

No. 677,169.

Patented June 25, 1901.

T. BELL.

ALARM APPARATUS FOR ENGINE ROOM TELEGRAPHS OR THE LIKE.

(Application filed Sept. 22, 1900.)

(No Model.)

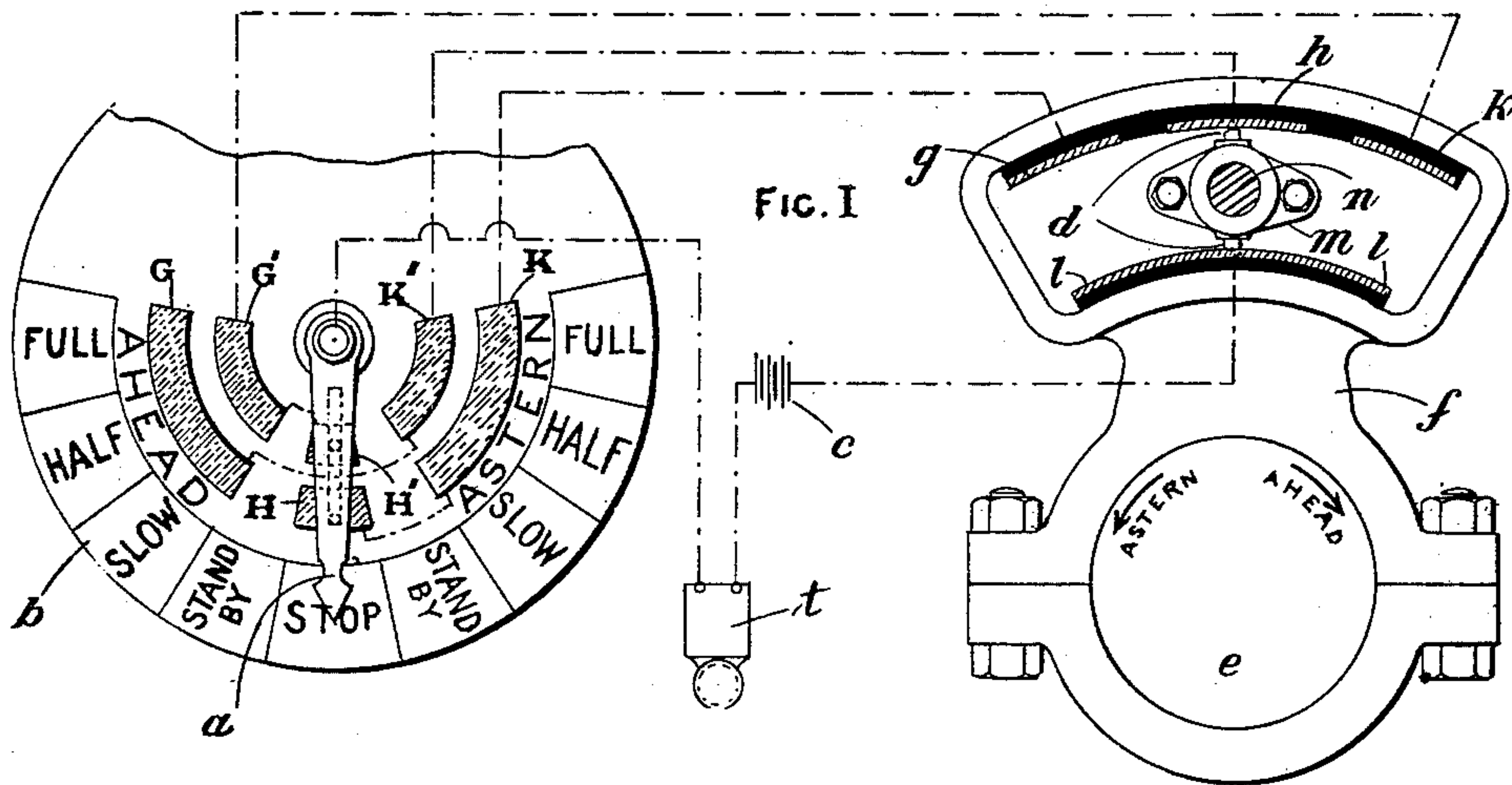


