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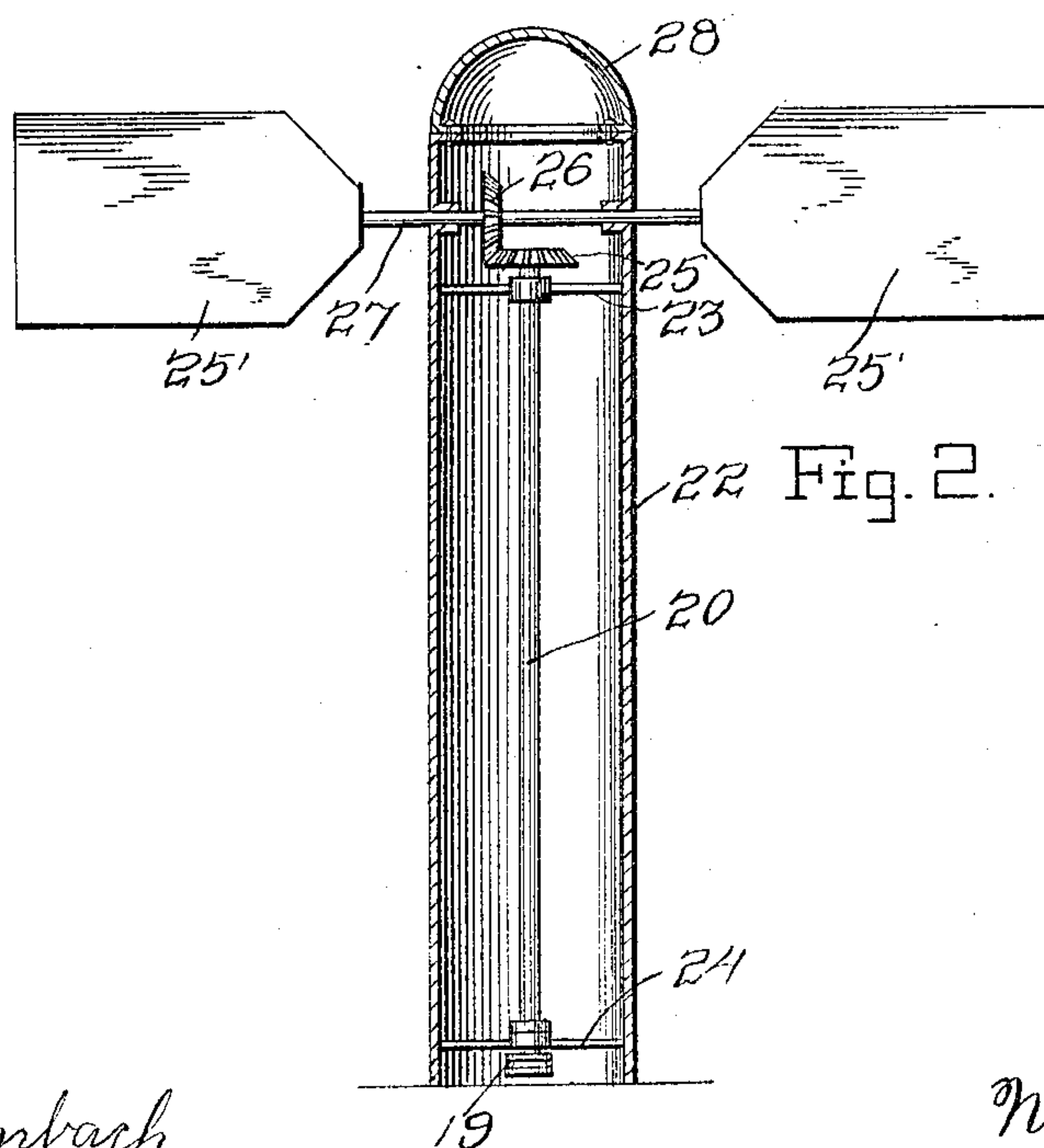
