

No. 613,109.

Patented Oct. 25, 1898.

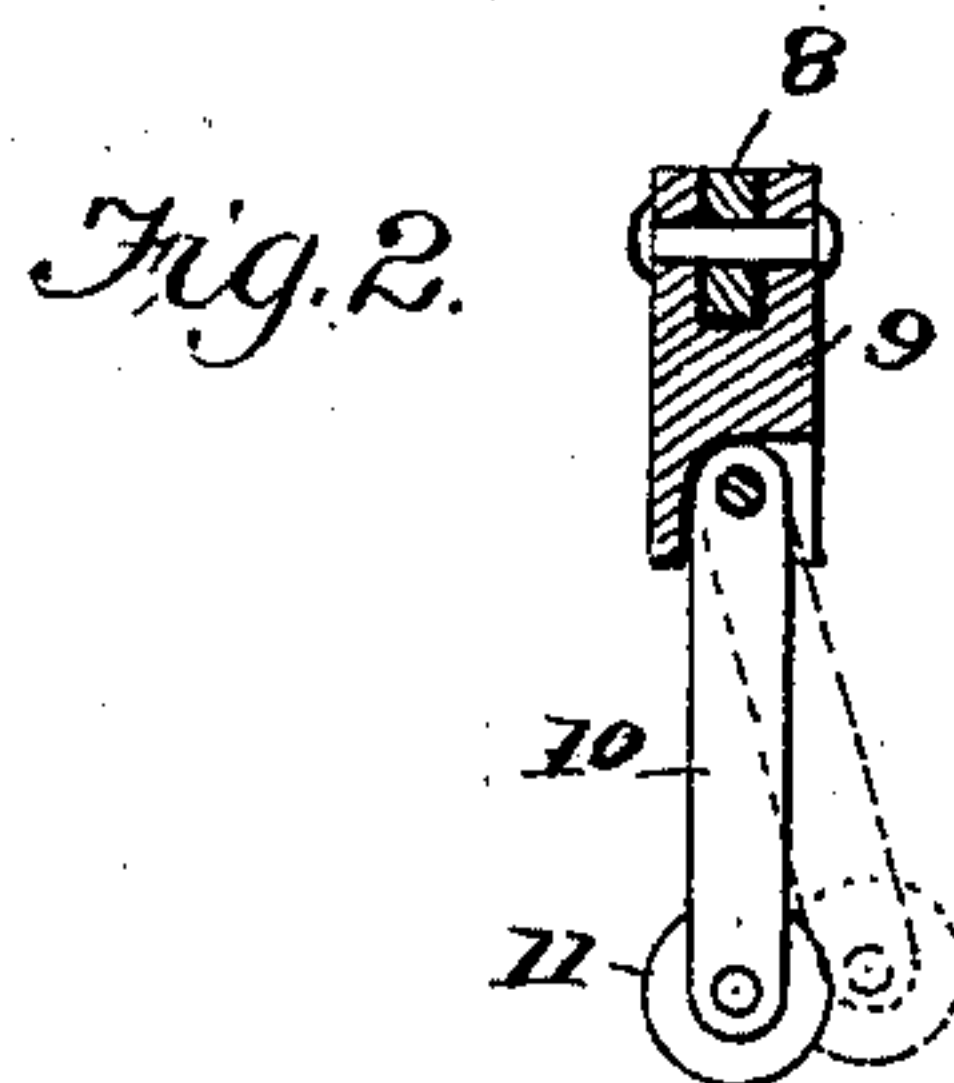
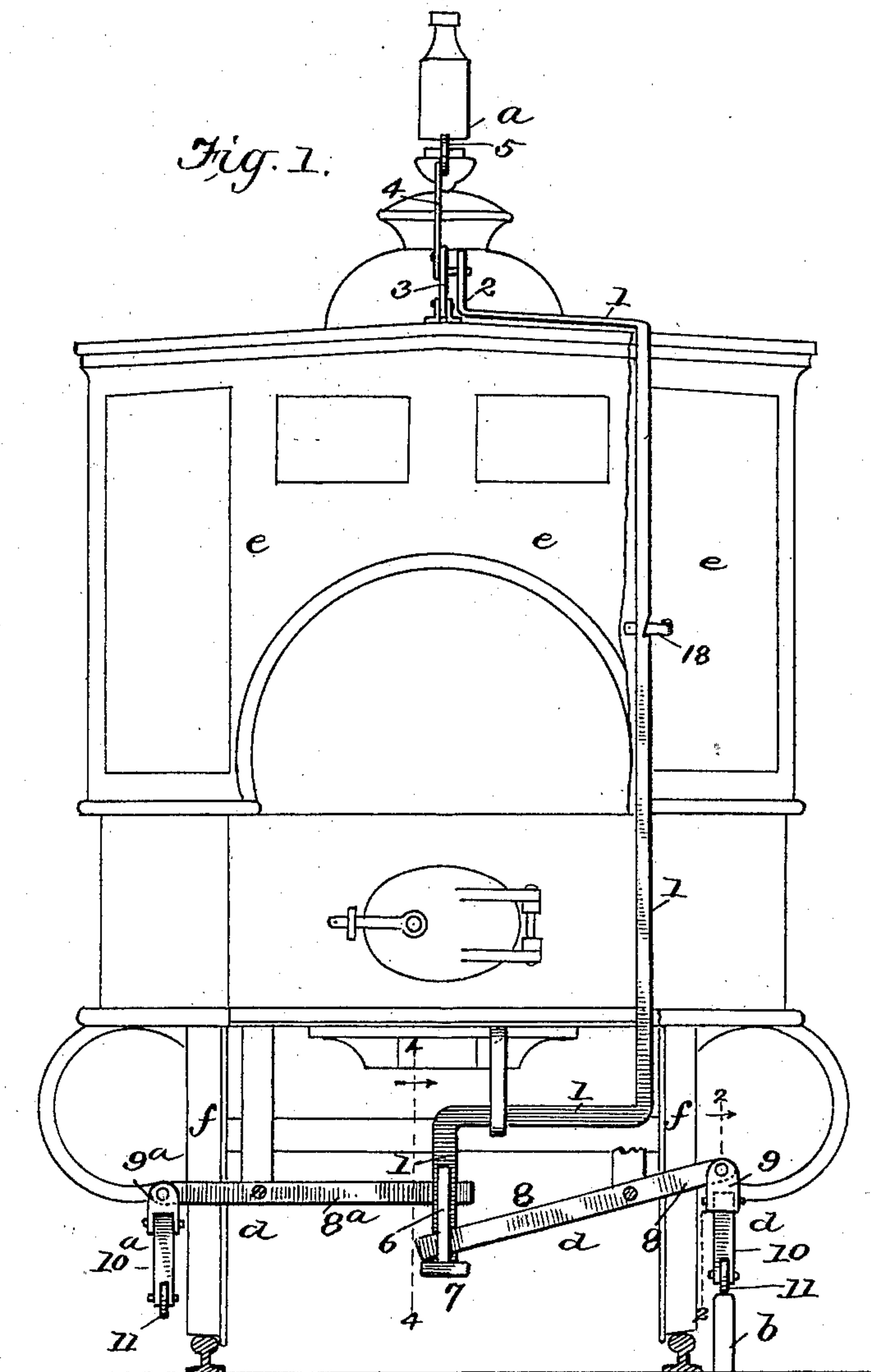
M. A. BAMBOROUGH.

