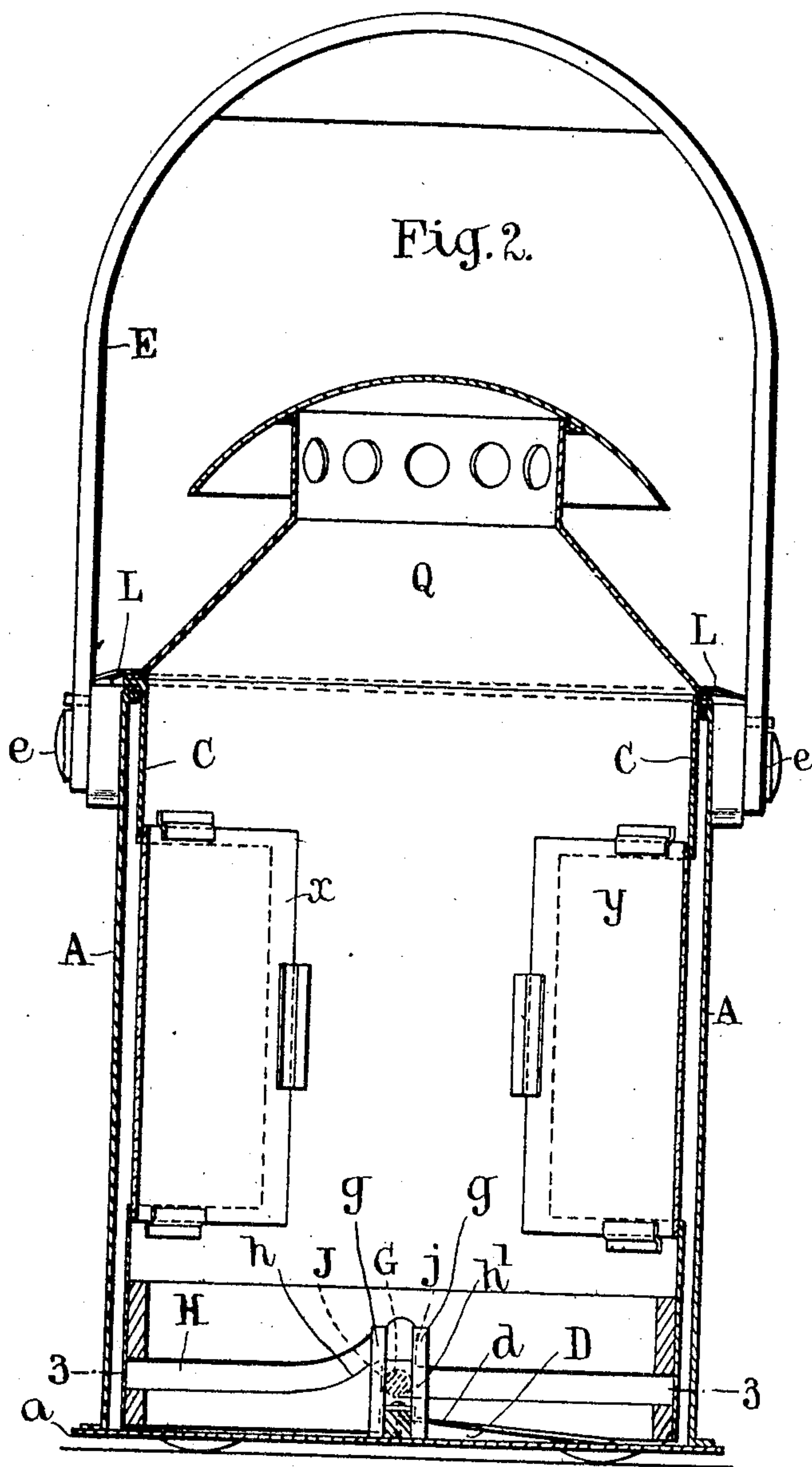
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