

tended along one of the sides in a horizontal plane beyond the confines of the vertical side portions to form an extension of the box-bottom, and a cover member, comprising a top
5 portion, and a side member at substantially right angles thereto, arranged when the box is closed to overlie a side of the base member and to effect contact along its edge with the bottom extension of the base member afore-
10 said, said cover member being hinged to the

base member along another side, whereby when the box is closed wedging of the base and cover members together is positively prevented.

In testimony whereof I hereunto set my 15 hand in the presence of two witnesses.

JOSEPH H. WILLIAMSON.

In presence of—

L. L. MILLER,
FORÉE BAIN.

No. 840,279.

PATENTED JAN. 1, 1907.

W. H. WINKS.
SAFETY APPLIANCE FOR AIR BRAKES.

APPLICATION FILED OCT. 24, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

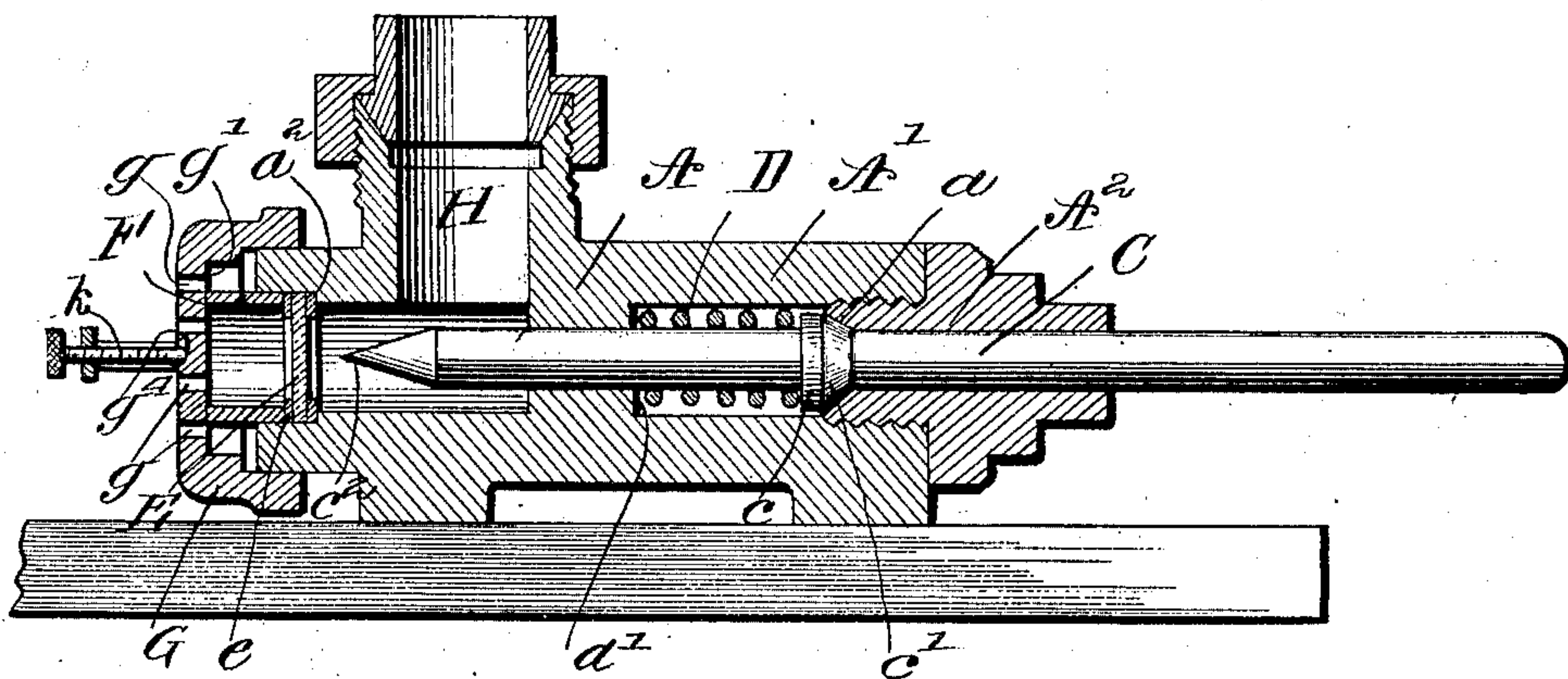


Fig. 3.

