(No Model.) 2 Sheets—Sheet 1.

B. C. ROWELL.

SAFETY APPARATUS FOR RAILWAYS.

No. 542,313. Patented July 9, 1895.

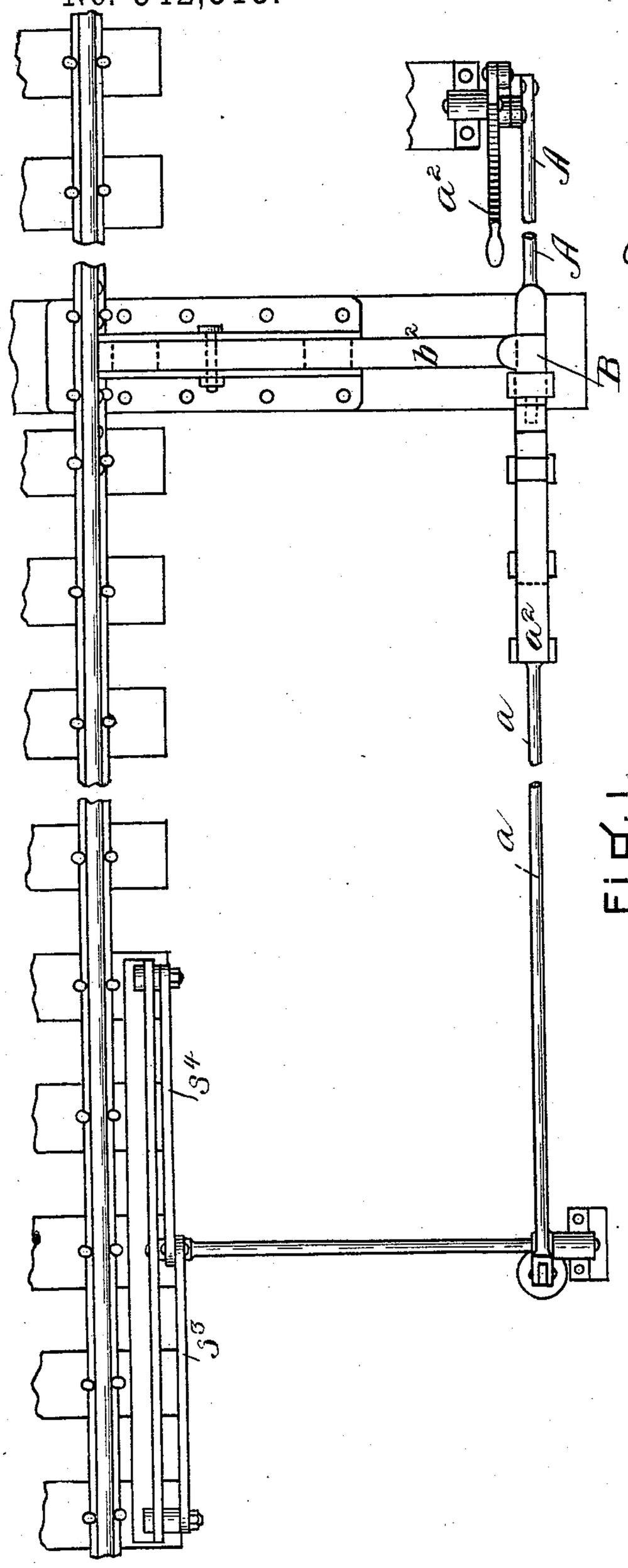

Fig. 1.