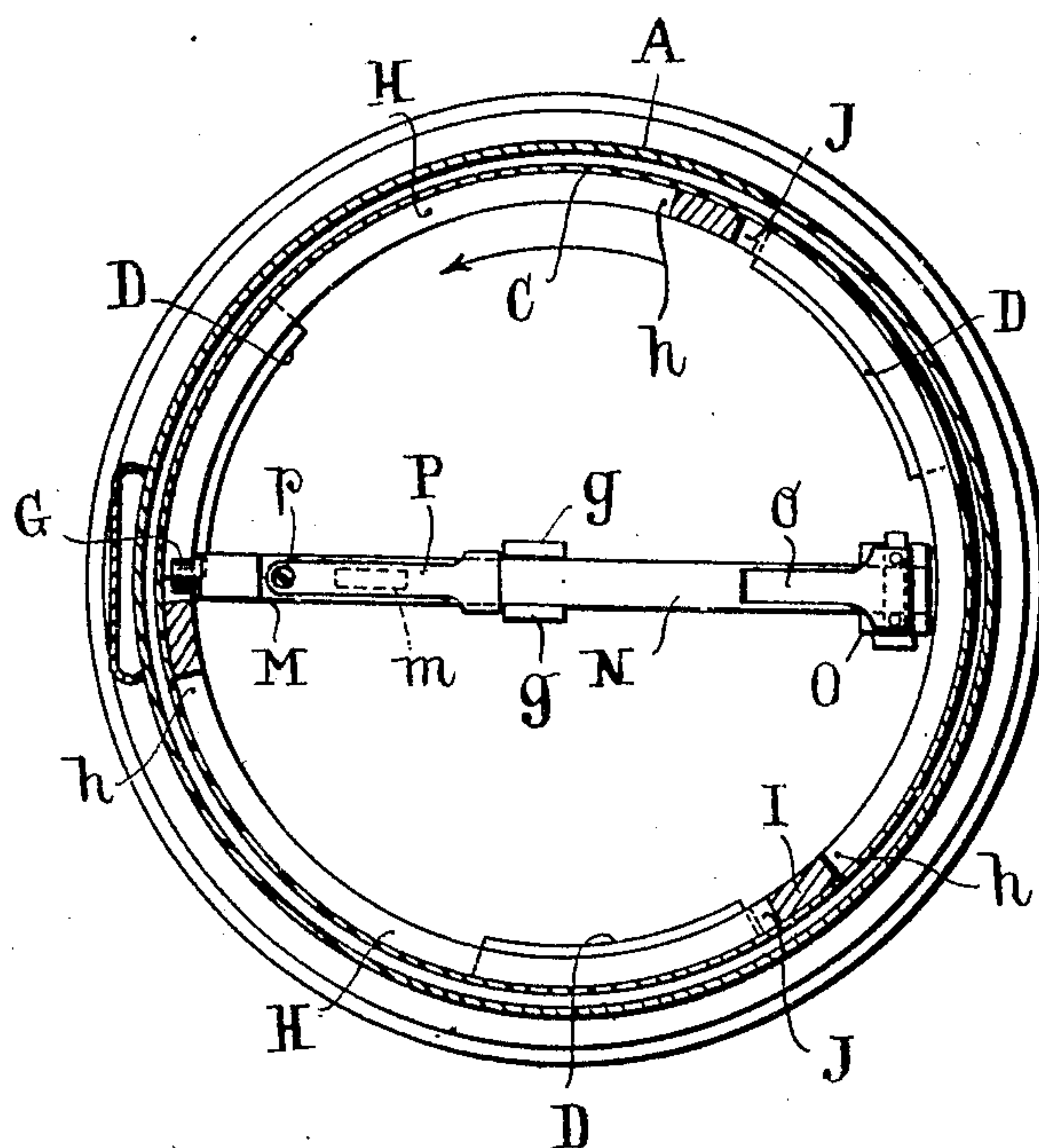
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Fig. 3.



