

(No Model.)

H. JOHNSON.
RAILWAY SIGNAL.

No.315,792.

Patented Apr. 14, 1885.

Fig. 1.

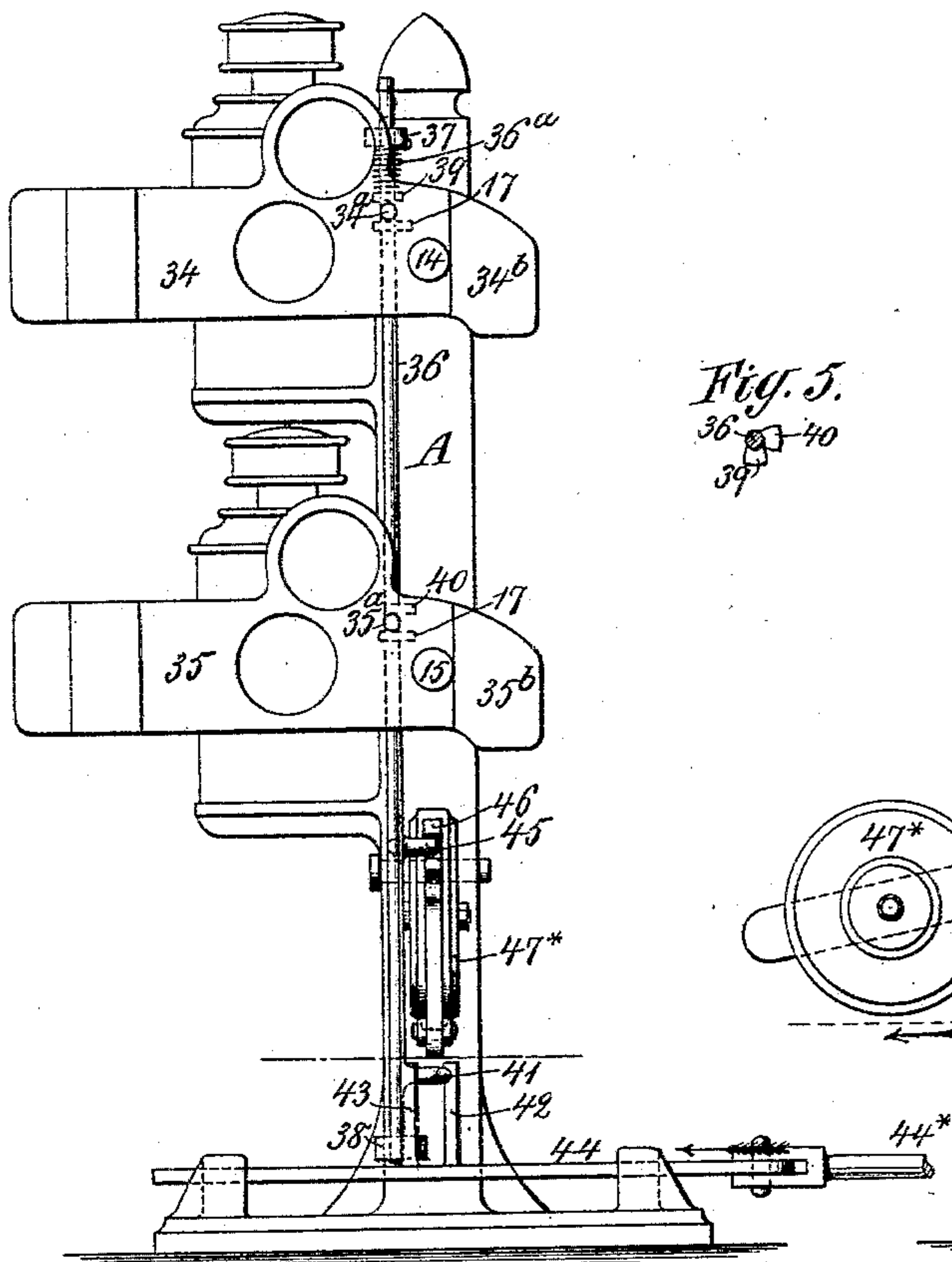


Fig. 2.

