

No. 704,174.

Patented July 8, 1902.

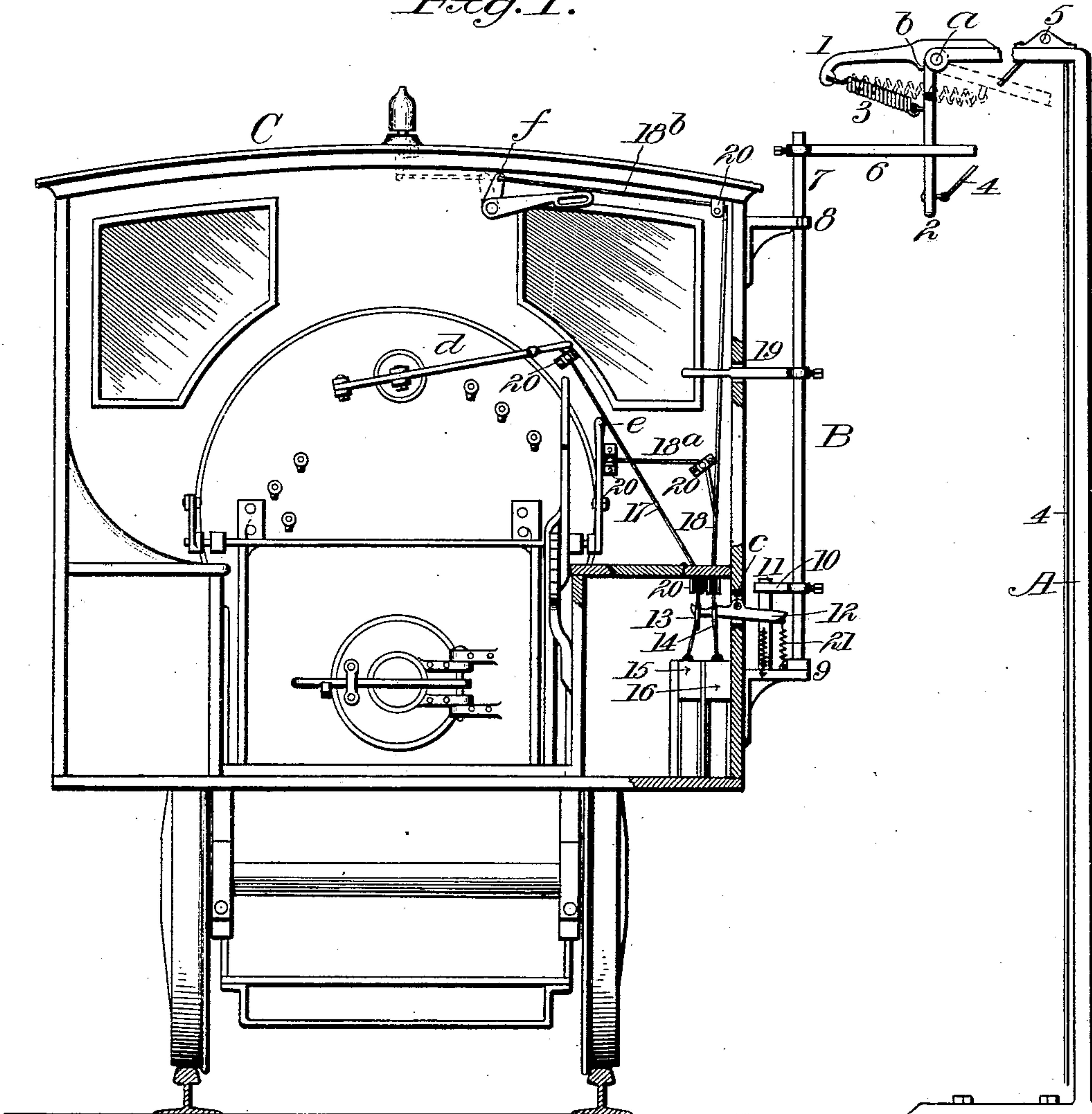
T. T. CHALONER.
AUTOMATIC STOP SIGNAL FOR RAILWAYS.

(Application filed May 14, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Inventor.