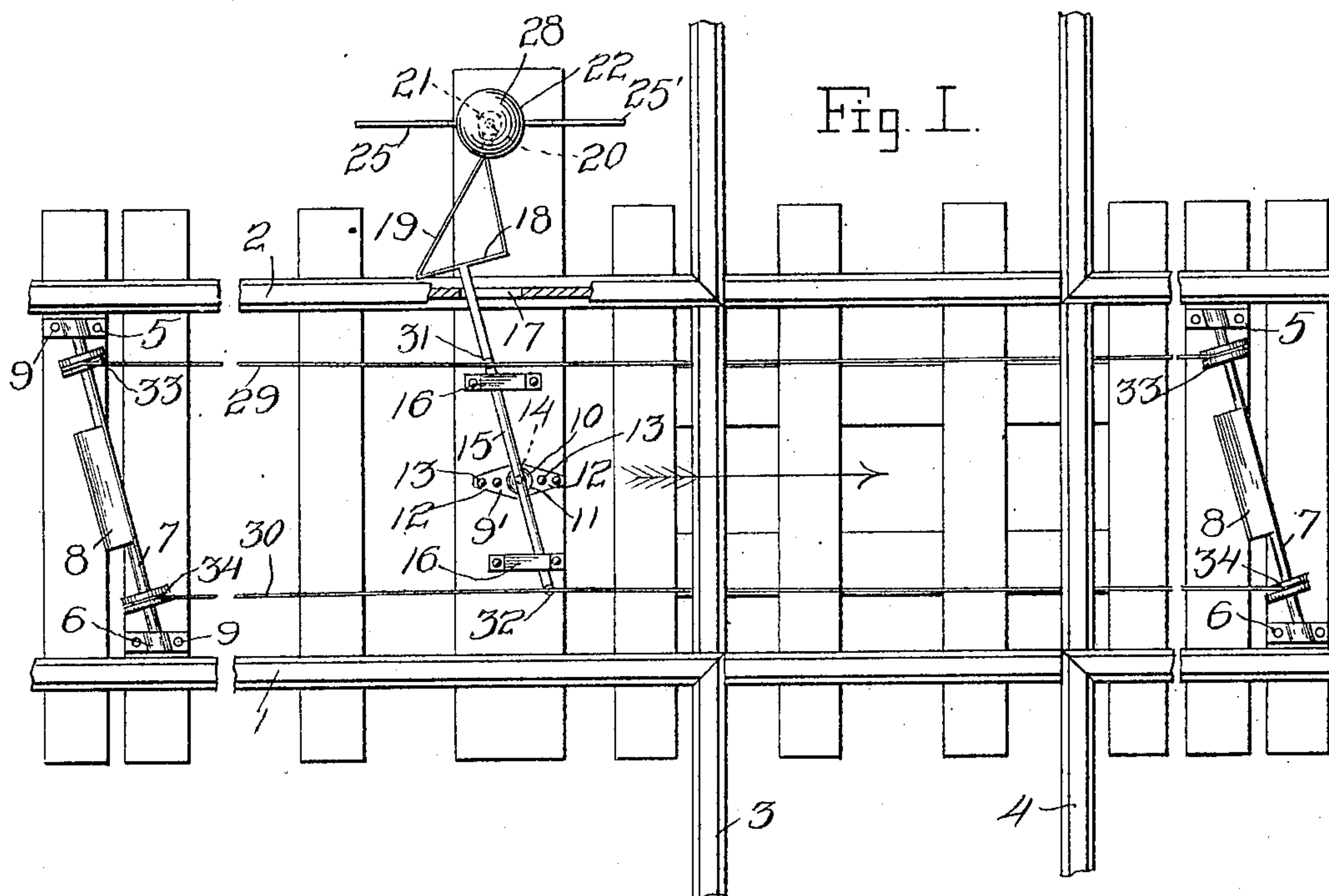
PATENTED FEB. 13, 1906.

