

No. 842,646.

PATENTED JAN. 29, 1907.

R. F. GAUNT.  
SELF LOCKING SWITCH OPERATING MECHANISM.

APPLICATION FILED NOV. 6, 1906.

2 SHEETS—SHEET 1.

FIG. 1.

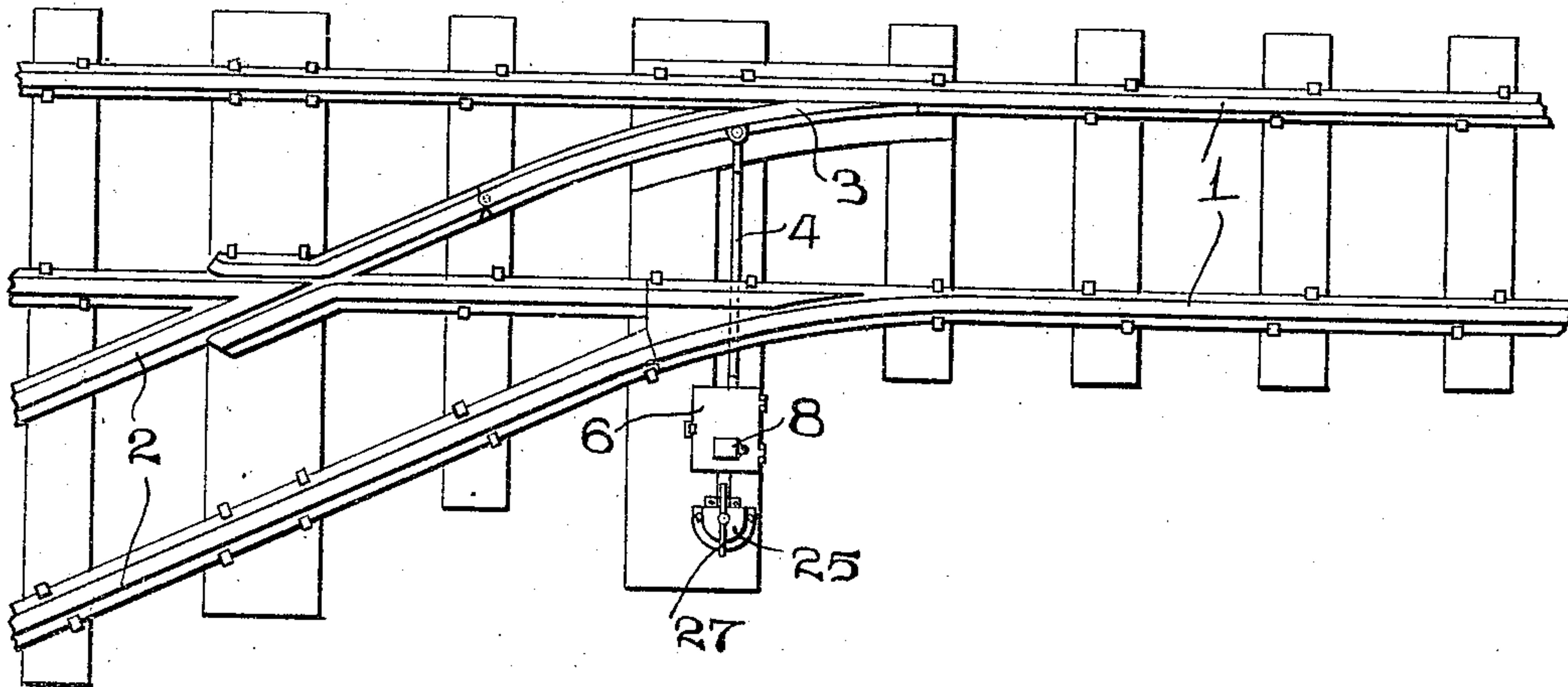
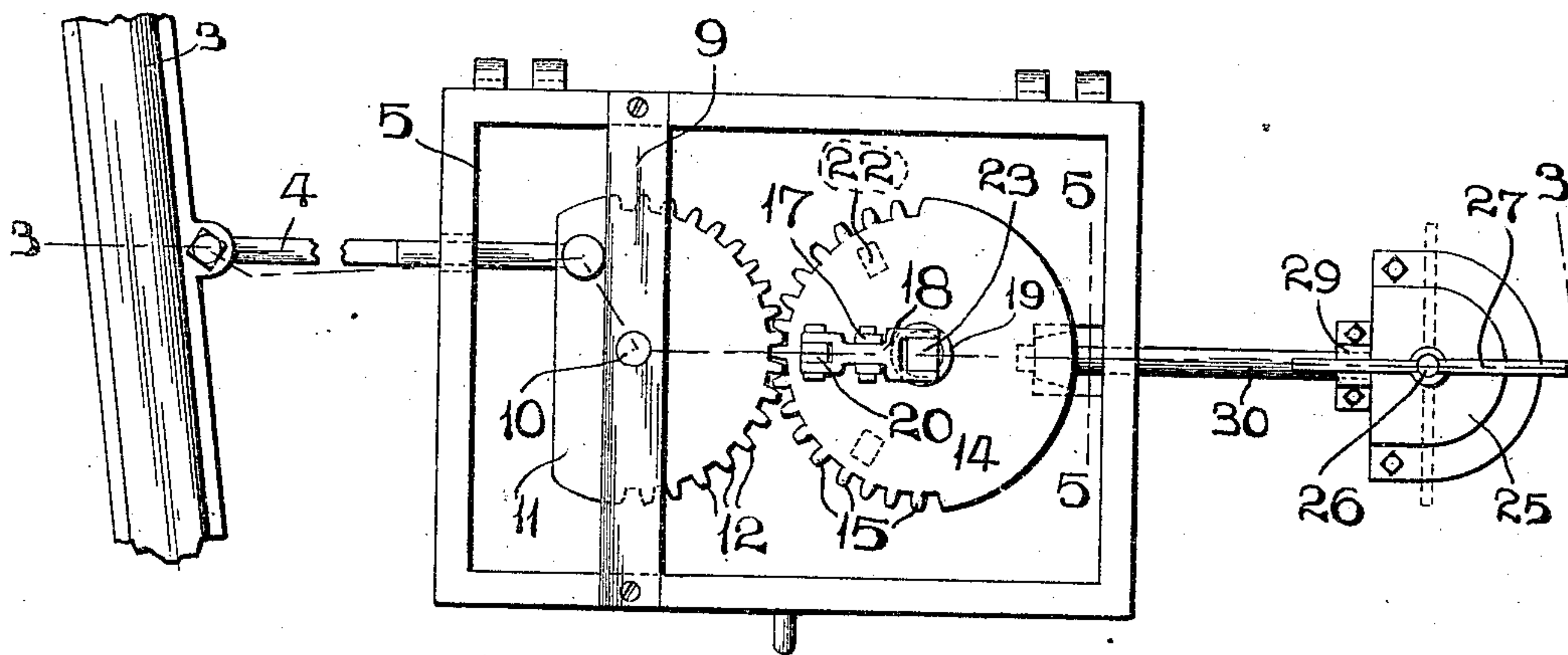