AUTOMATIC SIGNALING MECHANISM FOR LOCOMOTIVES.

(Application filed Apr. 23, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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2 Sheets—Sheet 2.

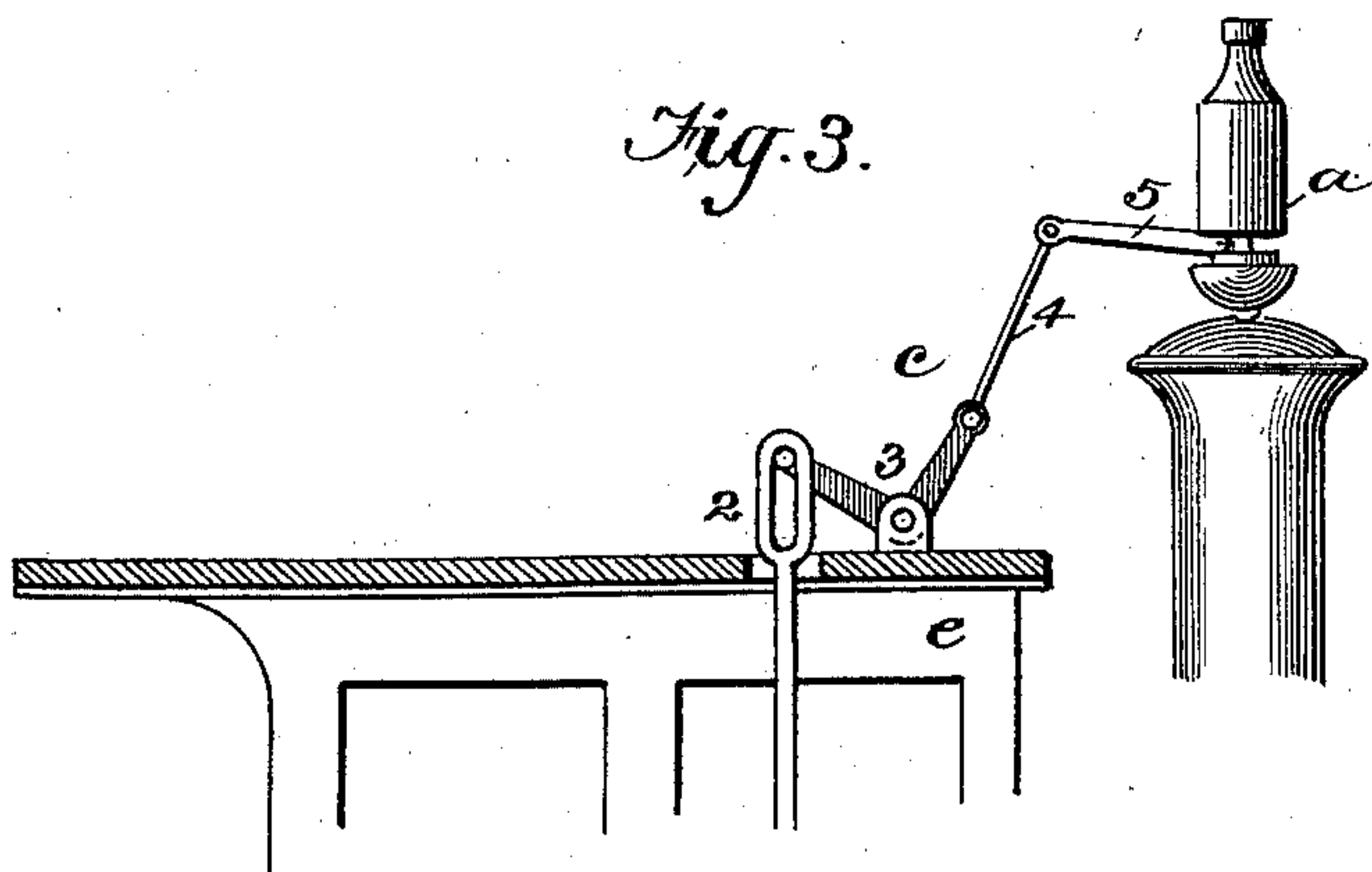


Fig. 4.

