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B. A. J. VANDER HEGGE-ZIJNEN.

APPARATUS FOR STOPPING RAILWAY TRAINS FROM THE LINE AND
FOR SIGNALING PURPOSES.

APPLICATION FILED MAY 26, 1902.

NO MODEL.

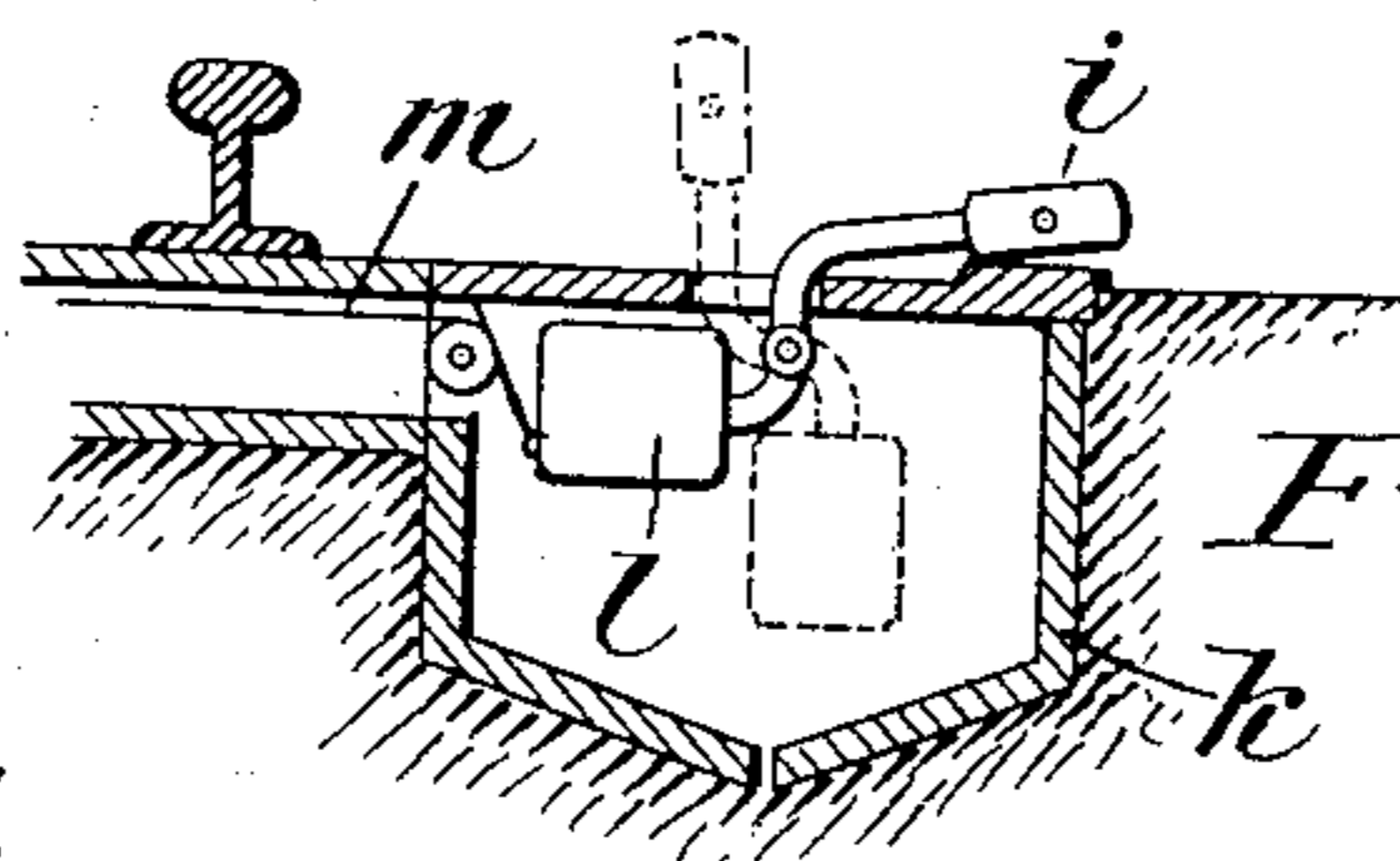
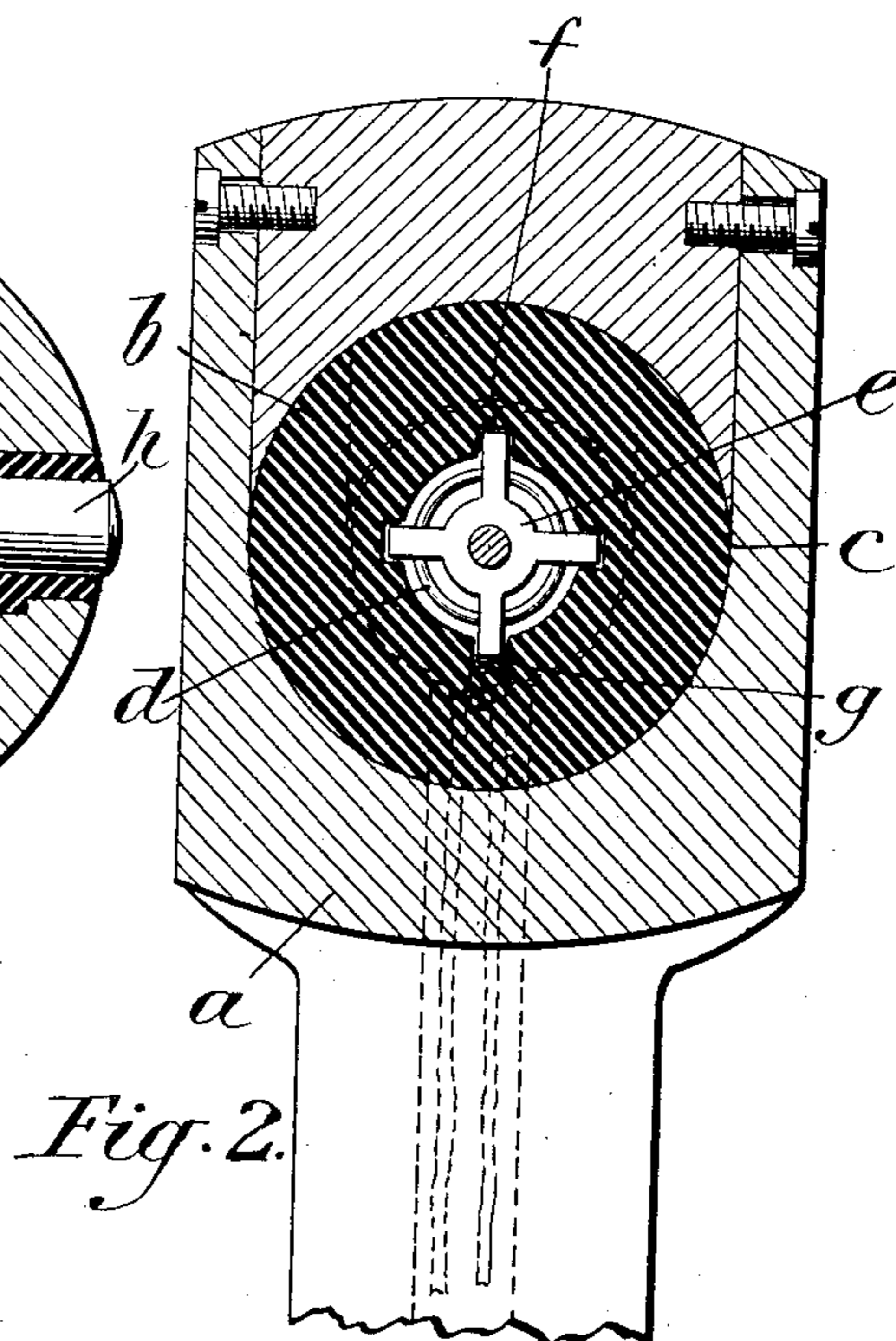
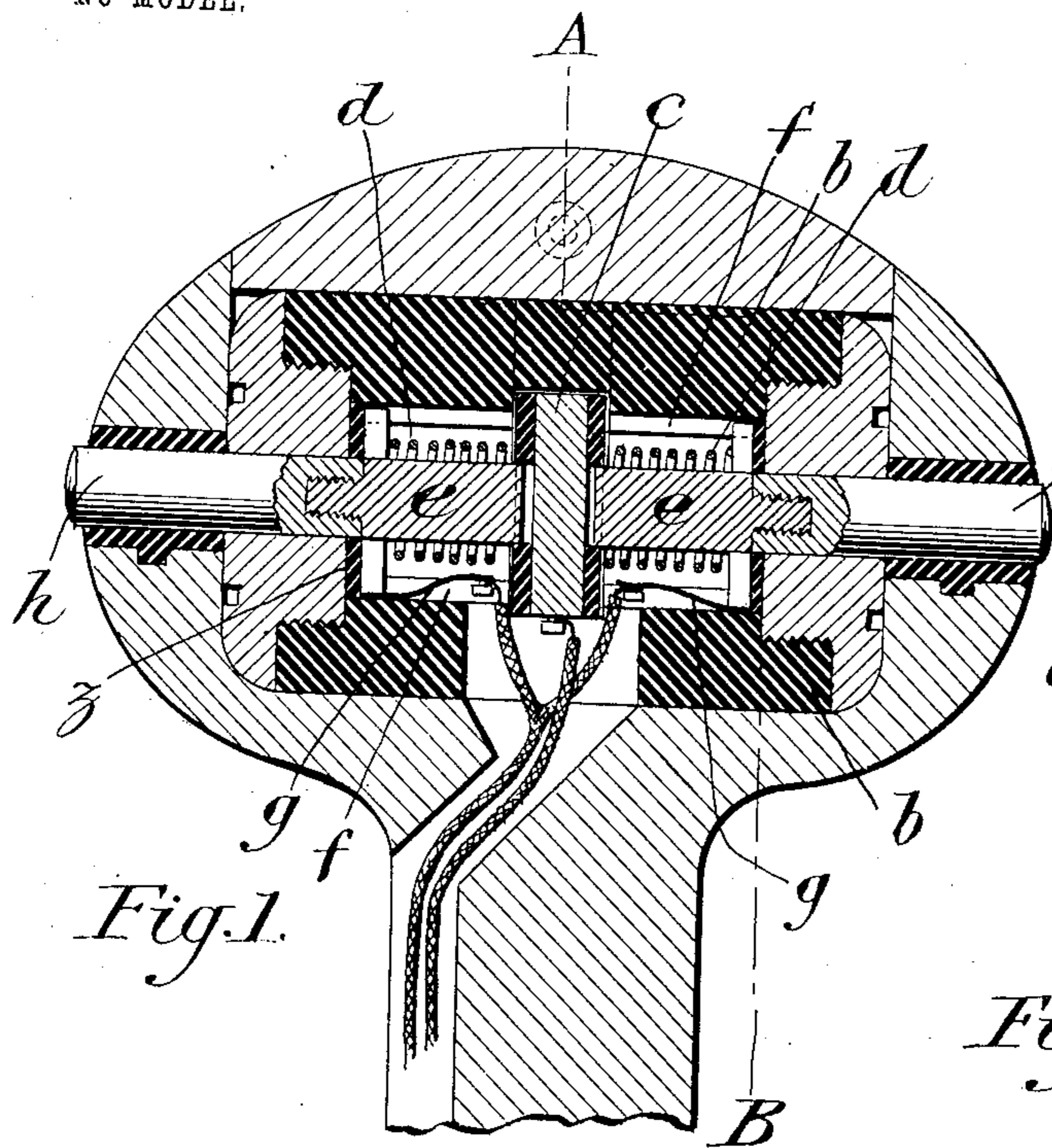