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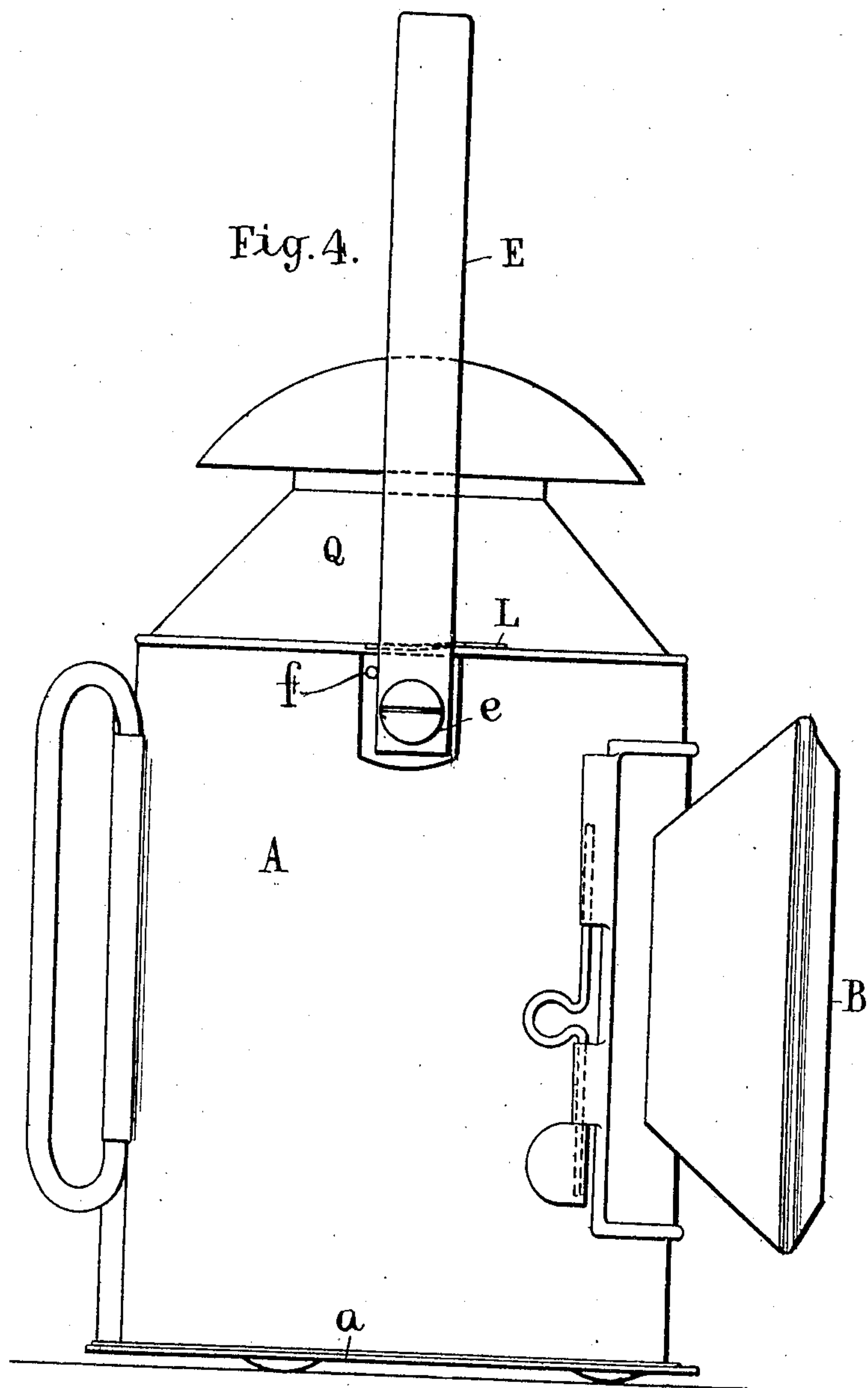
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5 SHEETS—SHEET 5.