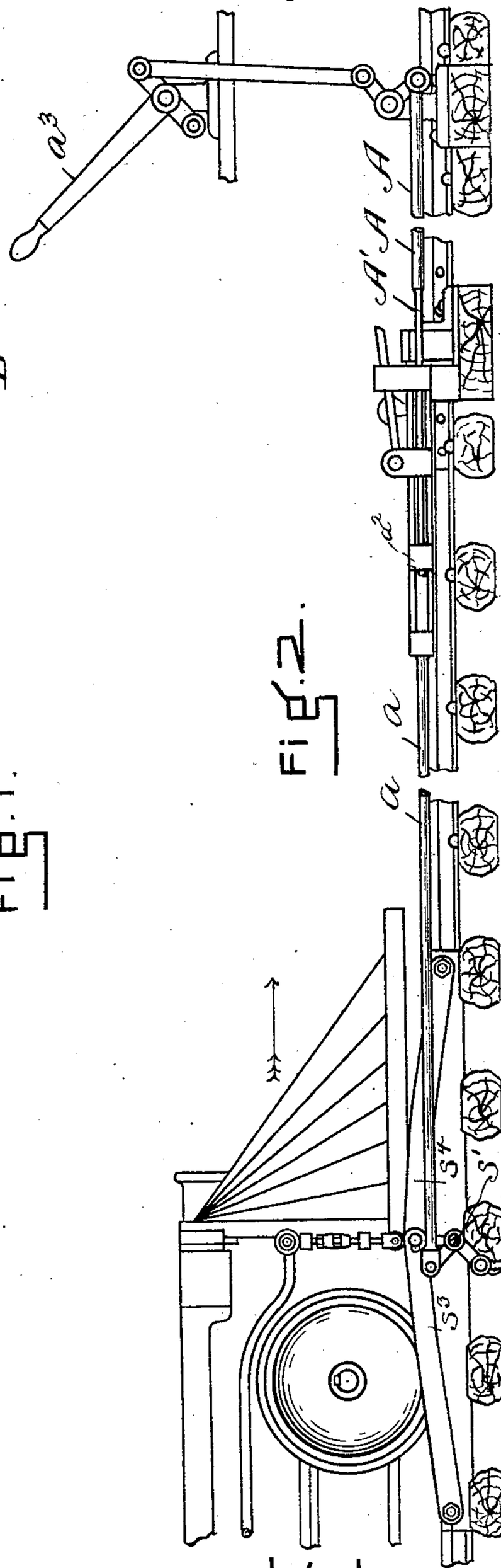

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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SAFETY APPARATUS FOR RAILWAYS.

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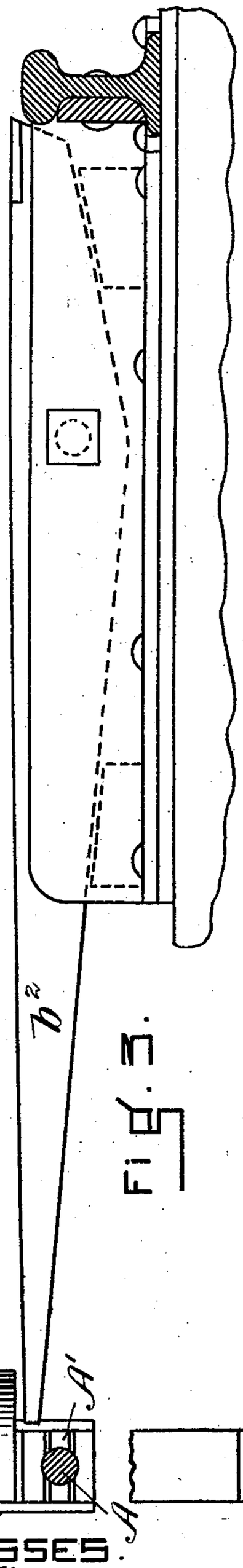

Fig. 3.

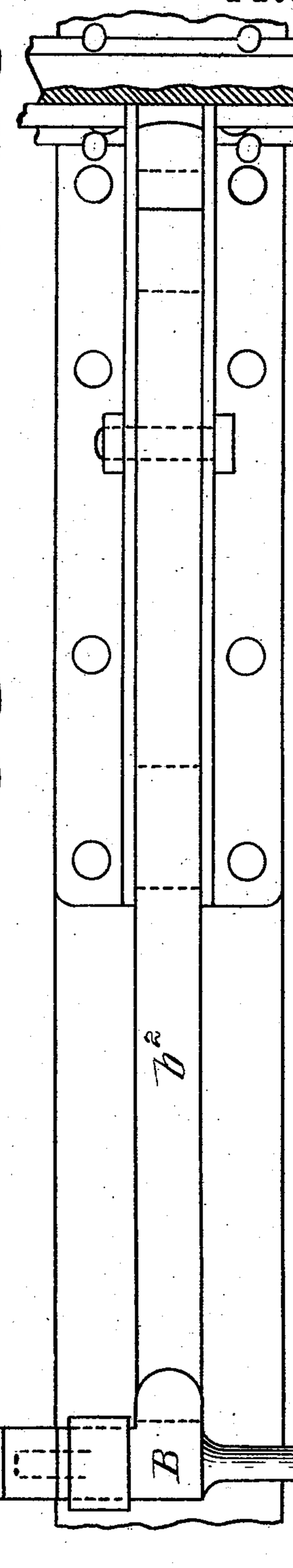

Fig. 4.