Fig. 4.

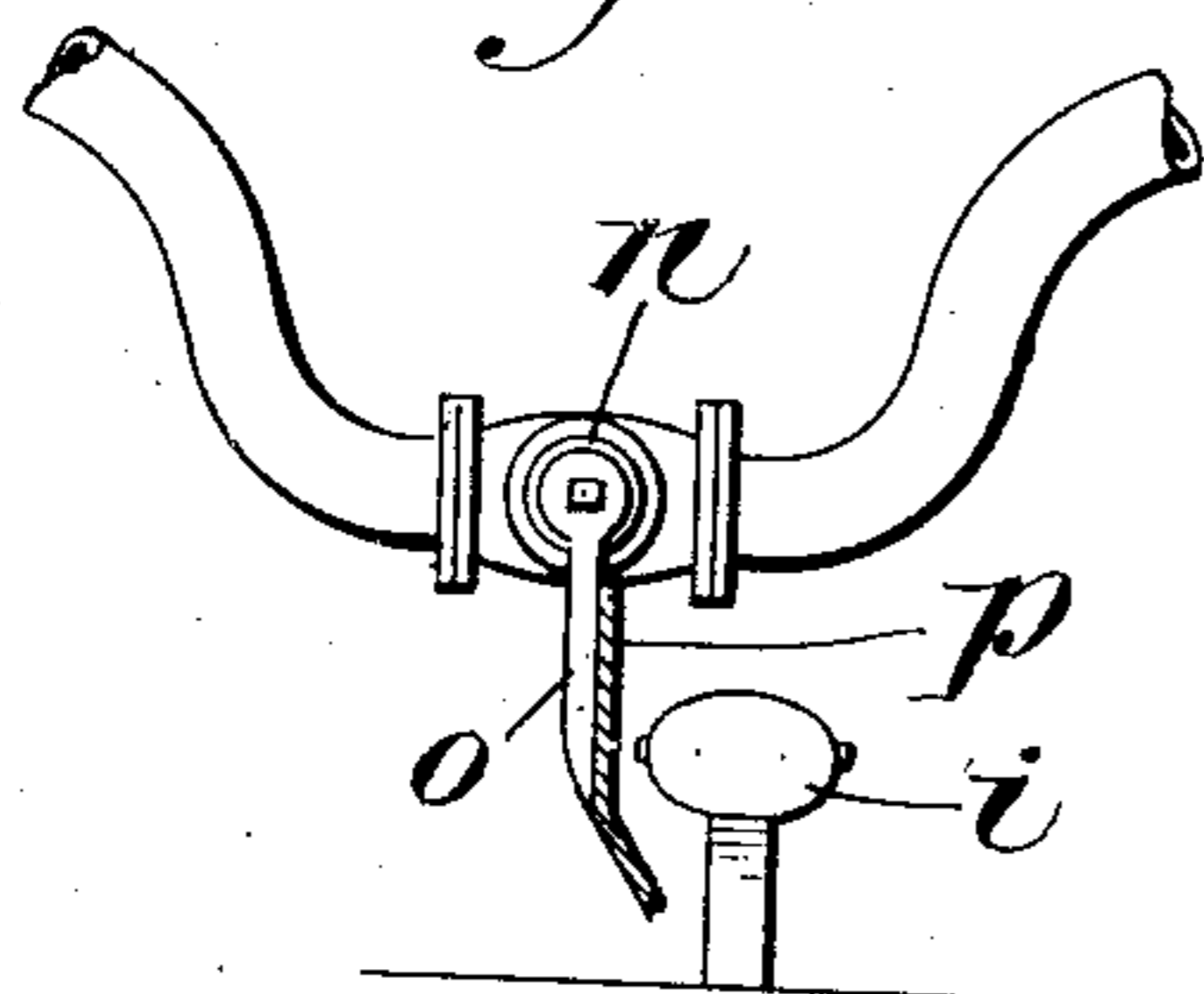