Fig. 7.

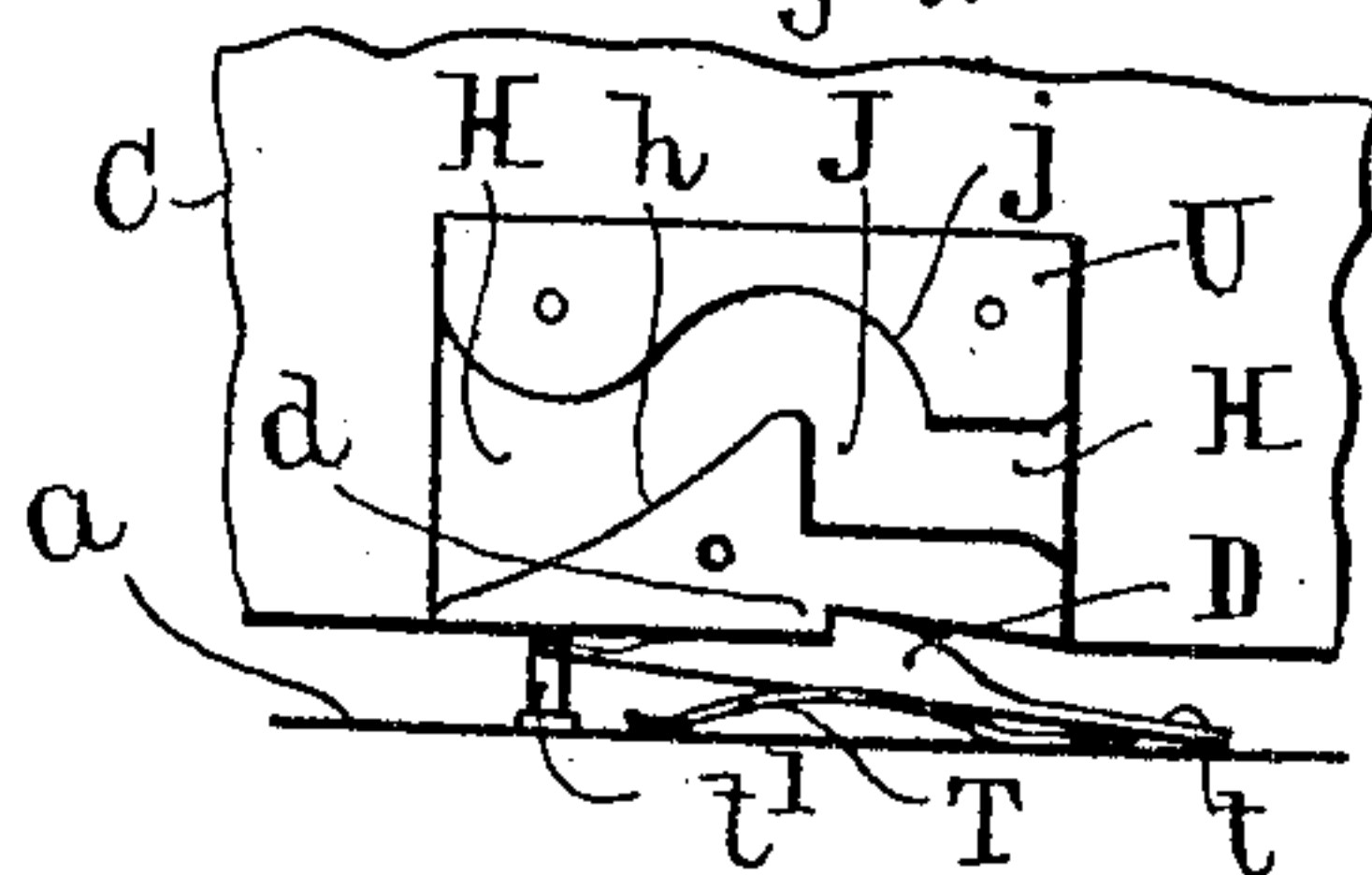


Fig. 5.