FIG. 2.



ATTEST.

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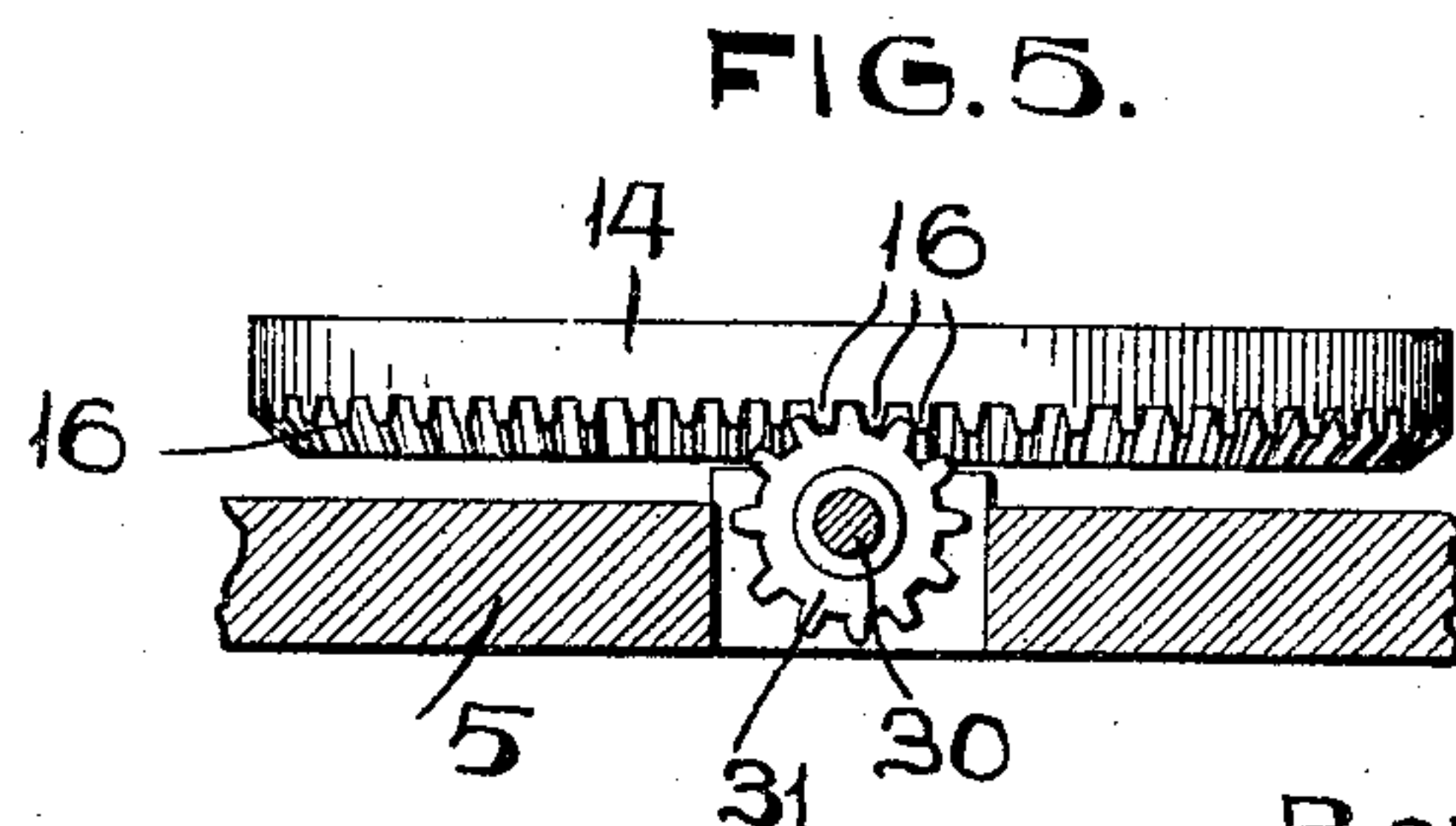
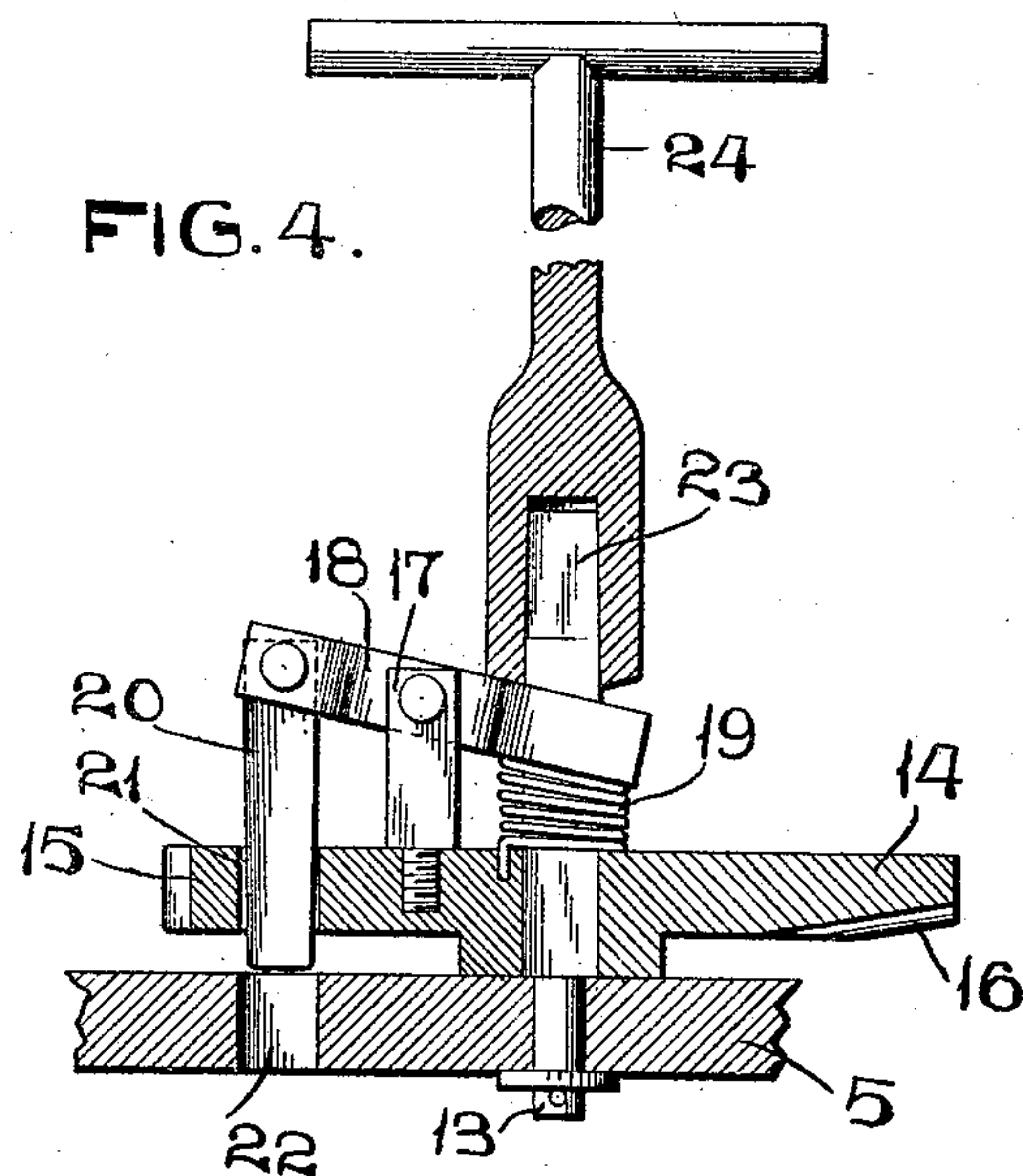
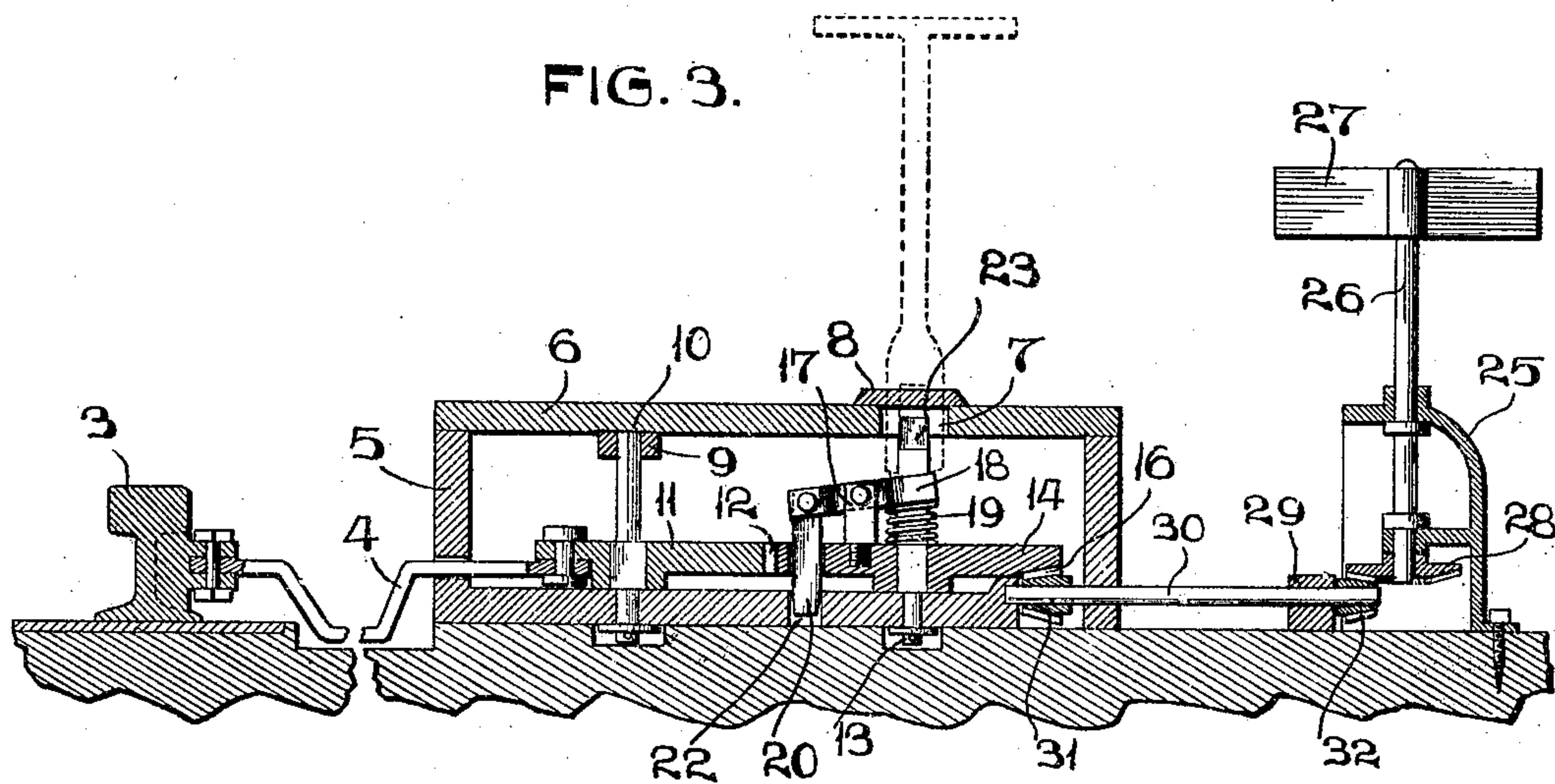
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2 SHEETS—SHEET 2.