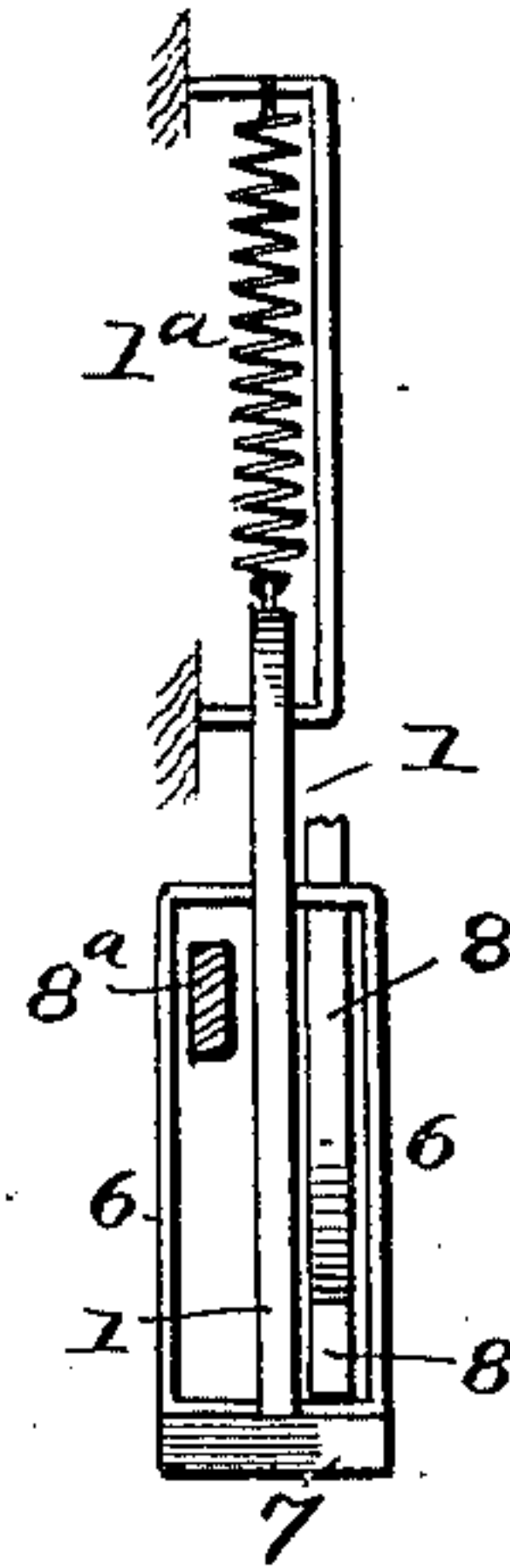


Fig. 5.