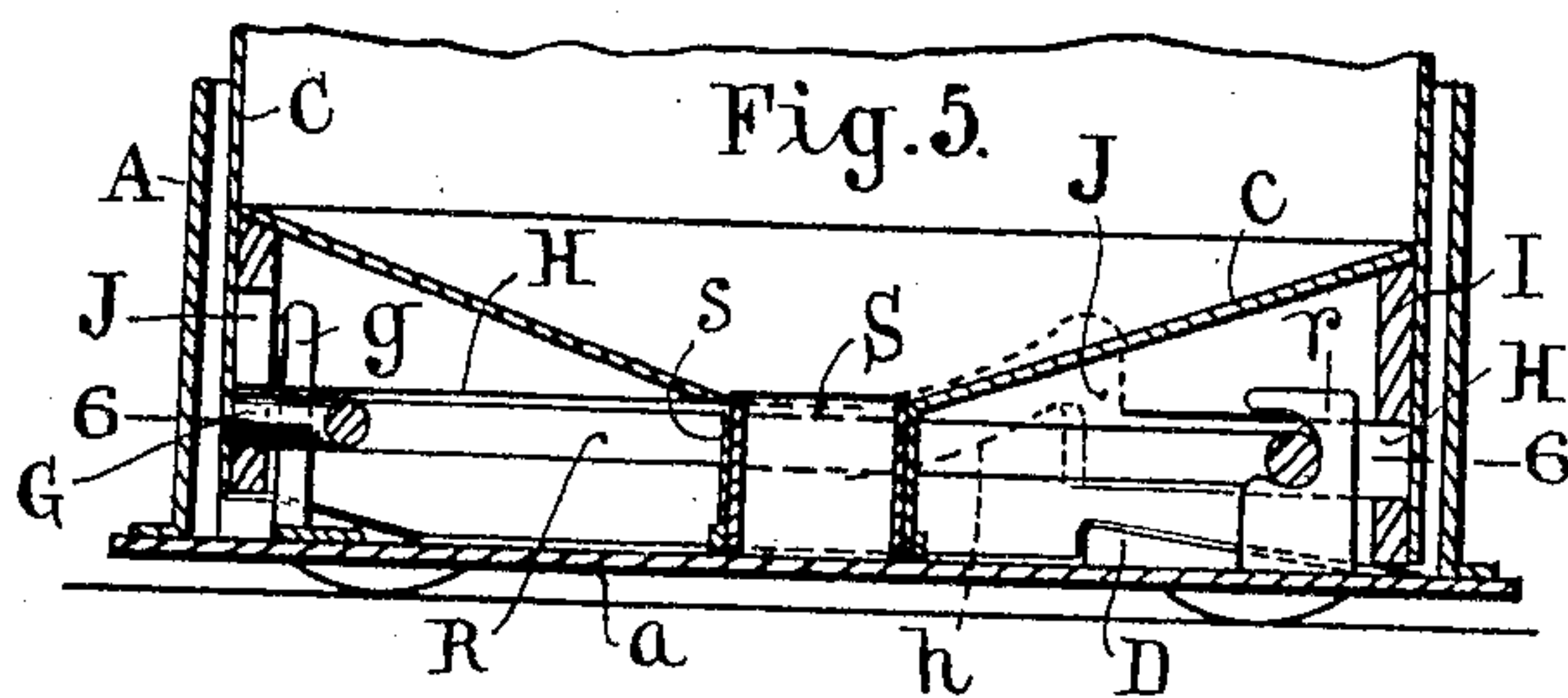
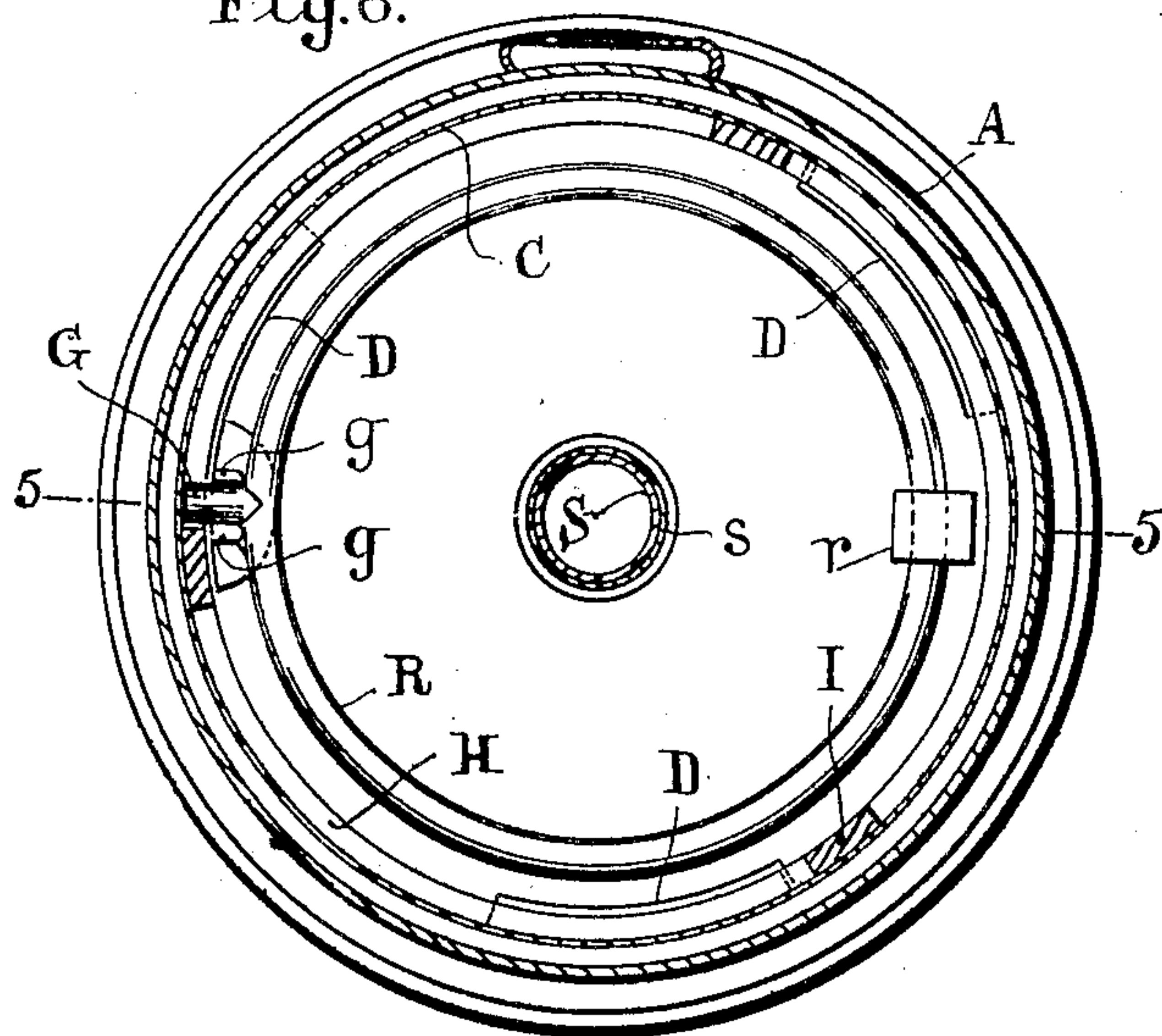


Fig. 6.



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UNITED STATES PATENT OFFICE.

EDWARD MURRAY TOMLINSON, OF PETERSFIELD, ENGLAND.

HAND SIGNALING-LANTERN.

No. 878,431.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed April 26, 1907. Serial No. 370,443.