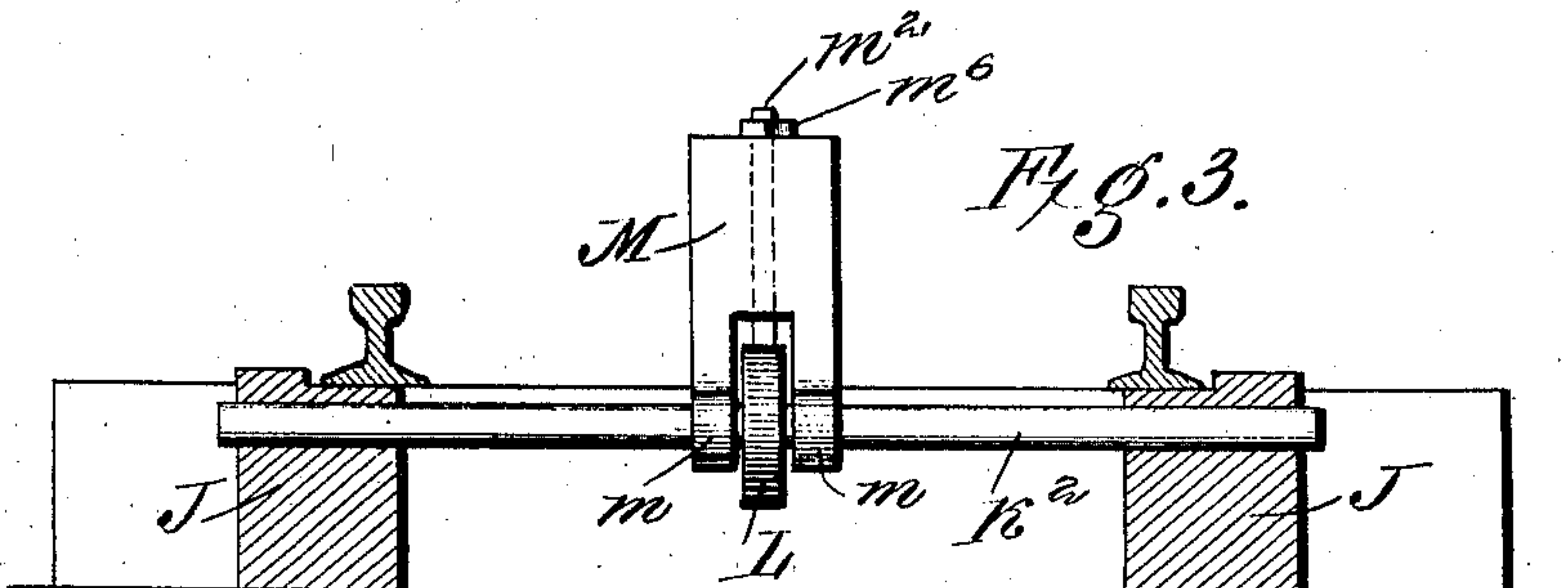


Fig. 4.