FIG. II

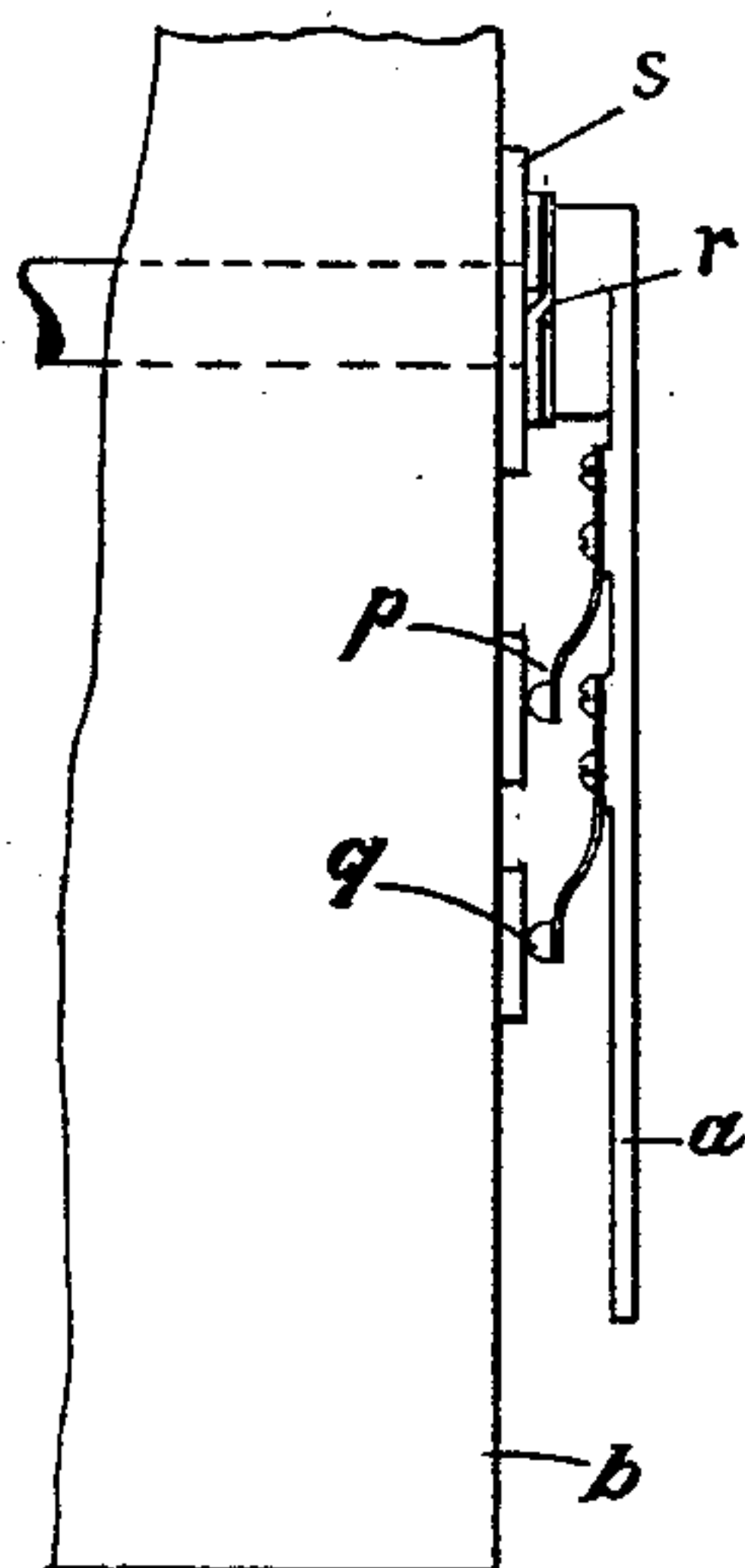


FIG. III