To all whom it may concern:

Be it known that I, EDWARD MURRAY TOMLINSON, a subject of the King of Great Britain, and resident of the Castle House, Petersfield, in the county of Hants, England, clerk in Holy Orders, have invented certain new useful Improvements in Hand Signaling-Lanterns, of which the following is a specification.

This invention relates to hand-signaling lanterns for the use of railway guards, shunters and others which can be operated by one hand by a sudden twisting movement to successively change the screen in front of the light.

The construction of the improved lantern is such that merely by sharply twisting the hand which holds the lantern, the frame carrying the different colored glasses will be caused to rotate, relatively to the lantern body, through a definite angle, and may at each such operation bring a different colored glass into registration with the bull's-eye of the lantern.

Reference is to be had to the accompanying drawings wherein

Figure 1 is a vertical axial section from front to back, and Fig. 2 is a similar section looking rearward, of a hand signaling lantern constructed according to this invention. Fig. 3 is a horizontal section on line 3—3 of Figs. 1 and 2, and Fig. 4 is a side elevation of the lantern. Figs. 5, 6 and 7 show modifications.

For the sake of clearness the lamp and reservoir, which may be of any convenient construction, are omitted in the drawings.

Similar letters of reference denote like parts in all the figures.

The body or outer casing A of the lantern is inwardly cylindrical and provided with the usual glazed window or bull's-eye B mounted in a frame which is hinged to the body A so as to constitute a door giving access to the interior of the lantern through an opening in the front wall thereof. Within the cylindrical body A an outwardly cylindrical frame C is fitted to turn, this frame being open at its lower end and provided with a horizontal series of lateral windows adapted to be successively brought, by the rotation of the frame C relatively to the body A, into registration with the bull's-eye opening in the wall of the lantern body. In the typical example illustrated, three such windows are shown in the frame C, two of these, *x* and *y*,

being filled with green and red glasses respectively, while the third *z* is left vacant to allow the transmission of white light.

The frame C is rotatable in only one direction relatively to the lantern body A, this direction being preferably the reverse of clockwise as indicated by the arrow in Fig. 3, and in order to prevent retrograde movement a ratchet or equivalent connection is provided between the two, the preferred construction consisting of angularly equidistant ratchet teeth *d* on the lower edge of the frame C adapted to simultaneously engage as many similar but opposed teeth D upstanding from the bottom *a* of the lantern body. The number of teeth in each set D and *d* corresponds to the number of windows in the frame C (three being shown in the example illustrated), and their position is such that the teeth of the two sets D and *d* will be in mutual engagement when either of the windows *x*, *y*, *z* registers with the bull's-eye B.

The lantern body A is provided with a bail handle E pivoted to the side walls as at *e e* so as to be capable of being turned downwards towards the front in order to permit the withdrawal of the frame C from within the body, stops as at *f* (Fig. 4) being provided whereby to prevent the handle E from passing in the opposite direction beyond the vertical position shown. It will be obvious that if the hand which holds the lantern be sharply twisted in the direction of the arrow, the momentum thus imparted (through the ratchet teeth D, *d*) from the body A to the frame C will cause the latter to continue revolving after the body A has been arrested by the wrist of the operator reaching its limit of movement, the extent of angular displacement of the frame C relatively to the body A depending upon the force and rapidity with which the original twisting movement was performed. Or, if the hand be sharply twisted in the direction contrary to the arrow, the inertia of the frame C will cause the latter (if made sufficiently heavy) to remain stationary while the body A rotates, with the result that on the cessation of movement the frame C will have become angularly displaced relatively to the body A as before. The previously described method of producing such angular displacement is however preferable, as being more certain of effecting the desired result in consequence of the positive mutual engagement of the ratchet teeth D and *d*.

In order that the angular displacement of the frame C produced by each twisting movement of the hand may be limited to the angular interval between adjacent windows in the frame, a device is provided whereby, on any one of said windows coming into registration with the bull's-eye B, the rotation of the frame C will be momentarily checked, the device ceasing to be operative as soon as the frame comes to rest.