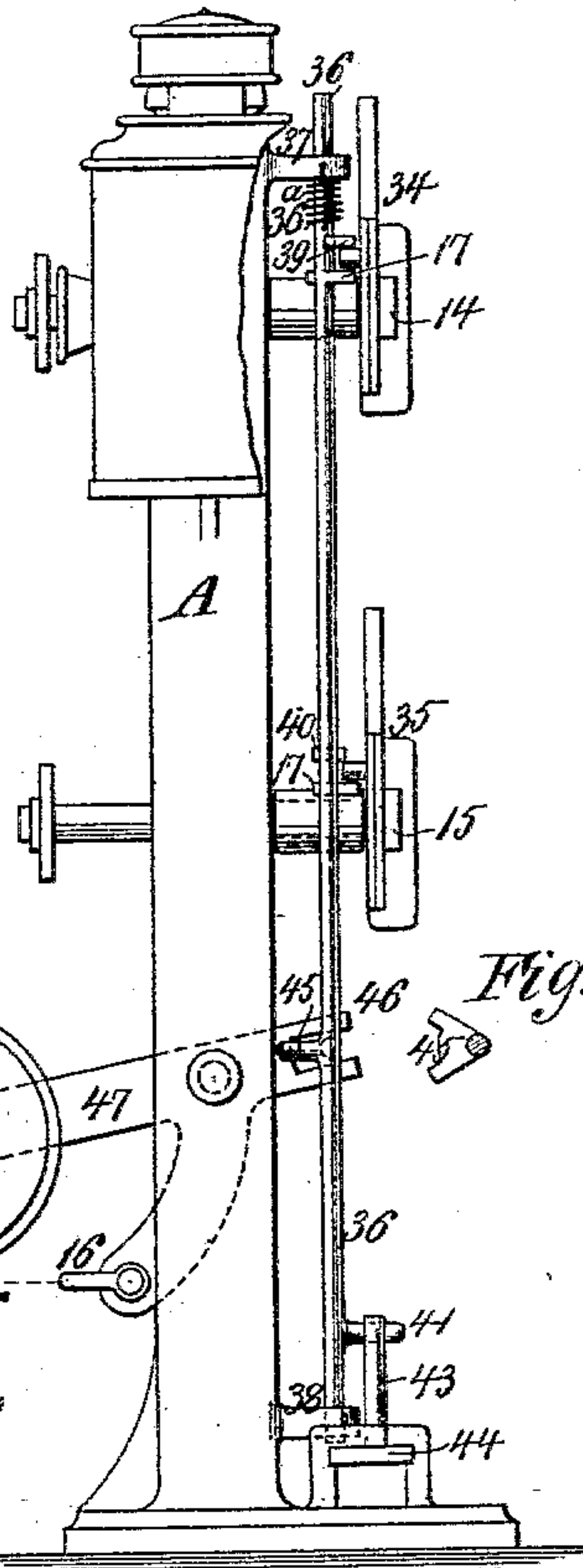


Fig. 3.