N. ERSCHENS.

RAILWAY SIGNAL.

APPLICATION FILED MAY 5, 1905.

2 SHEETS—SHEET 1.



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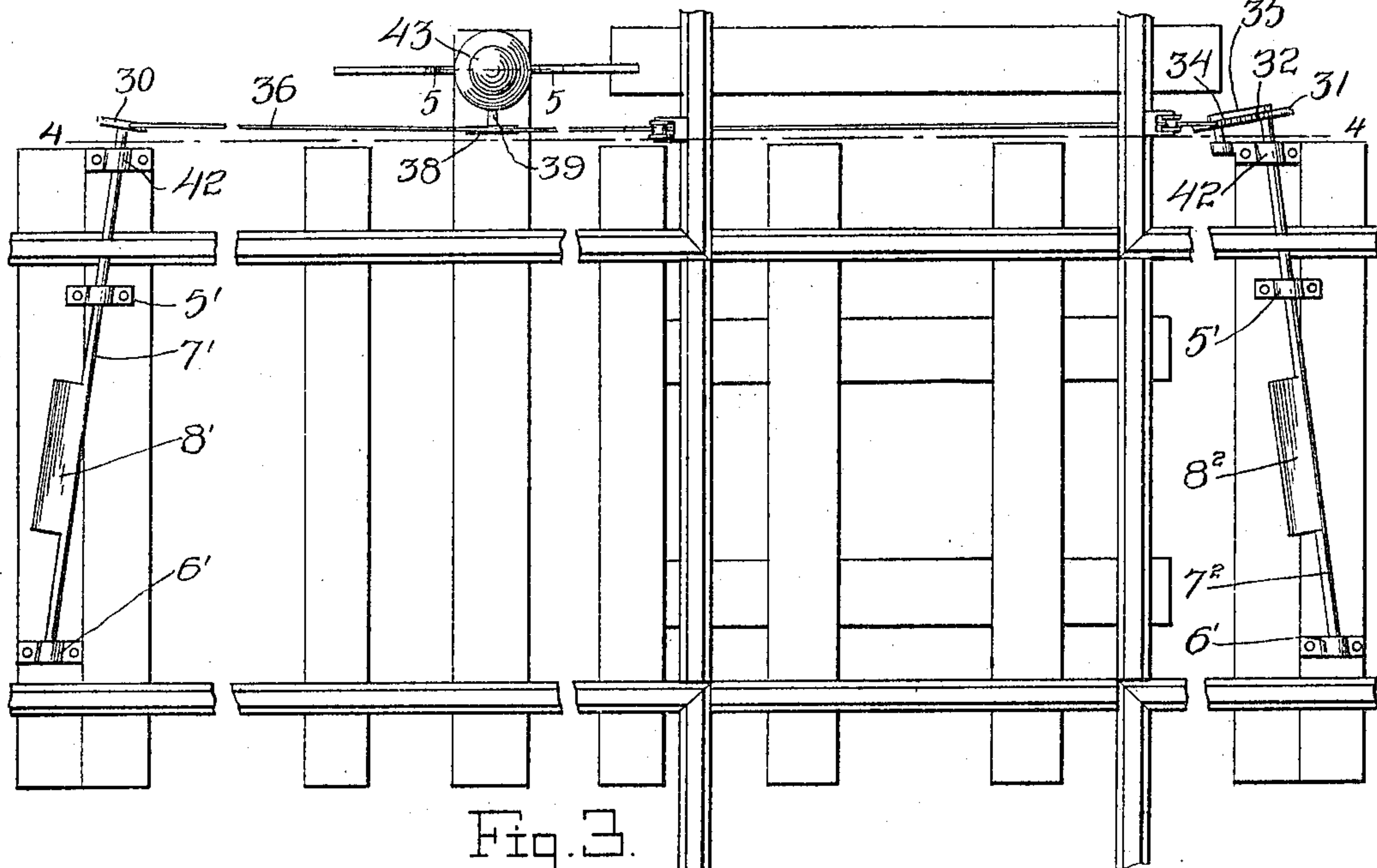


Fig. 3.