ATTEST.  
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# UNITED STATES PATENT OFFICE.

ROBERT F. GAUNT, OF ST. LOUIS, MISSOURI.

## SELF-LOCKING SWITCH-OPERATING MECHANISM.

No. 842,646.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed November 6, 1906. Serial No. 342,291.

*To all whom it may concern:*

Be it known that I, ROBERT F. GAUNT, a citizen of the United States, and a resident of St. Louis, Missouri, have invented certain new and useful Improvements in Self-Locking Switch-Operating Mechanism, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a self-locking switch-operating mechanism; and the object of my invention is to provide a simple mechanism which is located adjacent a switch and which is entirely inclosed by a suitable housing to protect the operative parts from dirt, snow, and ice, and which mechanism automatically locks whenever the switch-rail is shifted to an open or closed position.

To the above purposes my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a railway-switch and showing my improved operating mechanism connected thereto. Fig. 2 is an enlarged plan view of the housing of the switch-operating mechanism with the cover removed. Fig. 3 is an enlarged transverse section taken on the line 3 3 of Fig. 2. Fig. 4 is an enlarged vertical section showing the handle for unlocking and operating my improved mechanism. Fig. 5 is an enlarged section taken on the line 5 5 of Fig. 2.

Referring by numerals to the accompanying drawings, 1 designates the main-track rails, 2 the side-track rails, and 3 the movable switch-rail, which parts are of ordinary well-known construction.

Secured to the side of the switch-rail 3 in any suitable manner and extending to a point adjacent the side of the track is a connecting-rod 4. Located on a tie or suitable base at the side of the track and in alinement with the rod 4 is a housing 5, provided with a hinged cover 6, which may be locked to the housing in any suitable manner, and formed in the top of this cover is an opening 7, normally closed by a sliding plate 8. Extending across the top of the housing 5, adjacent one end thereof, is a bar 9, and journaled therein is the upper end of a vertically-disposed shaft 10, the lower end of which is journaled

in the bottom of the housing. Rigidly fixed on this shaft 10 is a segment 11, provided in one edge with a series of teeth 12, and pivotally connected to one side of this segment is the inner end of the connecting-rod 4, which passes through a suitably-formed aperture in one end of the housing 5.

Journaled in the bottom of the housing 5 is the lower end of a vertically-disposed shaft 13, on which is rigidly fixed a disk 14, in the edge of which is formed a series of teeth 15, which mesh with the teeth 12. Formed on the under side of this disk 14 and diametrically opposite the teeth 15 is a series of beveled teeth 16. Rigidly fixed in any suitable manner to the top of the disk 14 is a post 17, to the upper end of which is fulcrumed a lever 18, the inner end of which is bifurcated to receive the shaft 13, and located on said shaft and interposed between said bifurcated end and the top of the disk 14 is an expansive coil-spring 19. Pivotaly carried by the outer end of the lever 18 is a vertically-arranged locking-bolt 20, which operates through a corresponding opening 21, formed in the disk 14, and the lower end of said locking-bolt is adapted to enter either one of a pair of apertures 22, formed in the bottom of the housing 5, which apertures correspond to positions into which the locking-bolt is swung following the opening and closing of the movable switch-rail. The upper end of the shaft 13 is made non-circular, as designated by 23, and is adapted to receive the lower end of an operating-handle 24.