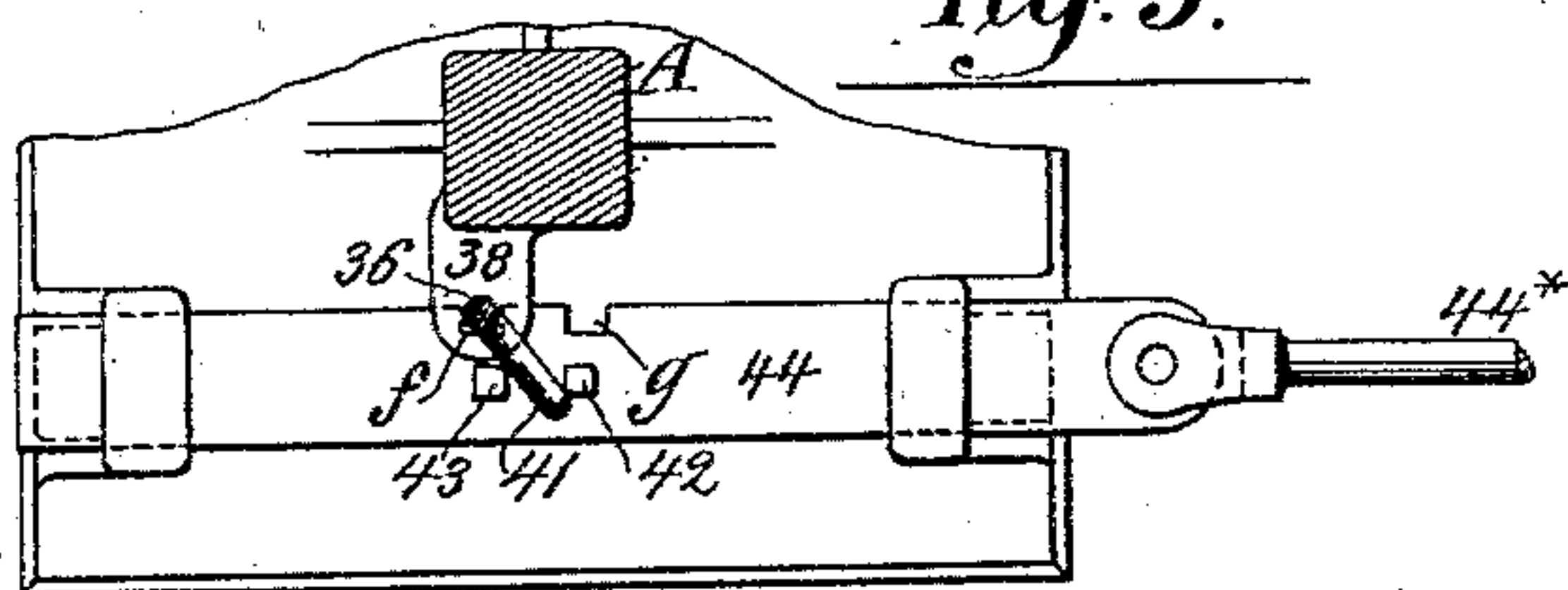
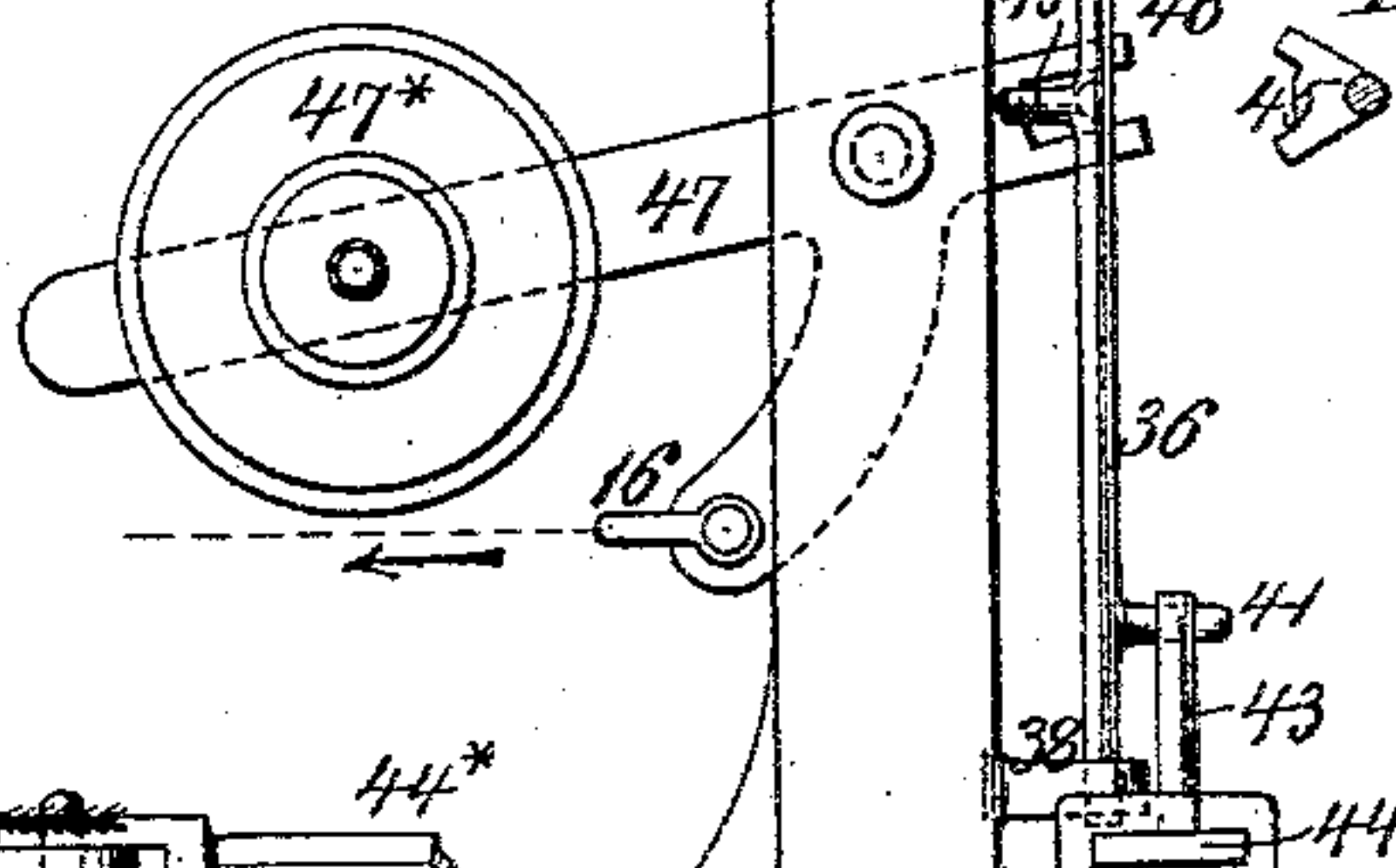