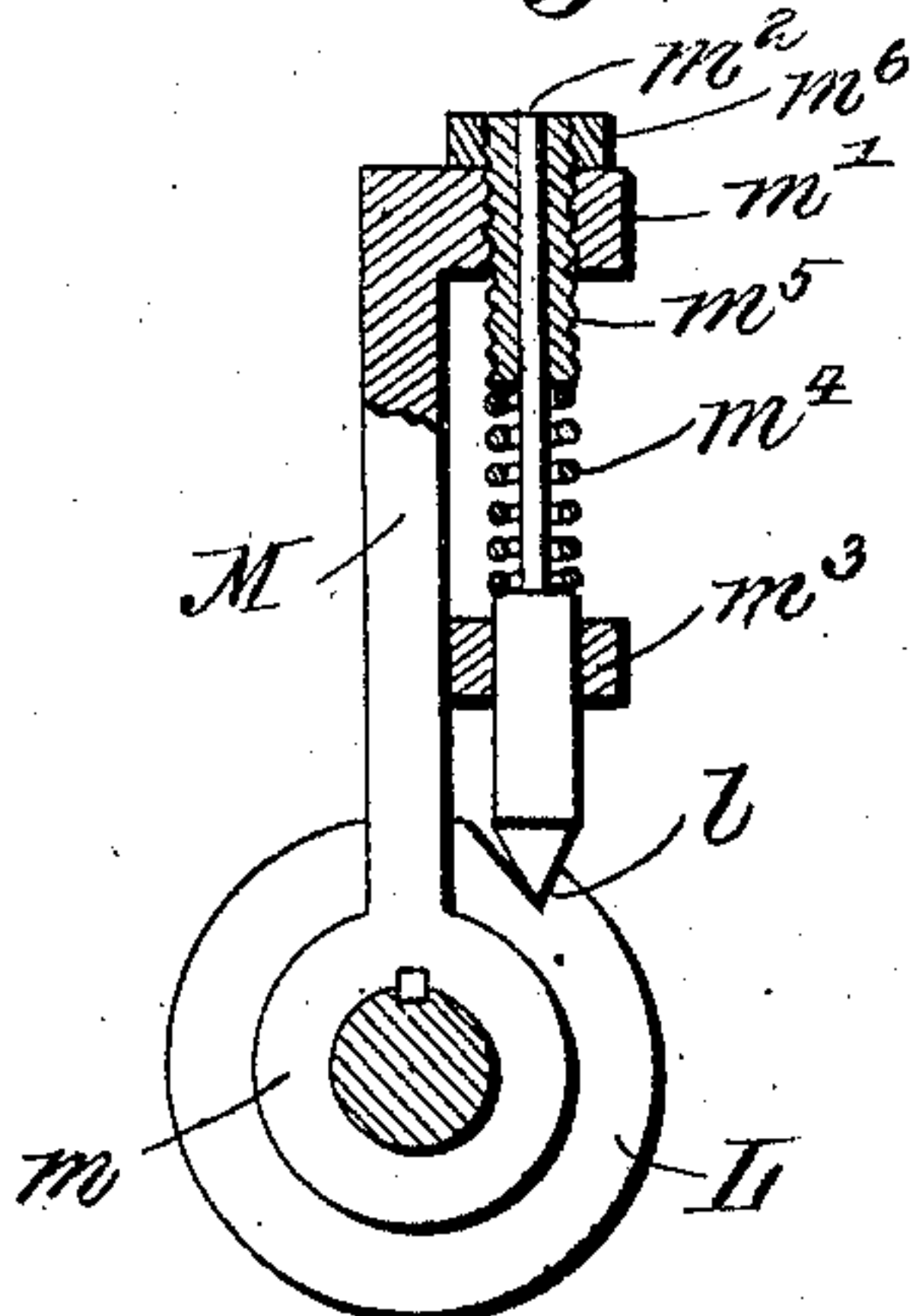


Fig. 5.