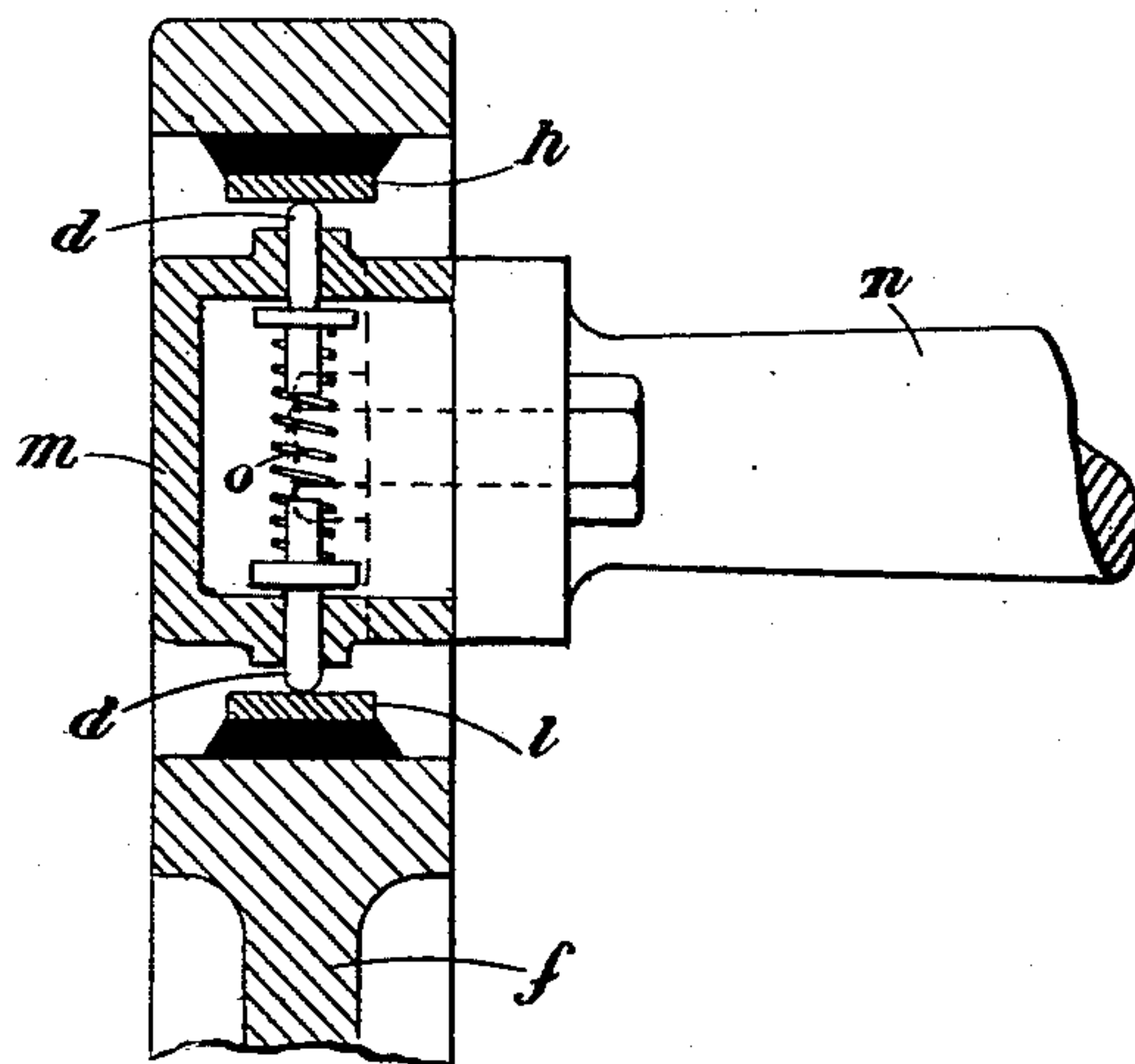


FIG. IV

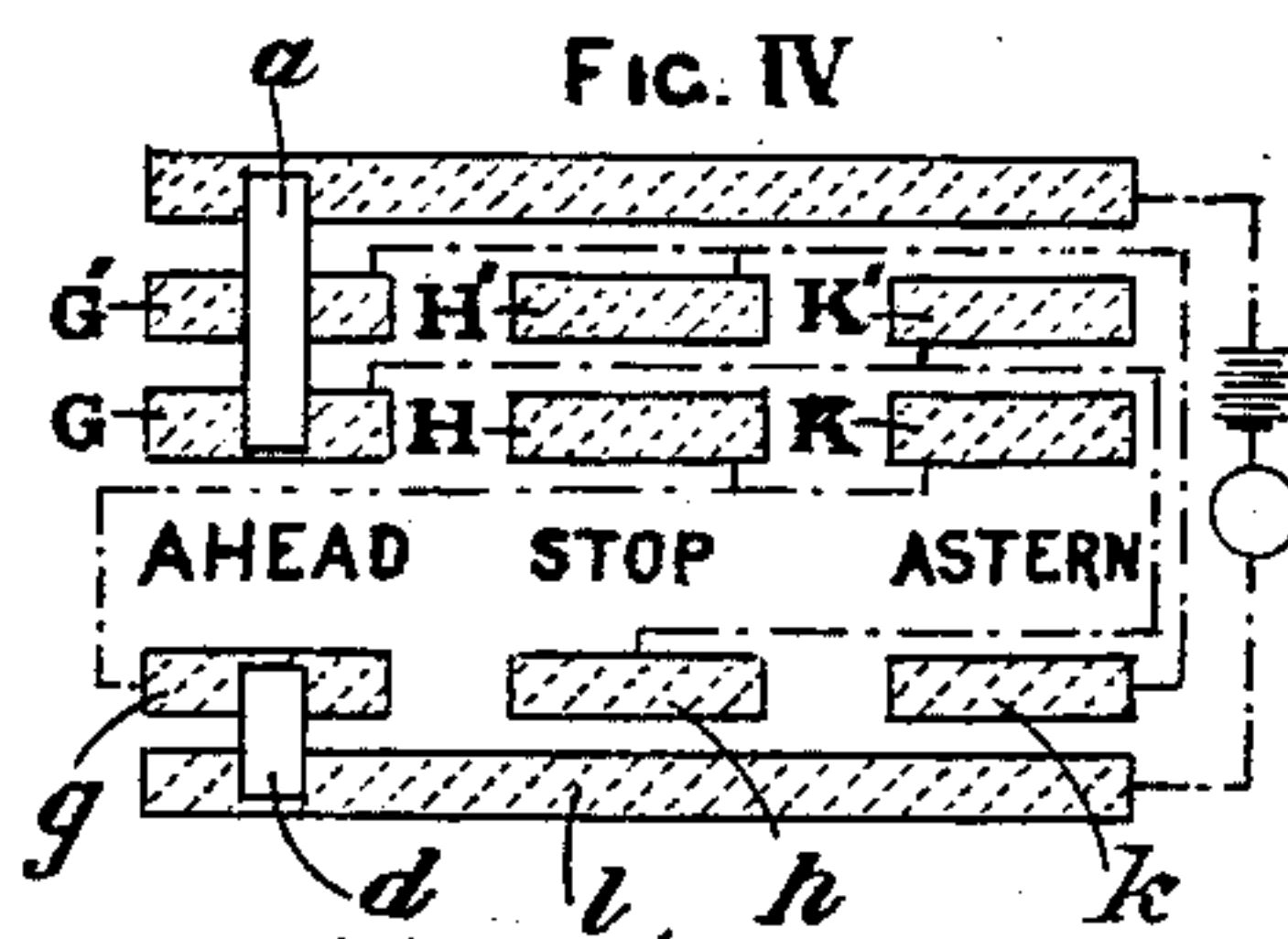