Fig. 4.



Witnesses:-

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UNITED STATES PATENT OFFICE.

HENRY JOHNSON, OF FLIXTON, COUNTY OF LANCASTER, ENGLAND.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 315,792, dated April 14, 1885.

Application filed January 8, 1885. (No model.)

To all whom it may concern:

Be it known that I, HENRY JOHNSON, of Flixton, in the county of Lancaster, England, have invented a new and useful Improvement in Railway-Signals, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to railway-signal apparatus in which the movements of semaphores or other visual signals are controlled by stop-plates connected with the switches, as described in my Letters Patent No. 294,880, dated March 11, 1884.

The invention consists in certain novel means, through which the control of the visual signals by the stop-plates is effected, as hereinafter described.

Figure 1 in the drawings is a face view of a signal-instrument constructed according to my invention. Fig. 2 is a side view of the same. Fig. 3 is a plan view of the stop-plate and its bearings and the part of the mechanism immediately connected with the stop-plate. Figs. 4 and 5 are horizontal sections of the rod through which the signals are brought to the safety-position, and through which they are controlled by the stop-plate.

Similar letters of reference indicate corresponding parts in the several figures.

A designates the post or standard, to which are pivoted, respectively at 14 and 15, the upper and lower semaphores, 34 and 35, which are so loaded at 34^b and 35^b as to keep their longer arms raised to the horizontal or danger-indicating position shown in Fig. 1 when they are not otherwise operated upon.

44 is a stop-plate, which is substantially like the stop-plate described in my hereinbefore-mentioned Letters Patent—that is to say, it contains two notches or openings, *f g*, and it is to be connected in any suitable manner, as by a rod, 44*, with the switch, or with the mechanism for operating the same, that it will move with the switch.

36 is an upright rod or shaft fitted to turn and also to move longitudinally in guides 37 38, provided on the post A. Upon this rod or shaft there is a projection, 39, which may at times, by turning the said rod or shaft, be brought above a projection, 34^a, provided upon the semaphore 34, and there is also another projection, 40, upon the said rod or

shaft which may be brought above the projection 35^a upon the semaphore 35; but the said projections 39 and 40 are so arranged, as shown in Fig. 5, which exhibits a section of the rod 36, that both are not at the same time over the projections 34^a and 35^a on the semaphores, and hence that each will form a removable connection between one of the semaphores and the rod 36, whereby the said rod may be made to pull down either semaphore without acting on the other. The lower part of the rod 36 is provided with an arm, 41, which enters, as best shown in Fig. 3, between two studs, 42 43, on the sliding stop-plate 44, in such manner that the said rod may be turned by the longitudinal movement of the said plate. Instead of the said arm and studs, it is obvious that a toothed rack and sector may be employed to connect the said rod and plate as an equivalent to the said arm and studs for operation in the same manner. The rod 36 is also furnished with a projection, 45, which is best shown in the section Fig. 4, which enters a fork in the weighted lever 47, which is pivoted to the post A. The weight 47* on this lever holds up the rod 36 above the stop-plate when the said rod is not otherwise depressed. The said lever 47 has a connection at 16 by which it may be operated to depress the rod 36, for the purpose of setting the signal to the safety position, as will be hereinafter described.