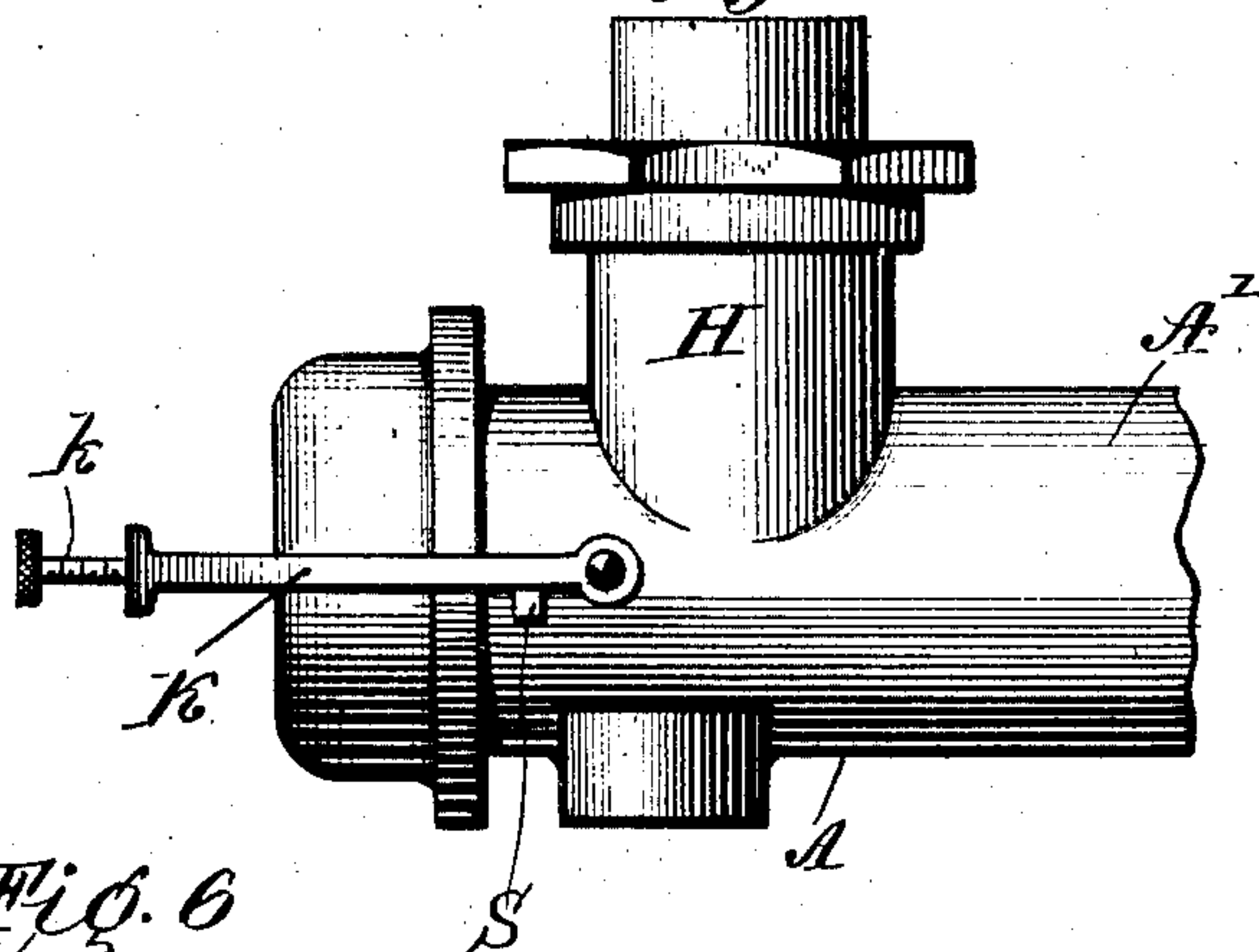
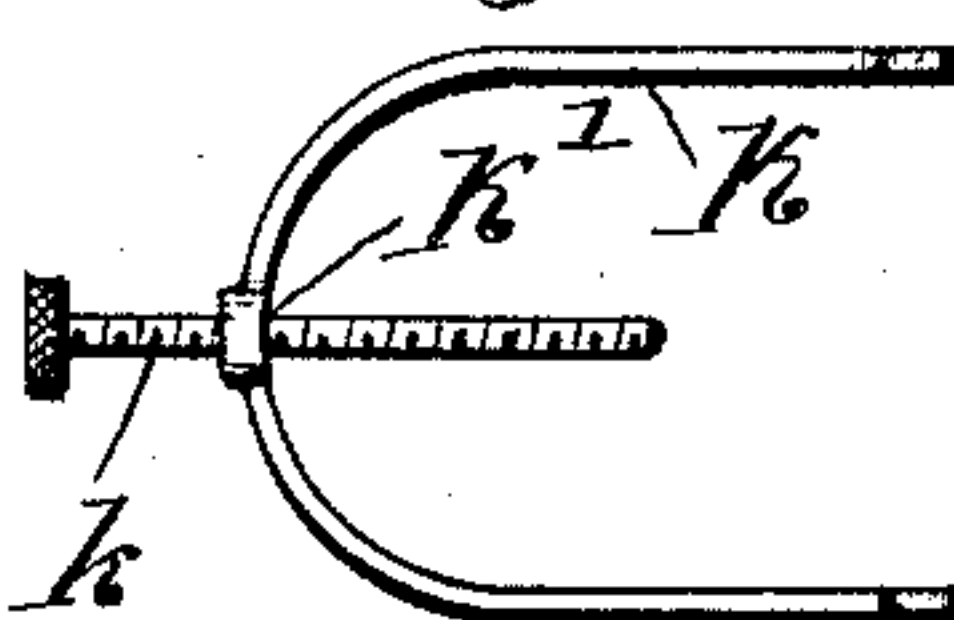