FIG. V

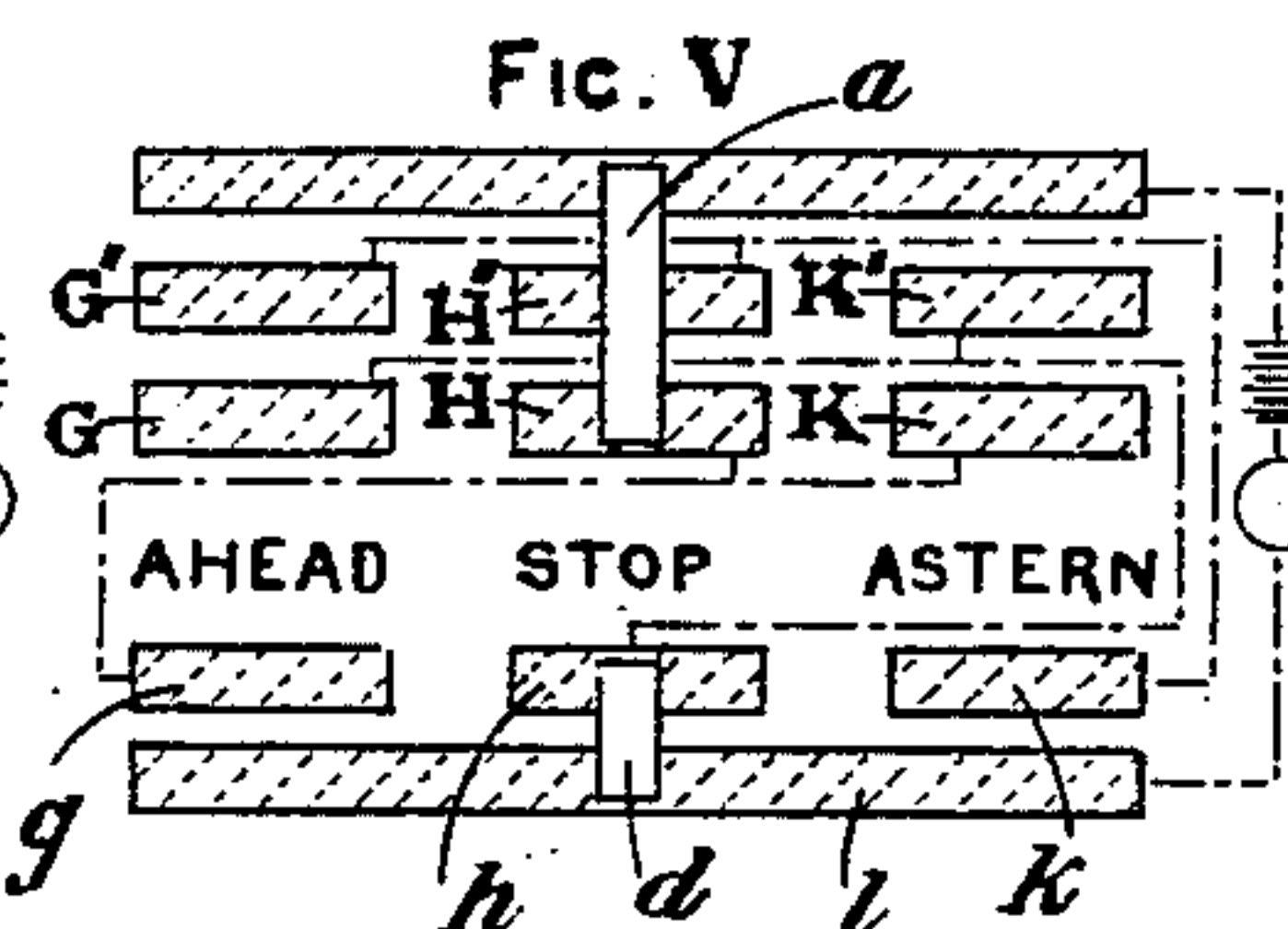
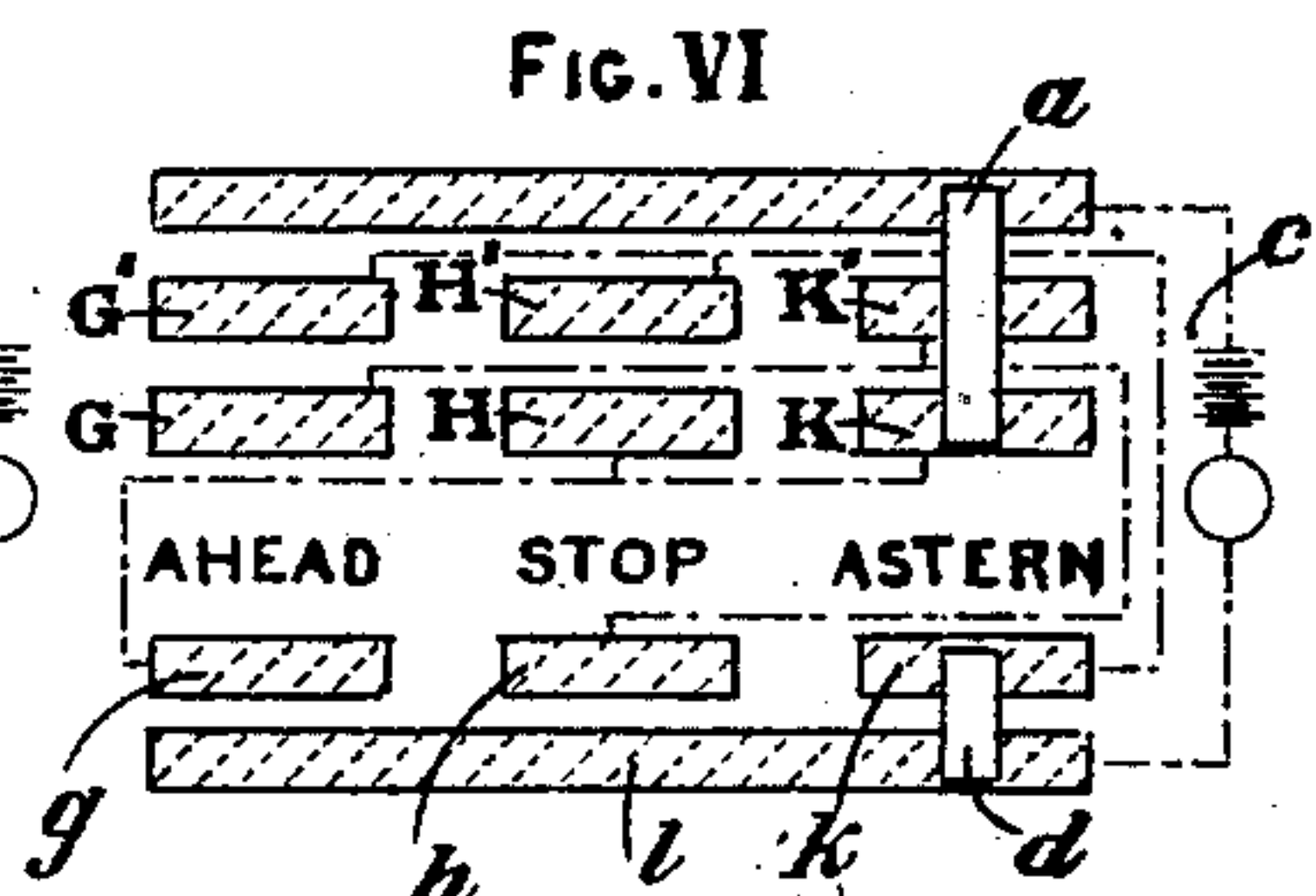