I will suppose, for illustration, that the upper semaphore is the main-line signal, and the lower one is a cross-over or branch-line signal. Both semaphores are kept raised to the danger position by their loaded ends 34^b 35^b at all times, except while held to the safety position by the attendant manipulating the lever 47, and he can only set the signals for safety when the switch is fully closed to the main line or to the cross-over or branch, at which times one or other of the notches *f g* in the stop-plate will be under the rod 36, and permit the descent of the said rod, which would be prevented at all other times by a solid or unbroken part of the stop-plate being presented below the said rod.

The parts are represented in the drawings in position to permit the operation of the upper semaphore, the opening *f* in the stop-plate being under the rod 36, and the projection 39

on the said rod being over the projection 34^a on that semaphore, which may then be removed from "danger" by pulling the lever 47 in the direction indicated by the arrow in Fig. 2, and so depressing the rod by the fork 46. The projection 39 then, by its action on the projection 34^a, depresses the said semaphore. Upon the lever 47 being released, the weight 47* will cause the said lever to raise the rod 36, and so permit the semaphore 34 to assume automatically the danger position by reason of the preponderance of its weighted end 34^b.

When the switch is set for the cross-over or branch track, the opening *g* in the stop-plate comes under the rod 36, which, during the act of setting, is turned by the action of the stud 42 on the projection 41 to a position in which its projection 39 is removed from over the projection 34^a on the upper semaphore and its projection 40 is over the projection 35^a on the lower semaphore. The lever 47 being then pulled, as before described, and the rod 36 being thus depressed, the projection 40 acts on the projection 35^a, and so depresses the lower semaphore.

I have shown in Figs. 1 and 2 a coiled spring, 36^a, which connects the rod 36 with its upper bearing, 37, for the purpose of raising the said rod when no longer held down by the lever 47. When this spring is employed, there need not be a fork at 46, but merely a projection on the lever 47, to bear on the top of the projection 45 on the rod 36. The lever 47 need not be weighted if the connection at 16 be with a rigid rod or tube by which the lever may be pushed to raise the end 46, as well as pulled to depress it.

It may be observed that in the signal apparatus herein described the semaphores are self-raising to the danger position independently of any action of the lever 47 or any external means of raising them instead of being raised by such a lever, as in my former patent, hereinbefore referred to.

In order to prevent the semaphores from being pulled down to the safety position by taking directly hold of them while the rod 36 is held up by the stop-plate, there are provided on the said rod two stop-projections, 17—one

under each of the projections 34^a 35^a on the semaphores. These projections 17 might also serve the purpose of raising the signals to the danger position if the latter were not weighted at 35^b, as described.

I have not represented the switch in the drawings, as its connection with the stop-plate at 44 will be readily understood by persons skilled in the art.

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

1. The combination, with a semaphore-arm or visual signal, and a stop-plate having a connection with a switch to be moved therewith, of a rod arranged between said signal and stop-plate, a removable connection between the said signal and rod, and a connection between the said rod and stop-plate, whereby the said rod may be turned by the said plate to remove and replace the connection between the said rod and signal as the stop-plate is withdrawn from or replaced under the said rod, substantially as and for the purpose herein described.

2. The combination, with two semaphore-arms or visual signals, and a stop-plate having a connection with a switch to be moved therewith, of a rod arranged between said signal and stop-plate, a removable connection between the said rod and signal, and a connection between said rod and stop-plate whereby the said rod may be turned by the said plate to connect either signal and disconnect the other, according to the direction in which the said stop-plate moves with the switch, substantially as herein described.

3. The combination of the semaphores or signals 34 35, having projections 34^a 35^a, and the stop-plate 44, having two openings, as *f g*, the turning and longitudinally-moving rod or shaft 36, having projections 39 40, to act upon those 34^a 35^a on the signals, and geared with the said stop-plate, substantially as herein described.

HENRY JOHNSON.

Witnesses:

CHAS. R. ALLEN,

Solicitor and Notary Public, Manchester.

JOSEPH HOWARTH,

His clerk.