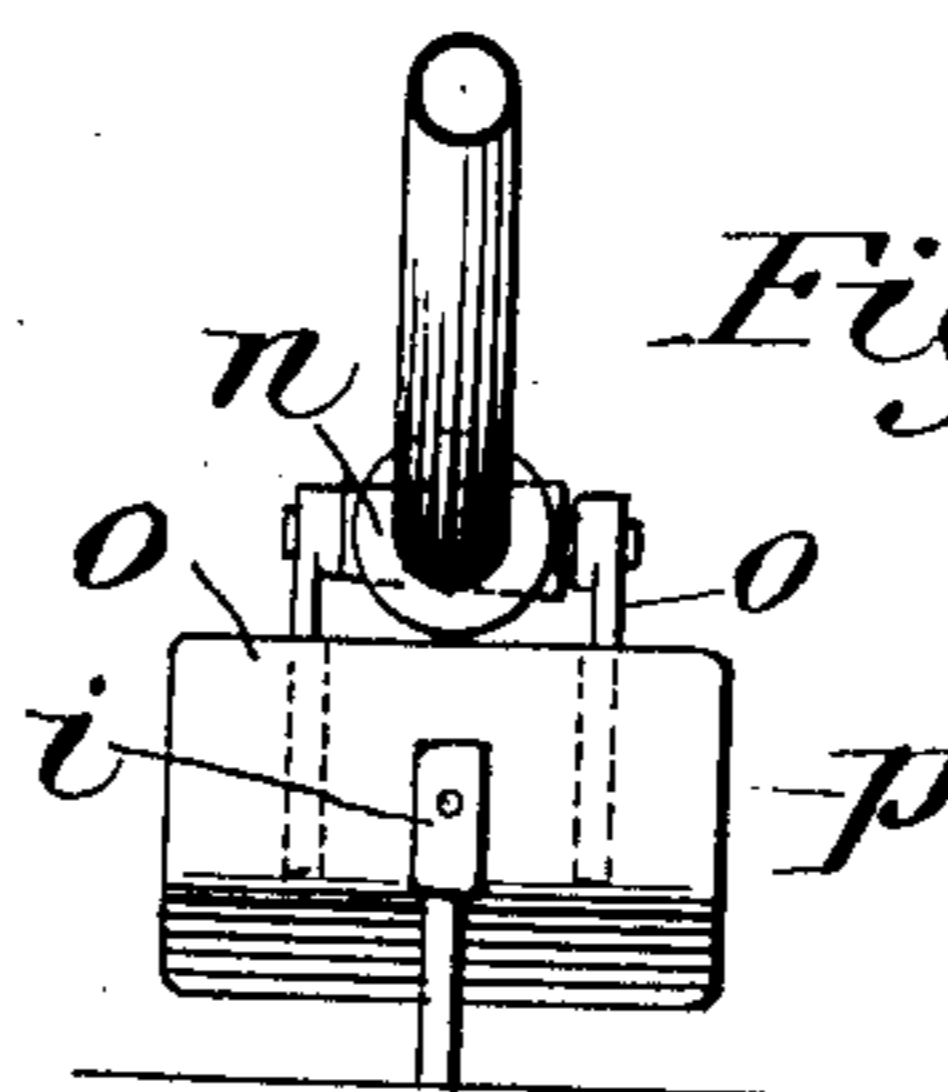