Fig. 6.



WITNESSES
E. M. Callaghan
W. S. Brock

INVENTOR
WALTER H. WINKS
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

WALTER H. WINKS, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO GILSON W. METCALFE, OF BALTIMORE, MARYLAND.

SAFETY APPLIANCE FOR AIR-BRAKES.

No. 840,279.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed October 24, 1906. Serial No. 340,297.

To all whom it may concern:

Be it known that I, WALTER H. WINKS, a citizen of the United States, and a resident of Baltimore, State of Maryland, have invented certain new and useful Improvements in Safety Appliances for Air-Brakes, of which the following is a description.

My improvement relates to safety appliances for air-brakes, and has for its object to provide means whereby the air-brakes on a locomotive and train of cars will be quickly applied when a switch is open or a danger-signal set should the engineer from any cause fail to note the open switch or danger-signal; and it consists in certain novel features of construction, arrangement, and combination of parts, as will be hereinafter fully described, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing my improvement as applied in use. Fig. 2 is a longitudinal section of the casing which is to be applied to a locomotive-pilot. Fig. 3 is a sectional elevation of the tappet to operate the plunger of the device. Fig. 4 is a vertical sectional elevation of the tappet. Fig. 5 is a side elevation of a portion of the casing, showing locking means for the cap of same. Fig. 6 is a top plan view of the locking-bail detached.

In carrying out my invention I use a casing A, secured to the base-frame of the pilot B of a locomotive. Said casing is made of brass and has the front tubular extension A', to which is screwed the union A², which is also made of brass. Within the casing and passing through the union A² is a plunger C, which is preferably made of Tobin bronze, which will not be easily affected by the elements or by heat or cold. Said plunger has a flange c, having a beveled ground shoulder c', which fits snugly the seat a within the tubular extension A'. A coiled spring D fits within the extension around the plunger and rests at its forward end against the shoulder c and at its rear end against the internal annular flange a', normally tending to force the front ground face of the shoulder c against its seat and forming thereby a tight valve-joint. The rear end of the plunger is made pointed, as shown at c². The rear end of the casing, which is open, is formed with an internal shoulder a², against which rests a washer and a disk of thin glass or other frangible material

E. A washer or gasket e rests against the rear face of disk E, and against this rests the tubular retaining-ring F, the rear end of which projects beyond the rear end of the casing, which is reduced and has fitted thereon the rounded cap G, said cap being provided with the perforations g and having the internal shoulder g' and which abuts the rear end of the retaining-ring F when the cap G is in position, and thereby holds the retaining-ring tightly against the frangible disk E. Extending upwardly from the casing in advance of the disk E is the pipe H with necessary connections and ground joints for attachment to the train-pipe of the air-brake system.