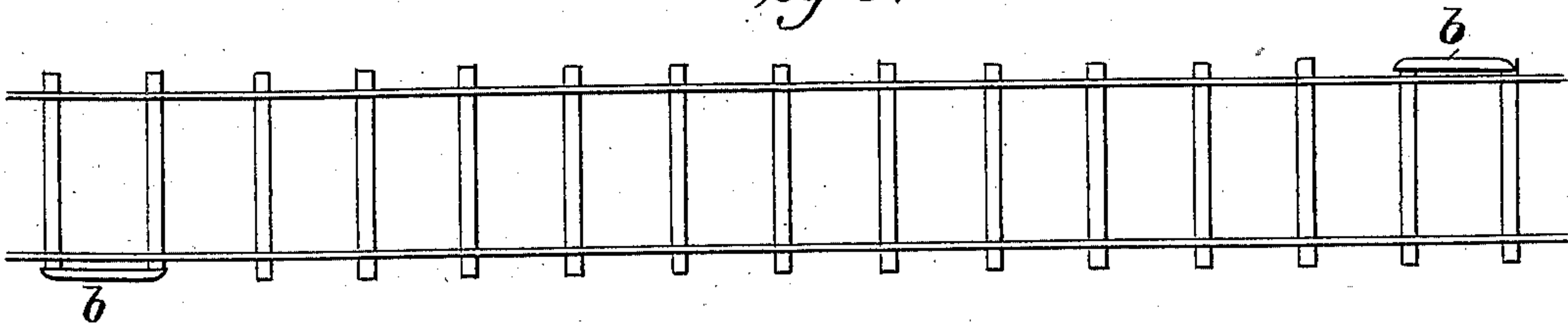
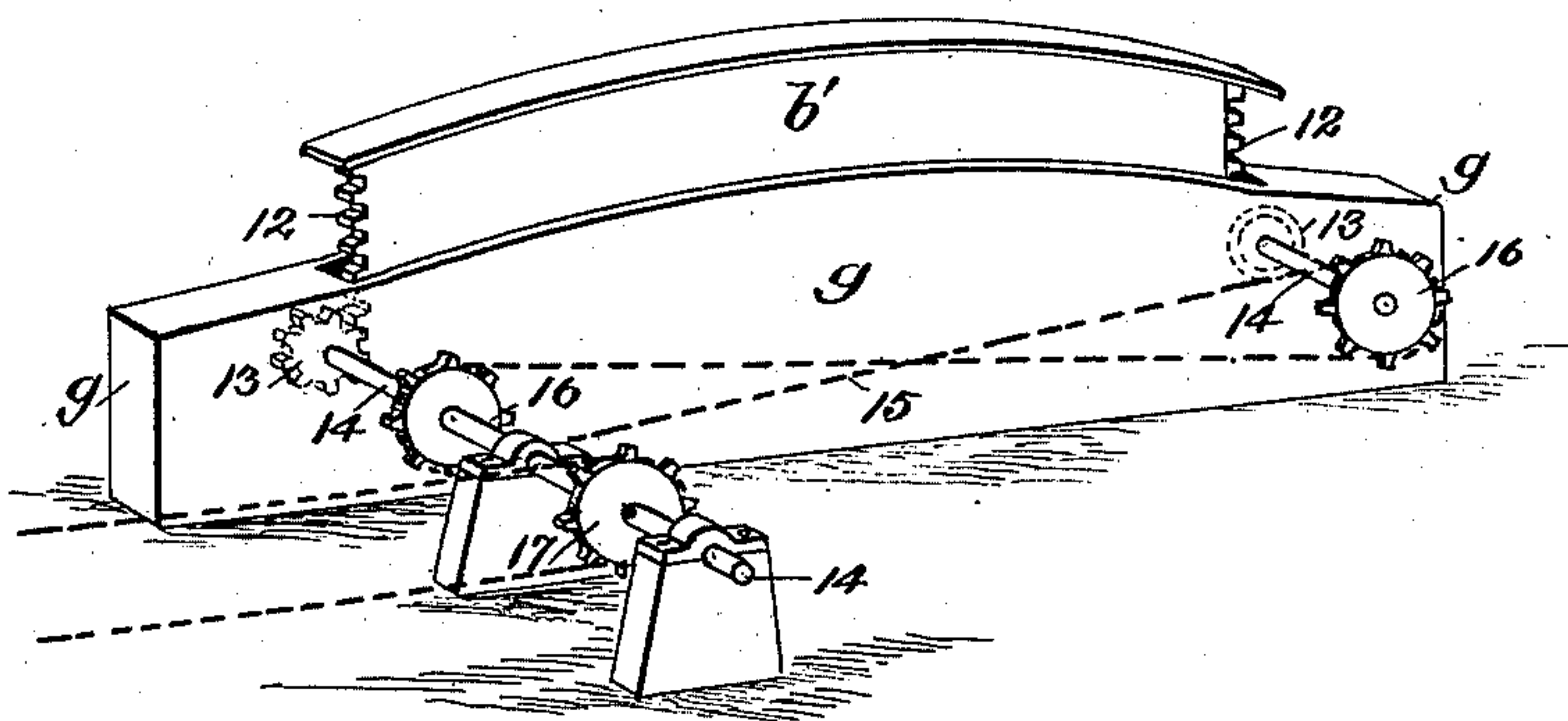