FIG. VI



Attest
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ALARM APPARATUS FOR ENGINE-ROOM TELEGRAPHS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 677,169, dated June 25, 1901.

Application filed September 22, 1900. Serial No. 30,819. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BELL, a subject of the Queen of Great Britain, residing in Liverpool, in the county of Lancaster, England, have invented certain new and useful Improvements in Alarm Apparatus for Engine-Room Telegraphs or the Like, of which the following is a specification.

This invention relates to an alarm device connected to a moving part by which an order is indicated and to a moving part which when the said order is carried out occupies a certain definite position in such manner that an alarm is sounded when the order is not complied with.

My invention is particularly applicable to engine-room telegraphs in which a pointer moving over a dial indicates an order and in which the position of the reversing-lever or weigh-shaft of the engine indicates whether or not the said order has been carried out, and I will describe my invention in connection with this application of it as illustrated in the accompanying drawings, in which—

Figure I is an elevation showing the order-dial of an engine-room telegraph, the weigh-shaft, the various contact-pieces, and the connections between them. Fig. II is a side view of the order-dial and pointer. Fig. III is a side view, partly in section, of the weigh-shaft lever and contact-pieces, both latter views being to a larger scale than Fig. I; and Figs. IV, V, and VI are diagrammatic views to show the connections and mode of working.

a is the pointer, which moving over a dial *b* indicates the order. The usual orders may be grouped into three sections—viz., those relating to the “ahead” movement of the engine, those relating to the “astern” movement, and “stop”—and in the example illustrated I do not differentiate, so far as the alarm device is concerned, between the different subdivisions of the groups, such as “full,” “half,” and “slow.” The pointer *a* is electrically connected to one pole of a generator *c* of any suitable type, and the other pole of the generator is electrically connected, through the alarm device *t* of any ordinary construction, to a connecting-piece *d*, between which and a series of contacts there is relative movement in virtue of and corresponding with the movement of the weigh-shaft or

reversing-lever of the engine. In the example illustrated the connecting-piece *d* is fixed and the contacts move with the weigh-shaft *e*, on which is keyed a lever *f*. This lever carries three insulated contact-pieces *g*, *h*, and *k*, and the connecting-piece *d* makes electrical contact with *g* when the engine is turning ahead, with *h* when the engine is stopped, and with *k* when the engine is turning astern. The lever also carries a contact-piece *l*, through which *d* is connected to the generator and the alarm in series. The construction of the contact-piece and the mode of carrying it are shown in Fig. III. A casing *m*, of insulating material, is bolted to a fixed column *n* and carries the two plungers *d*, which are normally thrust outwardly by the spiral spring *o*, which also serves to electrically connect them.