Fig. 5.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR STOPPING RAILWAY-TRAINS FROM THE LINE AND FOR SIGNALING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 754,359, dated March 8, 1904.

Application filed May 26, 1902. Serial No. 109,047. (No model.)

To all whom it may concern:

Be it known that I, BERNARDUS ADRIANUS JAKOBUS VAN DER HEGGE-ZIJNEN, of No. 6^a Alleestrasse, Hanover, in the Empire of Germany, have invented new and useful Improved Apparatus for Stopping Railway-Trains from the Line and for Signaling Purposes, of which the following is a specification.

The present invention relates to an improved safety appliance in connection with railway traffic for the purpose of stopping railway-trains at predetermined points independently of the engine attendants by automatically actuating the brake mechanism of the train. According to the present invention an arrangement can be combined with the present safety appliance the operation of which causes a signal to be given at the nearest station or stations. This is effected by closing an electric circuit, which in the well-known manner may sound an alarm or cause a visible signal to appear.

Further objects of my invention are to simplify and cheapen the construction and to render more efficient, serviceable, and durable in operation devices of the kind referred to.

With these ends in view the invention consists in the novel combination, arrangement, and adaptation of parts, all as more fully hereinafter explained, shown in the annexed drawings, and then specifically set out in the appended claims.

I will now proceed to describe my invention more exhaustively, reference being had to the accompanying drawings, in which—

Figure 1 shows the head of my improved contact device with the means for closing the electric circuit in vertical section. Fig. 2 is a vertical section through Fig. 1, line A B. Fig. 3 illustrates the location of the appliance between the rails. Fig. 4 shows, on a smaller scale and in longitudinal elevation, the appliance in connection with the brake mechanism of the locomotive. Fig. 5 represents a front elevation of Fig. 4.

My new safety appliance consists, essentially, of a contact device automatically erected at the desired places of the line between the rails in connection with an appliance attached

to the locomotive, consisting of a valve-and-lever arrangement for operating the brake mechanism in order to cause the train to be stopped when the contact device strikes against the said lever arrangement.

To augment the safety insured by my improved apparatus, the contact device is constructed in such a manner that a train can only pass same when the line has been signaled to be clear by the next lineman, whereby the contact device is placed in its inoperative position.

My novel contact device is at the same time provided with means for closing an electric circuit connected to the nearest stations, so that the operation of the device—i. e., the stopping of a train—is automatically signaled at these stations in the well-known manner. At terminal stations and on blind lines the combination of a signaling apparatus is not required, as the automatic stopping of the train suffices in such and similar cases.

The electric-switch mechanism of the contact device, which works from both sides—i. e., by trains moving in both directions—is constructed as follows: In the interior of the hollow head *a* of the apparatus and in an insulating-sleeve *b*, of suitable material, a strong brass disk *c* is secured, which is in connection with one terminal of a source of electricity. A brass pin *e* movable in longitudinal direction is located at each side of the said disk *c* and kept a short distance separate therefrom by spiral springs *d*. These pins *e* engage, with suitable extensions, grooves *f*, provided in the inner wall of the insulating-sleeve *b* for the purpose of preventing their rotation and guiding them during their longitudinal movement. One of the grooves *f* at each side of the disk *c* contains a brass contact-spring *g*, by the aid of which the pins *e* are electrically connected with the return-wire of the aforesaid source of electricity. Both wires are properly insulated from one another. They pass through an opening below the head *a* and then run in a groove in the stem downwardly, from whence they can be conducted in any well-known manner.

The brass pins *e* are preferably provided

with steel abutment-pieces *h* at their external ends, and the end portions of these steel abutment-pieces are suitably hardened. By means of screws these abutment-pieces *h* are regulated in such a manner that on collision of same with the appliance in connection with the locomotive, which will be described later on, an electric circuit is closed in a reliable manner, owing to the contact made between the brass pins *e* and the disk *c*; but the brunt of the collision is received by the head *a* for the purpose stated later on. Obviously these abutment-pieces *h* must be well insulated from the casing *k*, and the latter must be constructed to prevent the access of dust or moisture. To this end I provide a layer *z*, of suitable material, at the openings of the insulating-sleeve *b*.