Fig. 6.



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MASON A. BAMBOROUGH, OF CHICAGO, ILLINOIS.

AUTOMATIC SIGNALING MECHANISM FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 613,109, dated October 25, 1898.

Application filed April 23, 1898. Serial No. 678,614. (No model.)

To all whom it may concern:

Be it known that I, MASON A. BAMBOROUGH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Automatic Signaling Mechanism for Locomotives, of which the following is a specification.

The object of my invention is to provide a new and improved automatic signaling mechanism for locomotives which is simple and durable in construction and intended for automatically sounding the whistle or gong, as may be desired, at or near stations, crossings, switches, or other predetermined place, at the same time permitting the engineer to sound the whistle at any time and place he may desire.

The invention consists of certain parts, details, and combinations of the same, as will be hereinafter fully described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and numerals of reference indicate corresponding parts in the different figures.

Figure 1 is a partly-diagrammatic view of a locomotive with my improvement applied. Fig. 2 is a cross-section on line 2 2 of Fig. 1. Fig. 3 is a side view showing the lever mechanism connected with the locomotive-whistle. Fig. 4 is a vertical section on line 4 4 of Fig. 1. Fig. 5 is a plan view of a section of railroad-track provided with my auxiliary or supplemental rails or trip-blocks. Fig. 6 is a perspective view of an adjustable trip-block.

I employ a suitable means of connection between a locomotive-whistle *a* and a device that may be tripped by a block or rail *b* located alongside the track or running-rails. In this instance such means of connection comprise a rigid angular rod or bar 1, (see Fig. 1,) a lever mechanism *c* (see Fig. 3) for operating the whistle, and another lever mechanism *d*, Fig. 1, which is tripped by the block or auxiliary rail *b*, before referred to.

The rod 1 extends through the locomotive-cab *e* and above and below the same. Its upper end is provided, Fig. 3, with a lengthwise slot 2, which receives the wrist-pin of an elbow-lever 3, pivoted to the top of the cab *e*. The other end of said lever 3 is connected by

a link 4 with the device 5, that operates the whistle *a*. The rod 1 is supported elastically by a helical spring 1^a, Fig. 4.

The lower end of the rod 1 is provided with guide-loops 6, Figs. 1 and 4, and an enlarged head 7. Said loops 6 serve as guides for two similar levers 8 8^a, that are pivoted and arranged transversely beneath the locomotive and extend outside the driving-wheels *f*. To the outer ends of levers 8 8^a are pivoted mortised blocks 9 9^a, which are free to swing at right angles to the track. To such blocks 9 9^a are pivoted lever-arms 10 10^a, Figs. 1 and 2, having an antifriction-roller 11 on its lower end. These arms are pivoted at a right angle to the block-pivot, so as to swing parallel with the track. The head of each arm is fitted loosely in a mortise or socket in the block, so that it is free to swing in one direction and not the other. It will be noted that the arms 10 10^a are adapted to swing in opposite directions, so that one may act when the locomotive runs forward and the other when it runs backward.