Thomas T. Chaloner

By

W. L. Swin,

Attorney.

Witnesses

W. H. Walker,

E. H. Loftus

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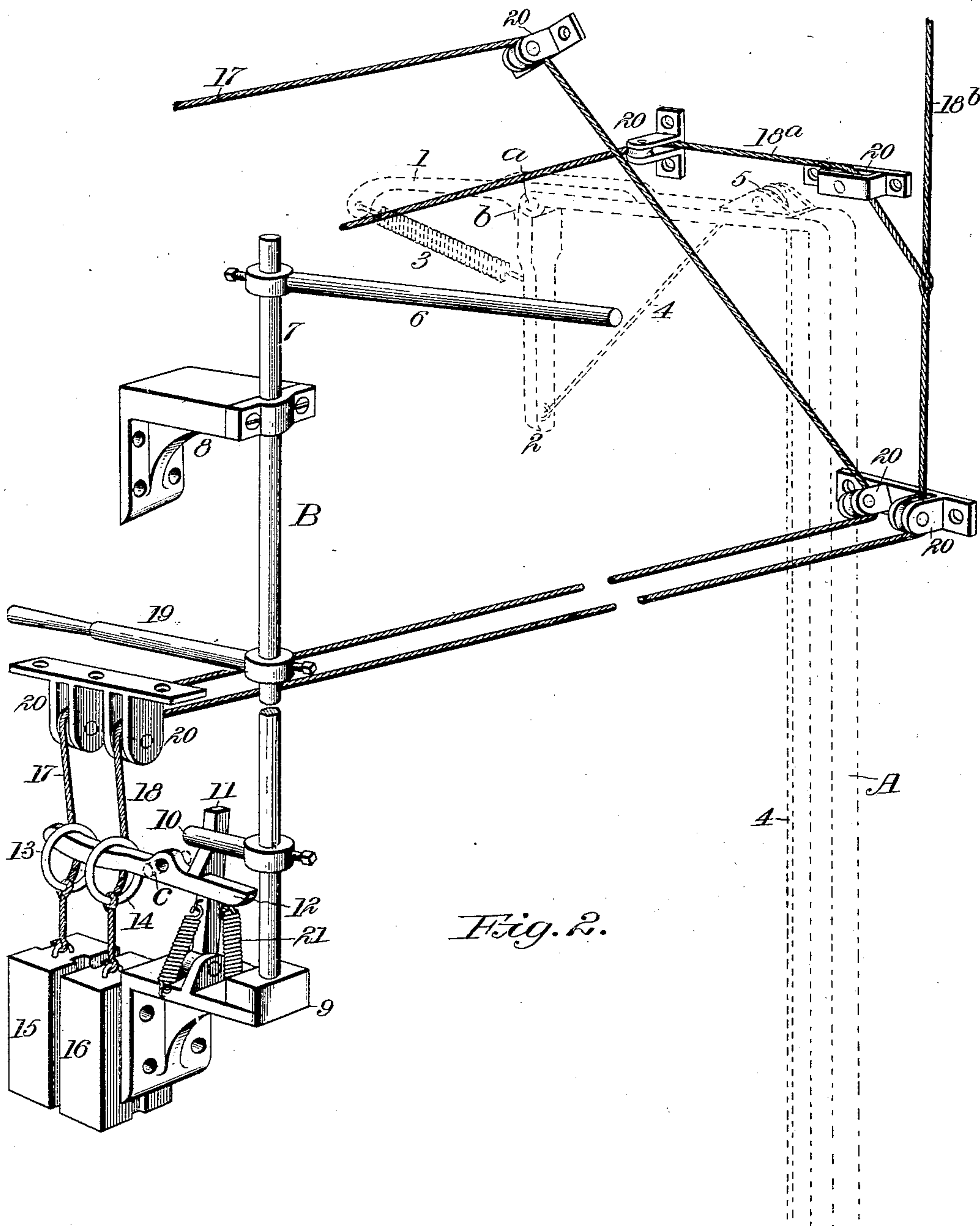
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Witnesses

L. H. Walker.
E. H. Loftus

Inventor

Thomas T. Chaloner

By

R. L. Ewin,

Attorney

UNITED STATES PATENT OFFICE.