The checking device consists of a horizontal pin G carried by the body A of the lantern and engaging in an endless groove H provided in one face (preferably the inner face as shown) of the frame C and encircling the latter near its lower edge, the length of the groove H being divided into sections which correspond in angular extent to the intervals between the windows in the frame. The sections are separated from one another by vertical portions J, each section commencing at the bottom of the preceding vertical portion J and sloping upward near its farther end, as at *h* so as to terminate at the top of the next succeeding vertical portion. The groove H J may be formed in a marginal thickening ring on the frame C. The pin G, which is so placed as to register with one of the portions J of the groove when any one of the windows *x, y, z* registers with the bull's-eye B, is movable in a vertical plane only, and tends to remain in the lowest attainable position. Consequently, as the frame C rotates within the body A of the lantern, the pin G will be caused by its engagement with the groove H to move vertically when the upwardly sloping portion *h* of the groove comes opposite to the position of the pin, and the rapid rotation of the frame will be suddenly checked by the vertical wall of the groove at the farther side of the upper end of the advancing portion J, as at *j*, encountering the pin G before the latter has had time to drop down through the vertical path afforded by said portion J of the groove. On the frame C being thus brought to rest, the pin G will drop to the bottom of this vertical portion J, and will thereby be brought opposite to the commencement *h'* of the next succeeding horizontal (or approximately horizontal) portion of the groove H, so that no opposition will be offered to a fresh movement of rotation on the part of the frame C.

It will be observed that the relative arrangement of the ratchet teeth D and *d* and the vertical portions J of the groove H is shown as being such that, concurrently with the rise of the pin G in the inclined portion *h* of the groove, the entire frame C will rise in consequence of the teeth *d* on the frame riding upwards over the teeth D on the body A of the lantern, the frame dropping to its normal level simultaneously with the descent of the pin G in the vertical portion J of the groove. Although this is the prefer-

able arrangement, such simultaneity of vertical movement on the part of the frame C and pin G is however not essential. Springs, such as shown at L, may be provided for the purpose of insuring the frame C descending promptly after surmounting the teeth D, these springs being removable to permit of the withdrawal of the frame C from within the body A of the lantern when necessary.

The pin G is so mounted as to permit of being withdrawn from the groove H, J when it is desired to lift the frame C out of the body of the lantern or to return it to position therein. For this purpose the pin may project from the end of a short arm M forming a virtual continuation of an approximately horizontal lever N to which it is hinged by a knee joint *m* whereby only upward movement of the arm M in a vertical plane from its normal position is permitted. The lever N is likewise movable from normal position only in a vertical plane about a joint whereby it is pivoted as at O to a bracket mounted on the bottom *a* of the lantern body, lateral displacement of the lever being prevented by a pair of vertical guides *g g*. The lever N is pressed downwards by means of a light spring such as *o*, while the arm M is rendered (under normal conditions) virtually integral with the lever N by means of a stiff flat spring P pivoted at *p* to the arm and bearing upon the lever, so that, when the frame C rotates relatively to the body A, the pin G will rise and fall about the joint O as a center, the arm M and lever N then moving together as one. When however, it is desired to withdraw the frame C from within the body A of the lantern (the pin G resting at the lower end of one of the vertical portions J of the groove H), the spring P is moved aside about the pivot *p* whereby it is attached to the arm M; whereupon the arm may be bent upwards about its joint *m* independently of the lever N, with the result that the pin G will be withdrawn from the groove and will consequently offer no obstruction to the lifting of the frame C out of the lantern body A or its reinsertion in position therein. The ventilating and draft-excluding top Q of the lantern is preferably integral with the frame C as indicated. The lamp itself (oil reservoir and burner) rests above the bracket O and lever N, upon a support (not shown) rising from the bottom *a* of the lantern body.

Fig. 5 is a vertical axial section of the lower part of the lantern on line 5—5 of Fig. 6, and Fig. 6 is a horizontal section on line 6—6 of Fig. 5, showing a modified arrangement of support for the pin G. In this arrangement the pin is carried by and projects radially from a ring-shaped lever R mounted approximately concentrically with the frame C and hinged to the bottom *a* of the lantern body at a point O diametrically opposite to the pin G so as to render the latter capable

of movement in a vertical plane about the point O. The lever R may be made removable from within the lantern by its hinged connection therewith consisting in the ring being received loosely in a slightly undercut notch opening laterally towards the pin G in a bracket *r* upstanding from the lantern bottom *a*. In order to prevent horizontal displacement of the pin G, the latter is fitted to work between a pair of vertical guides *g* fixed to the bottom *a* of the lantern.

As the construction illustrated in Figs. 5 and 6 renders it unnecessary to gain access to the pin G (as in the former case) in order to enable the frame C to be withdrawn from within the lantern body A, the frame C may in this case be provided with a floor *c* (preferably in the form of an inverted cone as shown) resting upon the marginal thickening ring I above the ring-shaped lever R, and carrying a short central vertical tube *s* fitted to turn about a cylindrical pillar S which rises from the lantern bottom *a* and forms a pivot about which the frame C rotates.