I locate alongside the track a supplemental rail or trip-block *b*, as shown in Figs. 1 and 5. This may be a short convex block or rail-section fixed in position at such height that when struck by a lever-arm 10 or 10^a the latter will be raised and the alarm given, or the block may be vertically adjustable, as shown in Fig. 6. This form of block will be presently described.

From the foregoing it will be understood that when the wheel 11 of the lever-arm 10 (shown on the right hand, Fig. 1) strikes a supplemental rail *b* the said arm will be raised vertically and the lever 8 tilted, as shown, whereby the inner end of the lever is thrown down on head 7 and the rod drawn down against tension of spring 11^a, thus sounding the whistle *a*. It is apparent that this operation of the arm 10 depends upon its leverage with the shoulder of the block 9, which is below the pivot, as shown in Fig. 2. It is also apparent that the left-hand arm 10^a will act in like manner when the locomotive is running backward, since the arm 10^a will then have leverage with the block 9^a by reason of the arrangement of the latter with its mortise on the rear side. It is further apparent that when the locomotive runs backward the right-

hand lever 10 will drag at an inclination, as shown by dotted lines, Fig. 2.

It will be seen that the slot 2 in upper end of rod 1 allows the latter due "play"—i. e., 5 permits it to rise without affecting the lever 3.

The adjustable block shown in Fig. 6 enables the whistle to be sounded at will. The block proper, *b'*, has a convex upper side and is arranged to slide vertically in a mortise or 10 socket formed in a rail or bar *g*. The block *b'* is provided with lateral flanges to exclude dirt and other foreign objects when in the lowered position.

Each end of the block *b'* has rack-teeth 12, 15 which engage spur-gears 13, keyed on parallel horizontal shafts 14, having bearings in the rail or bar *g*. It is obvious that by rotating the shafts 14 in opposite directions the block *b'* will be raised or lowered. To enable 20 said shafts to rotate oppositely, they are connected by a crossed chain 15, which runs on sprockets 16, fixed on the shafts, as shown. Rotation may be imparted to one of the shafts from any near point—a switch, crossing, or 25 station—by means of a chain running on a sprocket 17. This form of trip-block *b'* would be required where the signal is not required to be given each time a locomotive passes. It may be connected with a switch to work 30 automatically when the latter is opened or closed. Thus it would give the engineer of a locomotive approaching such switch due notice of its condition.

In case a prolonged signal is required the 35 rod 1 may be held locked when drawn down, as before described, by engagement with a spring-catch 18, Fig. 1. The catch locks with a notch formed in the rod and may be disengaged manually.

40 I do not of course restrict the application of my invention to a locomotive, since it is obviously capable of use on any traveling vehicle.

What I claim is—

45 1. The combination with a locomotive-alarm, of a rod connected with said alarm

and extending downward, a lever arranged transversely beneath the locomotive and engaging said rod, and a lever-arm jointed to and swinging free from the outer end of said 50 lever, and adapted to engage a trip-block alongside the track, as shown and described.

2. The combination with a locomotive, and alarm thereon, of a rod extending downward, a transverse lever pivoted beneath the loco- 55 motive, a block having an open mortise or socket on one side, and pivoted to the outer end of such lever and adapted to swing laterally, and a lever-arm pivoted in the mortise of said block at a point above the lower edge 60 or shoulder of the mortise, substantially as shown and described.

3. The combination with a locomotive and whistle thereon, a rod operatively connected therewith, and extending downward, a spring 65 for supporting said rod, in normal position pivoted levers extending transversely in opposite directions from the lower end of said rod, pendent lever-arms pivotally connected with the other ends of the said levers, and 70 arranged reversely whereby one operates when pushed in one direction and the other when pushed in the opposite direction substantially as shown and described.

4. The combination with an alarm mech- 75 anism on a locomotive or other vehicle carrying the same of trip mechanism extending vertically and laterally as specified, of a vertically-adjustable trip-block, arranged alongside the track, and means for adjusting the 80 same substantially as specified.

5. The combination with the socket or mortise rail arranged alongside a track, a vertically-adjustable trip-block adapted to work therein, and having rack-teeth as specified, 85 rotary gears engaging such teeth, shafts carrying the gears, and means for rotating the shafts, substantially as shown and described.

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Witnesses:

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