THOMAS T. CHALONER, OF NEW YORK, N. Y.

AUTOMATIC STOP-SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 704,174, dated July 8, 1902.

Application filed May 14, 1902. Serial No. 107,303. (No model.)

To all whom it may concern:

Be it known that I, THOMAS T. CHALONER, a citizen of the United States of America, and a resident of the city of New York, in the State of New York, have invented a new and useful Improvement in Automatic Stop-Signals for Railways, of which the following is a specification.

This invention relates to means for preventing by automatic mechanical devices the occurrence of tunnel collisions and like railway "accidents," so called. Various devices for this purpose have heretofore been suggested, but for one reason or another they have not been reduced to actual use, and the public is still deprived of the protection needed against oversights on the part of signal operators and train-conductors.

The present invention consists in an improved safety device of the general character above indicated adapted to be applied to the locomotives now in use without great expense and free from mechanical complications and like objections which have heretofore militated against the adoption of such safety devices.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings is a rear view, partly in section, of a railway-locomotive and an elevation of an attachment to the road-bed, showing the improved automatic stop-signal devices. Fig. 2 is a perspective view of said devices segregated, the attachment to the road-bed being shown in dotted lines.

Like reference letters and numbers indicate like parts in the two figures.

In carrying this invention into effect a tappet device A, which may itself constitute a semaphore, is attached to the road-bed, as in Fig. 1, or less directly in any convenient way. The other and principal parts of the improved device, shown as a whole at B, are carried within and upon the cab C of a railway-locomotive, which may be otherwise of ordinary construction. Said tappet device A comprises a horizontal arm 1 and a normally-vertical tappet-bar 2, hinged at *a* to said arm and which may itself constitute a signal arm or finger. A stop *b* limits the movement of the bar 2 into effective position, and it is normally held against this stop by a retracting-

spring 3 and is drawn into its retracted position, in which it is shown in dotted lines in Fig. 1, by means of a cord 4, passing through a sheave 5 on the arm 1 to a place accessible to the attendant.

The cab attachments B comprise a rigid horizontal arm 6 to engage with said tappet-bar 2; a vertical rock-shaft 7, upon which said arm is fastened in suitable position; brackets 8 and 9, forming upper and lower bearings for said rock-shaft, said bearings being fixedly attached to the outer wall of the cab C, at one side thereof; a latch-engaging arm 10, fastened on said rock-shaft near its lower end; a spring-retracted latch 11, hinged to the lower bracket 9 and projecting normally upward in the path of said arm 10; a short horizontal lever 12, having a horizontal fulcrum *c* at mid-length normally engaged on one side of its fulcrum with the shoulder of said latch 11, as shown, and having on the other side of its fulcrum and within the cab a ring-receiving end; a pair of rings 13 and 14, normally hung upon this end of said horizontal lever; a pair of weights 15 and 16, suspended from the rings 13 and 14, respectively; cords 17 and 18, extending from the respective weights by way of said rings to the throttle-lever *d* and to the air-brake lever *e* and whistle-lever *f*, respectively, said cord 18 having bifurcations 18^a and 18^b, and finally a hand-lever 19, fastened on said rock-shaft 7, for restoring its arms 6 and 10 to normal position after an automatic actuation thereof.

With the tappet-bar 2 depending in normal position, as in Fig. 2 and in full lines in Fig. 1, if it should be overlooked by the conductor it would as the train progresses be struck by the horizontal arm 6, carried by the cab of the locomotive, turning the rock-shaft 7 on its axis and therewith the latch-engaging arm 10. This arm 10 in turn would force back the latch 11, disengaging the horizontal lever 12, and thereupon the weights 15 and 16 would disengage the rings 13 and 14 from the inner end of said lever 12 and pull the throttle-lever *d*, brake-lever *e*, and whistle-lever *f*, so as to simultaneously shut off the steam, apply the air-brake, and start the whistle.

A sufficient number of suitably-located sheaves 20 are attached within the cab to direct the cords 17 and 18. The number and

location of these sheaves will of course vary in different locomotives. A spring 21 may be employed to restore the horizontal lever 12 to effective position after its automatic actuation, or this spring may be dispensed with. A retracting-spring or counterweight may take the place of the hand-lever 19 for restoring the arms of the rock-shaft 7 to their effective positions, and other like modifications will suggest themselves to those skilled in the art.