In order to render the frame C more readily rotatable relatively to the lantern body A, the frame may not only turn about the pillar S as a center but may also have its weight supported by the lower edge of the tube *s* bearing upon a shoulder or foot step on the pillar, the frame C revolving clear of the wall and bottom of the lantern body A. For the same reason, it may be desirable that the frame C, in rotating, should not rise and fall as the ratchet teeth *d* pass over the teeth D, and in such case the ratchet teeth of one set may be hinged to their support and spring-pressed into engagement with those of the other set.

In Fig. 7 (which is an elevation of part of the frame C viewed from within) the ratchet tooth D carried by the lantern body is hinged to the latter as at *t* so as to be movable vertically and is guided as at *t'*, a spring T serving to press the tooth upwards so that it constantly tends to engage with the teeth *d* of the set carried by the frame C. Fig. 7 also shows a construction wherein the groove H J, instead of being formed continuously in a ring I as before described, is formed only in short plates U whereby the lower margin of the frame C is thickened locally in the vicinity of each upright portion J of the groove, each plate U including the portion J and the portions *h* and *j* already mentioned, and the mouth of each such discontinuous or local portion of the groove H being preferably flared as indicated. An advantage resulting from this construction is that it permits of the frame C being lifted out from within the lantern body A without the necessity of previously withdrawing the pin G from engagement with the groove in such a manner for example as that described with reference to Figs. 1, 2 and 3. It is only necessary

(after removing the springs L) to rotate the frame C from one of its normal or resting positions, so far as to enable the pin G to clear that plate U with which it has been in engagement, whereupon no farther obstruction will be offered to the withdrawal of the frame C from the lantern body A.

It will be obvious that the discontinuous groove just described is especially suitable for use with a construction such as that shown in Figs. 5 and 6, where access to the pin G and the lever which carries it is prevented by the bottom *c* of the casing C.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a hand-signaling lantern, the combination of an outer cylindrical body provided with windows, an inner cylindrical frame mounted to turn in the body and carrying different colored glasses, and means for rotating the frame relatively to the body by rotating the said body.

2. In a hand-signaling lantern, the combination of an outer cylindrical body provided with windows, an inner cylindrical frame mounted to turn in the body and carrying different colored glasses, means for rotating the frame relatively to the body by rotating the said body, and means for checking the movement of the frame after a definite angular rotation thereof with respect to the body.

3. In a hand-signaling lantern, the combination of an outer cylindrical body provided with ratchet teeth, and an inner cylindrical frame free to turn in the body and having a notched lower edge adapted to engage the ratchet teeth substantially as specified.

4. In a hand-signaling lantern, the combination of an outer cylindrical body, a pin attached to the body and adapted to move in a vertical plane, and an inner cylindrical frame free to turn in the body and having around its periphery an endless groove divided into sections by vertical portions substantially as specified, the pin being adapted to ride in the groove and check the movement of the frame after passing through a predetermined angle of rotation.

5. In a hand-signaling lantern, the combination of an outer cylindrical body provided with ratchet teeth, an inner cylindrical frame free to turn in the body and having a notched lower edge, and a bail handle attached to the body, whereby the frame will be turned in the body when a sudden rotary movement is given to the body by means of the bail.

6. In a hand signaling lantern, the combination of an outer cylindrical body, a pin attached to the body and adapted to move in a vertical plane, an inner cylindrical frame free to turn in the body and having around its periphery an endless groove divided into

sections by vertical portions and in which the pin of the body works, and means for rotating the frame relatively to the body, whereby the rotation of the frame will be checked
5 at predetermined intervals.

7. In a hand signaling lantern, the combination of an outer cylindrical body, a lever pivotally mounted on the body and provided with a pin, an inner cylindrical frame having
10 around its periphery an endless groove divided into sections by vertical portions, and means for rotating the frame relatively to the body, the pin being adapted to ride in the groove and check the movement of the frame
15 after the latter has passed through a predetermined angle of rotation.

8. In a hand signaling lantern, the combination of an outer cylindrical body having a pillar fixed to the base thereof, and an inner
20 cylindrical frame provided with a tubular extension at its lower end fitting upon the pillar of the body, substantially as set forth.

9. In a hand-signaling lantern, the combination of an inner cylindrical frame having a

notched lower edge, an outer cylindrical
25 body, and a plurality of spring-pressed ratchet teeth hinged to the base of the body and adapted to engage with the notched lower edge of the frame and serve as a means
30 for causing the frame to rotate with the body when the latter is suddenly and partially rotated.

10. In a hand-signaling lantern, the combination of an outer cylindrical body, a lever pivotally mounted on the body and provided
35 with a pin portion, an inner cylindrical frame, a plurality of plates each having an approximately horizontal groove with a vertical portion attached to the periphery of the lower
40 end of the frame, and means for causing the frame to rotate with the body and to continue its rotation after the body has ceased to rotate.

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Witnesses:

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