The dial carries three pairs of insulated contact-pieces *G G'*, *H H'*, and *K K'*. The pointer is provided with two spring-brushes *p* and *q*, electrically connected therewith and which when the pointer is at an “ahead” order are in electrical contact with *G* and *G'* when the pointer is at “stop” are in contact with *H H'*, and when the pointer is at an “astern” order are in contact with *K K'*. There is an interval between these contact-pieces, so that when the pointer is at “stand by” the brushes are not in contact with any of the said contact-pieces. *G* is electrically connected to *K'* and to *h*, *G'* to *H'* and *k*, and *K* to *H* and *g*. The scheme of these connections will be easily understood on reference to the diagrammatic views, Figs. IV, V, and VI, from which it will be seen that the “ahead” weigh-shaft contact-piece is connected to both an “astern” dial contact-piece and a “stop” dial contact-piece, that the “stop” weigh-shaft contact-piece is connected to both an “ahead” and an “astern” dial contact-piece, and that the “astern” weigh-shaft contact-piece is connected to both an “ahead” and a “stop” dial contact-piece. It will further be seen from these views that unless the pointer *a* and the contact-piece *d* occupy the relative positions shown in three figures, respectively, which they can do only when the order is correctly carried out, the alarm will ring, unless, of course, a position intermediate between the contacts should be occupied—as, for exam-

ple, "stand by"—when it is not in the arrangement illustrated desired that the alarm should ring.

I have shown the pointer *a* as being electrically connected to the generator in virtue of the rubbing contact which it makes with the contact-ring *s* by means of a spring-washer *r*, and I have shown the connecting-piece *d* as being connected to the generator by rubbing contact with the feeder contact-piece *l*. It is evident, however, that *a* and *d* might be directly connected to the generator by a flexible connection and some of the contact-pieces dispensed with. It is also evident that the contact-piece *d* might be connected to the weigh-shaft or to the reversing-lever and the other contact-pieces fixed, in which case no flexible connections whatever would be needed.

It is to be remarked that in my apparatus there is no necessity for any spring-operated switches or the like contrivances, which are found in practice to be a continual source of trouble, and the circuits are so arranged as to necessitate nothing more than rubbing contacts in each case.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In engine telegraph-alarms, in combination; the dial; the series of pairs of dial contact-pieces; the pointer arranged to electrically connect the members of each pair of contact-pieces; the weigh-shaft; a second set of three contact-pieces electrically connected to the dial contact-pieces; a connecting-piece making contact with the said second set of contact-pieces, and between which connecting-piece and said second set of contact-pieces there is relative movement corresponding with the movement of the weigh-shaft; and a generator and alarm coupled in series

to the pointer and the connecting-piece; substantially as described.

2. In combination, a dial having a series of pairs of contact-pieces, a pointer adapted to electrically connect the members of each pair, a weigh-shaft, a plurality of contacts corresponding to the pairs of contact-pieces on the dial, electric connections from each of said plurality of contacts to a plurality of the pieces on the dial, a switch-piece coöperating with said three contacts having electrical connections with the pointer, said switch-piece and said three contacts being moved in relation to each other by the movement of the weigh-shaft, and a generator and alarm included in said electrical connections, substantially as described.

3. In combination, a dial having three pairs of contact-pieces, corresponding to "ahead," "astern," and "stop" orders, an electric connection between one "ahead" piece and one "astern" piece, and electric connections from the "stop" pieces to the remaining "ahead" and "astern" pieces, a pointer or the like for electrically connecting the members of each pair of pieces, a weigh-shaft, three contacts electrically connected respectively to two "astern" and one "ahead" piece, a switch-piece, said three contacts and said switch-piece being moved in relation to each other by the movement of the weigh-shaft and electrical connections from said switch-piece to said pointer, said connections including a generator and alarm, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS BELL.

Witnesses:

ROBERT A. SLOAN,
JOSEPH E. HIRST.