The whole contact device *i* is oscillatory, supported in a casing *k*, and carries a counterweight *l*, as shown in Fig. 3. The casing *k* is located between the rails and closed by a suitable lid. Normally the contact device *i* will be erected vertically by virtue of the counterweight *l* at its lower end. When metal sleepers are employed, the casing *k* can be made integral with these sleepers, while a separate casing will have to be attached to one of the sleepers when wooden sleepers are used. To prevent the accumulation of water in the casing *k*, the latter is suitably fitted with a bottom sloping toward the center and provided with an opening at the lowest portion for drainage purposes.

A wire *m* in connection with the counterweight *l* leads in a suitable well-known way to the next lineman's station-house. When the line is clear, the lineman by pulling the wire *m* can place the contact device *i* into its inoperative position, as illustrated in Fig. 3 in full lines, when the head *a* will rest on a projection on the lid of the casing *k*.

The train-pipe of the brake mechanism of the locomotive, which may utilize air-pressure or be a vacuum-brake, or a branch of this pipe is led below the locomotive and provided with a tap-valve *n* at its lowest portion. This valve *n* is fitted at both sides with downwardly-extending lever-arms *o*, as illustrated in Figs. 4 and 5. A plate *p* connects the two lever-arms *o* together at their lowest portions. This plate *p*, which has its bottom end bent somewhat forwardly, is situated low enough under the locomotive so that the erected contact device *i* will strike same at about its center. The valve *n* is suitably constructed in such a way that it can be operated independently of the contact device hereinbefore described by the locomotive attendants. If for any reason a moving train has to be stopped—i. e., when the line same has to pass is not clear—the nearest lineman leaves the contact device *i* in its upright operative position. The locomotive of the train when arriving at the contact device

will strike with its plate *p* against the latter, whereby the valve *n*, and in consequence the brake mechanism of the train, will be actuated and the train caused to stop. At the same time the collision between the plate *p* and the abutment-pins *h* of the contact device *i* will cause an electric circuit to be closed by the brass pin *e* being forced into contact with the disk *c*, so that an audible or visible signal will be automatically given at the nearest stations.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Apparatus for stopping trains and signaling, comprising a projecting head, electrical contacts carried by said head, a device carried by a moving train adapted to be operated upon striking said head, said electrical contacts being so located on the head that they will be struck and operated by said device, substantially as described.

2. Apparatus for stopping trains and signaling, comprising a counterweighted pivoted head, and means for raising or lowering it between the rails, an electrical contact device carried by said head and conductors therefor, in combination with a device carried by a train adapted to strike said head to operate the contact and itself be operated by the force of impact, substantially as described.

3. Apparatus for stopping trains and signaling, comprising a head projecting above the rails, an abutment-piece *h* at one part of the head, an electrical contact device adapted to be operated by said piece *h* and a device carried by a train adapted to strike said piece *h* to operate the contact and itself be operated by impact against said head, substantially as described.

4. In apparatus for stopping railway-trains from the line and for signaling purposes; the combination of a contact device supported between the rails; means for actuating the brake mechanism of the train by said contact device; a brass disk *c* in connection with one terminal of a source of electricity, said disk located in the center of an insulating-sleeve *b* in the head of the contact device; a pair of brass pins *e*, one at each side of the aforesaid disk *c*; spiral springs *d* for keeping the brass pins *e* normally a short distance from the disk *c*; means for preventing the rotation of the said brass pins *e*; and brass contact-springs *g*, bearing against the movable pins *e*, in connection with the second terminal of the source of electricity, substantially as described and shown.

In witness whereof I have hereunto signed my name, this 15th day of March, 1902, in the presence of two subscribing witnesses.

BERNARDUS ADRIANUS JAKOBUS
VAN DER HEGGE-ZIJNEN.

Witnesses:

LEONORE RASCH,
C. C. STEVENSON.