The cap G is held in place at the end of the casing by the following means: A bail K is pivotally secured at its forward ends to the casing on each side of the same; as shown in Figs. 1 and 2, so that it may swing freely over and beyond the said cap G, which has in its outer face at its center the socket or depression g⁴. A thumb-screw k is threaded on the bail G at K', the inner end of said screw being designed to seat in the socket g⁴ of the cap. Now by screwing in the thumb-screw k the cap will be securely held to the rear end of the casing and can be readily removed when desired.

In the position of the parts as shown in Fig. 2, which is normal, the forward end of the plunger will extend about one inch in advance of the extreme forward end of the engine-pilot, while the rear pointed end of said plunger is about one-fourth of an inch in advance of the frangible disk E.

To the railway-track at a suitable distance in advance of a switch is located the tripping device, which I will now proceed to describe. Between two of the ties and beneath each track are placed the blocks J, provided with extensions j, having the lugs j', which fit over the face and edges of the two ties and prevent movement or shifting of the same. Each block has a hole drilled through it, in which is journaled a shaft K², extending across the road-bed between the tracks. At the center of the shaft is keyed a collar L, having the beveled or curved notch l. Fitting loosely on the shaft is the tappet M, having the perforated legs m, disposed on each side of the collar L. The upper end of the tappet is turned over to form a flange m',

into which is screwed a bushing m^5 , through which passes a spring-bolt m^2 , the lower portion of said bolt being squared and passing through the strap m^3 , secured to one face of the tappet. The lower end of the bolt is beveled and normally fits in the notch l of the collar L . The spring m^4 , which surrounds the bolt m^2 , rests at its lower end against the squared portion of the bolt and at its upper end against the bushing m^5 , so that the tension of the spring and the holding power of the ends of the bolt in the notch l may be regulated by manipulating the lock-nut m^6 on the upper end of the bushing m^5 . The bolt is applied to the face of the tappet that is nearest the switch, leaving the other face of the one facing the approaching train perfectly smooth.

To use my improvements, the shaft K^2 is operatively connected with the switch and signal mechanism, so that when the switch is opened the tappet will be carried up to a vertical position above the road-bed. If now a train should approach the switch while it is open, the forward end of the plunger will strike against the tappet and be driven thereby back into the casing, and the pointed rear end of said plunger striking the disk E will rupture the same, allow the air in the train-pipe to escape through the perforation in the cap G , causing a reduction of train-line pressure, and cause an application of the brakes of the train and bring the same to a stop before it can run into the open switch. When the forward end of the plunger strikes the tappet, the tappet being loosely fitted to the shaft, the spring-bolt will be forced out of the notch l and slips around the circumference of the same to a horizontal position, allowing the pilot to pass over the tripping device without harm to the parts of the same. When the switch is closed again, the shaft will be rotated reversely to what it was when the switch was opened, and as the notched collar is fast to or integral with said shaft it will turn with it until the notch l reaches the bolt m^2 , when the end of the bolt will again spring into the place and is ready for use again. The cap may then be removed, the retaining-ring and the broken disk removed, and a new frangible disk put in place, and the retaining-ring and cap restored to their original positions. The perforated cap G performs a double office: First, it permits escape of air from the train-line and it also prevents any extraneous matters, such as ballast, &c., from being accidentally forced into the casing and rupturing the frangible disk E , which would result in an application of the air-brakes when not desired.

As stated, the tripping device will be located a convenient distance in advance of the switch, and such distance will of course vary according to the character of the trains passing over the track, as for an express it

would need be located a greater distance from the switch than for slower trains.