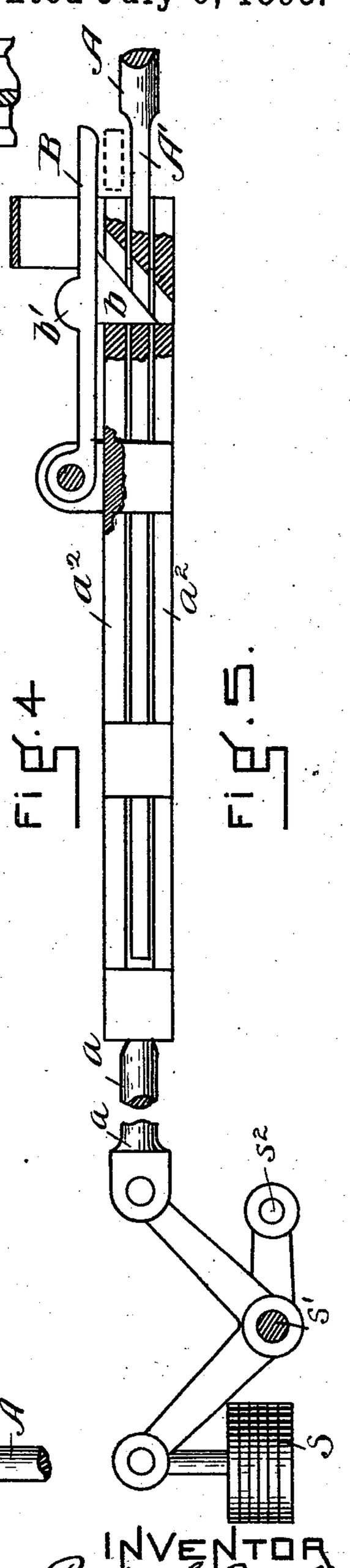

Fig. 5.

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UNITED STATES PATENT OFFICE.

BENTON C. ROWELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ROWELL-POTTER SAFETY STOP COMPANY, OF PORTLAND, MAINE.

SAFETY APPARATUS FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 542,313, dated July 9, 1895.

Application filed December 8, 1893. Serial No. 493,178. (No model.)

To all whom it may concern:

Be it known that I, BENTON C. ROWELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Safety Apparatus for Railways, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan, and Fig. 2 is an elevation showing the best form of my apparatus. Fig. 3 is an elevation, on a large scale, of the tripping-lever and an end view of the automatic lock. Fig. 4 is a plan of the parts shown in Fig. 3. Fig. 5 is an elevation of the automatic lock, partly in section.

My invention relates to preventing a train entering a given portion of the railway-track while another train is on that portion, being in this respect much the same as the block system described in my application for Letters Patent filed December 16, 1893, Serial No. 493,859; but is more especially adapted to stations, curves, and other sections of track, where it is especially important that one train shall not be encroached upon by other trains, and as an example of one use of my present invention I will speak in this specification of its use to prevent the approach of any train to a station while another train is at that station, this single example being sufficient to illustrate its other uses.

My invention consists in the combination of a safety-stop for stopping a train automatically, and which is set to "danger" by a counterweight, with an automatic lock operated by the passage of a train to release that counterweight and thereby set the safety-stop to "danger," and a connecting-rod adapted to be moved endwise to engage with a rod controlling the counterweight, so that the safety-stop may be set to "safety" by simply moving the main connecting-rod endwise until it is locked by the automatic lock to the rod controlling the counterweight and then moving the main connecting-rod in the opposite direction, thereby lifting the counterweight, setting the safety-stop to "safety" and holding it in that position until the automatic lock is again operated, when the main connecting-rod is disengaged from the rod controlling the counterweight and the counterweight sets the safety-stop to "danger."