The actuation of the throttle-lever, air-brake lever, and whistle-lever by falling weights instead of by the direct pull of the safety device, as heretofore attempted, is considered of great importance, as it subjects all the parts to definitely-limited strains and precludes any injury to the locomotive by the actuation of the automatic devices. It is also considered of great importance that the throttle-lever be actuated independently of the brake-lever and whistle-lever, as the engineer is supposed to have his hand on the lever first named and might unconsciously resist its action if the actuating impulse were divided among the three levers.

Having thus described said improvement, I claim as my invention and desire to patent under this specification—

1. The combination with the throttle-lever, in a locomotive, of a tappet-actuated arm, a vertical rock-shaft from which said arm projects horizontally outward, and provided with a latch-engaging arm, a latch projecting normally in the path of the arm last named, a horizontal lever normally engaged with said latch, a ring normally engaged with said horizontal lever, a weight normally suspended from said ring, and a connection between said weight and said throttle-lever, arranged to actuate the throttle-lever for shutting off the steam when said weight is liberated by the automatic retraction of said latch.

2. The combination with an air-brake lever, in a locomotive, of a tappet-actuated arm, a vertical rock-shaft from which said arm projects horizontally outward, and provided with a latch-engaging arm, a latch projecting normally in the path of the arm last named, a horizontal lever normally engaged with said latch, a ring normally engaged with said horizontal lever, a weight normally suspended from said ring, and a connection between said weight and said air-brake lever arranged to actuate said lever so as to apply the brake by means of said weight when said latch is automatically retracted.

3. The combination with a whistle-lever, in a locomotive, of a tappet-actuated arm, a vertical rock-shaft from which said arm projects horizontally outward, and provided with a latch-engaging arm, a latch projecting normally in the path of the arm last named, a

horizontal lever normally engaged with said latch, a ring normally engaged with said horizontal lever, a weight normally suspended from said ring, and a connection between said weight and said whistle-lever arranged to actuate said lever and start the whistle by means of said weight when said latch is automatically retracted.

4. The combination, substantially as hereinbefore specified, of a tappet-actuated arm, a vertical rock-shaft turned by said arm, a latch-retracting arm carried by said rock-shaft, a horizontal lever normally engaged by said latch, a pair of rings normally engaged with said horizontal lever, a pair of weights connected with said rings respectively, and cords, leading from said weights, adapted respectively to operate the throttle-lever and the air-brake lever within the cab of a locomotive.

5. The combination, substantially as hereinbefore specified, of a tappet-actuated arm, a vertical rock-shaft turned by said arm, a latch-retracting arm carried by said rock-shaft, a horizontal lever normally engaged by said latch, a pair of rings normally engaged with said horizontal lever, a cord extending from one of said rings and adapted to be connected with the throttle-lever of the locomotive, and a bifurcated cord attached to the other ring and arranged for connection with the air-brake lever and whistle-lever of the locomotive.

6. The combination with the cab of a locomotive of a tappet-actuated arm projecting therefrom, a rock-shaft actuated by said arm, a latch-retracting arm carried by said rock-shaft, a spring-retracted latch projecting normally in the path of said latch-retracting arm, a horizontal lever normally engaged by said latch, a ring normally engaged with said horizontal lever, a weight suspended from said ring, and a cord extending from said weight to a safety device carried by the locomotive.

7. The combination with the cab of a locomotive of a tappet-actuated arm projecting therefrom, a rock-shaft actuated by said arm, a latch-retracting arm carried by said rock-shaft, a spring-retracted latch projecting normally in the path of said latch-retracting arm, a horizontal lever normally engaged by said latch, a pair of rings normally engaged with said horizontal lever, a pair of weights suspended from said rings, and cords extending from said weights respectively and adapted to operate safety devices carried by the locomotive, substantially as hereinbefore specified.

THOMAS T. CHALONER.

Witnesses:

ARTHUR F. FOX,

CLARENCE W. WOOD.