Located adjacent the outer end of the housing 5 is a signal-stand 25, in which is journaled a vertically-disposed shaft 26, carrying the signal-plate 27 on its upper end and provided with a beveled pinion 28 on its lower end. Journaled in the outer end of the housing 5 and in a bearing 29, located adjacent the base of the signal-stand, is a horizontally-disposed shaft 30, the inner end of which carries a pinion 31, which meshes with the beveled gear-teeth 16, and on the outer end of said shaft is fixed a pinion 32, which meshes with the beveled pinion 28.

The parts just described are so arranged that the plate 27 occupies a position parallel with the track-rails 1 when the main track is open, and said plate occupies a position at right angles to said track-rails when the switch-rail 3 is shifted to deflect the car-wheels onto the side track.



The mechanism, as shown and described, is particularly adapted for the tracks of steam-railway and interurban electric systems, and where the apparatus is used in connection with railway-tracks on paved streets the signal 27 and its operating mechanism is dispensed with, and the housing, with the mechanism therein, is located between the track-rails 1, so that the upper end of the shaft 13 may be readily engaged by the handle 24, manipulated by the motorman or car-driver located at his accustomed position on the car-platform.

When the switch-rail 3 is thrown to either an open or closed position, the lower end of the locking-bolt 20 engages in the corresponding one of the apertures 22, and thus rigidly holds the various movable parts in their proper positions. When it is desired to throw the switch-rail from one position to another, the handle 24 is manually engaged and the plate 18 is swung to either side to uncover the opening 7. The lower end of said handle is now inserted through the opening 7 and engaged on the non-circular upper end of the shaft 13. Said handle is now forced downwardly, and in so doing the bifurcated end of the lever 18 is depressed, which action compresses the coil-spring 19, and the outer end of said lever is elevated, thus pulling the locking-bolt 20 upwardly out of the aperture 22, in which it has been engaged. This unlocks the disk 14 from the base of the housing, and by means of the handle 24 said disk 14 is now partially rotated, which action partially rotates the segment 11, owing to the meshing teeth 12 and 15, which movement shifts the connecting-rod 4 and moves the switch-rail 3 against or away from the track-rail 1, as the case may be. When the switch-rail has been so shifted, the operator lifts the handle 24 from the upper end of the shaft 13 and the expansive power of the coil-spring 19 returns the lever 18 to its normal position, thus causing the lower end of the bolt 20 to engage in the opposite one of the apertures 22, thus again locking the various parts in their shifted positions. Where the signal and

signal-operating mechanism are made use of, the rotary motion of the disk 14 is imparted by means of the shaft 30 to the shaft 26, and thus the signal-plate 27 is shifted from one position to another to correspond to the position of the switch-rail 3.

A switch-operating mechanism of my improved construction is simple, inexpensive, comprises a minimum number of parts which are entirely closed, so that they are always maintained in an operative condition, and the movable parts of the mechanism and the movable switch-rail are positively locked at both ends of their stroke.

I claim—

1. The combination with the movable switch-rail of a railway-switch, of a connecting-rod secured to said movable rail, a housing, a toothed segment arranged for rotation in the housing and to which the connecting-rod is secured, a disk arranged for rotation in the housing and provided with teeth meshing with the teeth of the segment, means whereby said disk is rotated, and a spring-actuated locking-bolt carried by said disk and adapted to engage in suitably-located apertures in the housing; substantially as specified.

2. The combination with the movable switch-rail of a railway-switch, of a connecting-rod secured to said movable rail, a housing, a toothed segment arranged for rotation in the housing and to which the connecting-rod is secured, a disk arranged for rotation in the housing and provided with teeth meshing with the teeth of the segment, means whereby said disk is rotated, means whereby said disk is locked against movement, a signal arranged for operation adjacent the housing, and means operated by the rotation of the disk for actuating said signal; substantially as specified.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

ROBERT F. GAUNT.

Witnesses:

CHARLES F. LONG,  
M. P. SMITH.