In the drawings I have shown my invention as practically used at a station, as above explained, the main connecting-rod A being under control of some person at the station, whose duty it is to set the safety-stop to "safety" after a train has left the station, and who will hereinafter be called, for convenience, the "operator." This main connecting-rod A is connected with the rod *a* only when the lock B is in the position shown in Fig. 5, and not when it is in the position shown in Fig. 2—that is, the two rods A and *a* are connected by an automatic lock, which is unlocked by the passage of a train over it and relocked by the proper endwise motion of rod A, this being the main feature of my invention.

When the parts are in the position shown in Fig. 5, and rod A is prevented from moving endwise to the left, the rod *a* cannot move endwise under the force of the counterweight S, acting through bell-crank S′, and consequently the arms S^3 S^4 of the safety-stop will not be held up by the roll S^2 on the short arm of bell-crank S′, the rods A and *a* being then locked together by the bolt *b* and its arm *b′* of lock B, the bolt *b* entering a hole in the flattened portion A′ of rod A, and the arm *b′*, which carries bolt *b*, being connected to the forks a^2 of rod *a* by ears which are brazed or otherwise secured to the forks a^2; but when arm *b′* is swung upward on its hinge, bolt *b* is withdrawn from the hole in the flattened portion A′, and the flattened portions a^2 and rod *a* are moved endwise by weight S acting through bell-crank S′, and the arms S^3 S^4 of the safety-stop are set at "danger," as indicated in Fig. 2, where the safety-stop is shown as about to automatically stop a locomotive attempting to pass over it, the safety-stop acting in the usual manner to open a valve of the air-brake when its arms S^3 S^4 are held up in the position shown in Fig. 2, as will be plain without further description, such a safety-stop being well known to all skilled in the art, and as is fully explained in Patents No. 217,144, dated July 1, 1879, and No. 444,962, dated January 20, 1891.

The arm *b′* is controlled by the lever b^2, a

lip on arm b' extending over one end of lever b^2, as shown in Figs. 1, 3, and 4, so that when the other end of lever b^2 is depressed by the wheels of a passing train the arm b' is swung upward, forcing bolt b from the hole in the flattened part A′ of rod A.

The operation is as follows: Starting with the parts in the position shown in Figs. 1 and 2, no train can pass the safety-stop, as its arms S^3 S^4 are set to "danger," and the operator, as soon as he desires to allow a train to pass, moves rod A endwise by means of handle a^3 and its connections with rod A, or otherwise, (for, as will be obvious, rod A may be moved by hand or automatically, this being a detail and not an essential matter,) until the flattened portion A′ has moved endwise far enough to allow bolt b to drop into the hole through flattened portions A′, and rod A is then moved endwise in the opposite direction, carrying with it the flattened portion A′ and also bolt b, its arm b' and the flattened portions a^2 of rod a shifting the arms S^3 S^4 from "danger" to "safety" and raising the counterweight S. A train can now pass over arms S^3 S^4 and actuate lever b^2, but that will swing arm b' upward and unlock A′ from a^2, when the counterweight S will reset arms S^3 S^4 to "danger," and these arms S^3 S^4 will so remain until rod A′ has again been moved endwise to engage bolt b and drawn back to reset arms S^3 S^4 to "safety," as above described.

It will be obvious that the details of construction may be widely varied, the gist of the matter being an automatic lock connecting two parts of a connecting-rod for operating a safety-stop, or it may be an audible or visible signal, (for such signals are well adapted as substitutes for a safety-stop in practicing my invention, although inferior to a safety-stop, as they simply give notice to the engineer to stop the train, instead of stopping it automatically,) these two parts being locked together automatically by bringing them into proper relation by a lock which is automatically unlocked by the passage of a train. I am aware that mechanisms are known which, when used in connection with connecting-rods, serve much the same purpose as my compound connecting-rod and its lock, as shown, for example, in Patents No. 378,306, dated February 21, 1888, and No. 490,220, dated January 17, 1893, and I disclaim all such mechanisms.

What I claim as my invention is—

1. In combination, a trip, operated by the passage of a train; a safety stop; and mechanism whereby the safety stop may be set to safety by an attendant and held in position until released by the trip, substantially as shown and described.

2. In combination a connecting rod in two parts; an automatic lock fast to one of the two parts; a lever; a counterweight; and a safety stop; all the parts being constructed and arranged to operate substantially as described.

BENTON C. ROWELL.

Witnesses:
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D. F. PUTNAM.