All the joints will be ground to make them perfectly tight, so that there can be no leakage of air to cause an accidental application of air-brakes.

While I have shown one method of locking the cap, it is obvious that other means may be resorted to; also, that minor changes in the form, construction, and arrangement of the parts may be made without departing from the scope and spirit of my invention.

To keep the bail K in its proper position and prevent it from dropping below the casing, I place projecting stops on each side of the casing, upon which said bail may rest.

What I claim is—

1. A safety appliance for air-brakes consisting of a casing having connection with the train-line-pressure pipe, a frangible diaphragm located within the same, and retaining the train-line pressure therein, a plunger within said casing and projecting therefrom, said casing being attached to the forward end of an engine-pilot, and means located between railway-tracks adapted to impinge the one end of the plunger and drive the other end against and fracture the frangible diaphragm, to permit escape and reduction of train-line pressure to cause an application of the air-brakes.

2. A safety appliance for air-brakes consisting of a casing secured to the forward end of a locomotive and having connection with the train-line-pressure pipe, a frangible diaphragm located within said casing, and a movable member carried by said casing and adapted to be struck by an obstruction located between the railway-tracks and forced against the frangible diaphragm and rupture the same to cause escape and reduction of train-line pressure and application of the air-brake.

3. A safety appliance for air-brakes consisting of a casing fitted to the forward end of a locomotive and having connection with the train-line-pressure pipe, a frangible diaphragm within said casing and retaining the train-line pressure therein, a perforated cap covering the rear end of said casing, a plunger held within the forward end of the casing, the rear end of said plunger being normally held a short distance in advance of the frangible diaphragm, and a tappet located between the railway-tracks and operatively connected with a switch or signal rod, said tappet adapted to impinge the forward end of the plunger and force the same rearwardly to rupture the frangible diaphragm within the casing and cause escape and reduction of train-line pressure, and application of the air-brakes.

4. A safety appliance for air-brakes consisting of a casing fitted to the forward end of a locomotive and adapted to have connection

tion with the train-line-pressure pipe, a frangible diaphragm within said casing retaining the train-line pressure therein, a plunger held within the forward end of the casing and projecting therefrom, the rear end of said plunger being normally held a short distance in advance of the frangible diaphragm, and a tappet located between the railway-tracks and operatively connected to a switch or signal rod, said tappet comprising a collar rigidly secured to the switch or signal shaft, a bifurcated yoke rotatably mounted on the shaft and inclosing said collar, and a slidable bolt carried by said yoke and adapted to engage the periphery of the rigid collar.

5. A safety appliance for air-brakes consisting of a casing fitted to the forward end of a locomotive and having connection with the train-line-pressure pipe, a frangible diaphragm within said casing and retaining train-line pressure therein, a removable perforated cap covering the rear end of the casing, means for removably holding said perforated cap in position, a plunger movably held within the casing and projecting forwardly therefrom, the rear end of said plunger normally held slightly in advance of the frangible diaphragm, and means located

between the railway-tracks, operatively connected with a switch or signal shaft, and adapted to impinge the forward end of the plunger.

6. A safety appliance for air-brakes consisting of a casing fitted to the forward end of a locomotive adapted to have connection with the train-line-pressure pipe, a frangible diaphragm within said casing and retaining the train-line pressure therein, a plunger held within the forward end of the casing and projecting therefrom, the rear end of said plunger being normally held a short distance in advance of the frangible diaphragm, and a tappet located between the railway-tracks and operatively connected to a switch or signal rod, said tappet comprising a notched collar rigidly mounted on the switch or signal shaft, a bifurcated yoke rotatably mounted on said shaft and inclosing said collar, a spring-actuated slidable bolt carried by said yoke and adapted to engage the notched collar, and means for regulating the tension of the spring.

WALTER H. WINKS.

Witnesses:

HENRY I. KIRK,
FERDINAND J. SLAGLE.