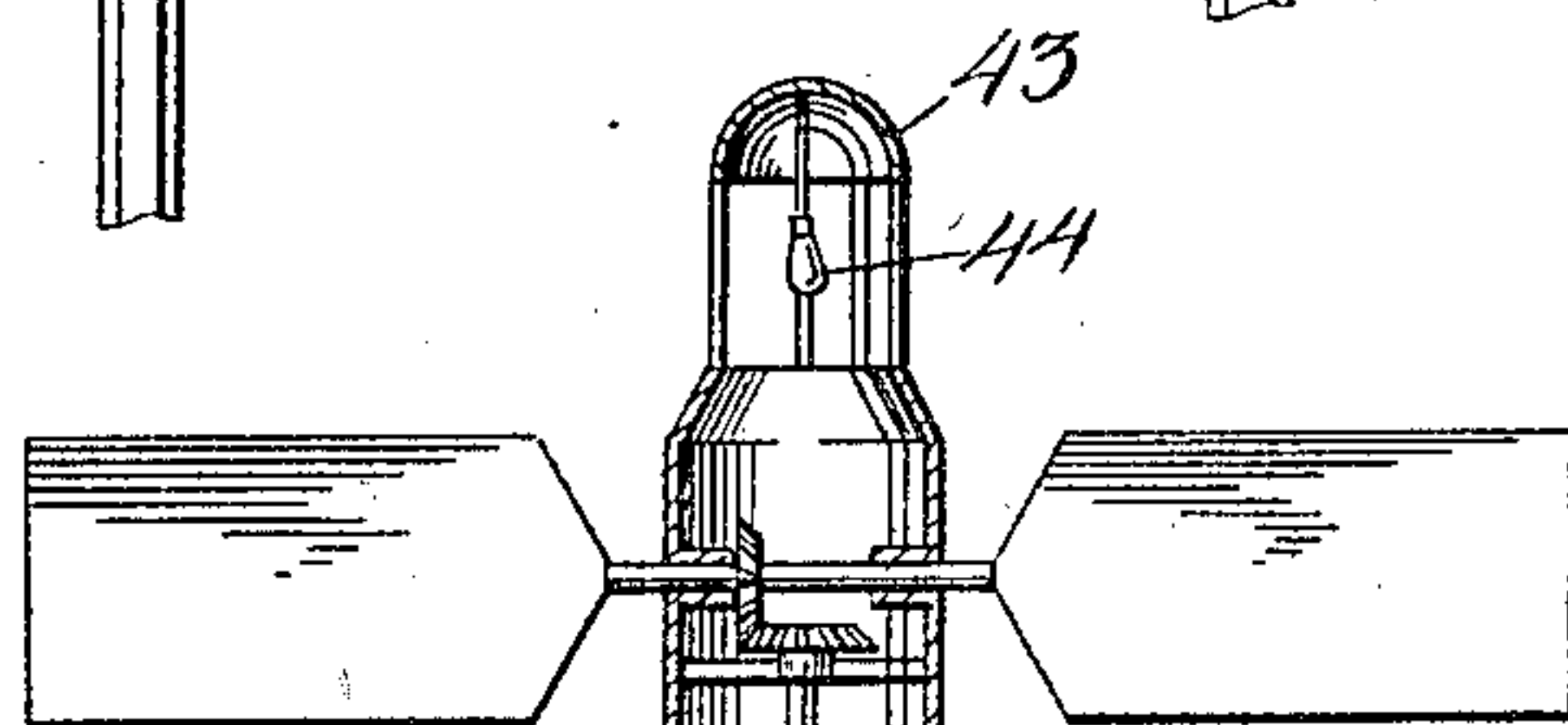


Fig. 5.

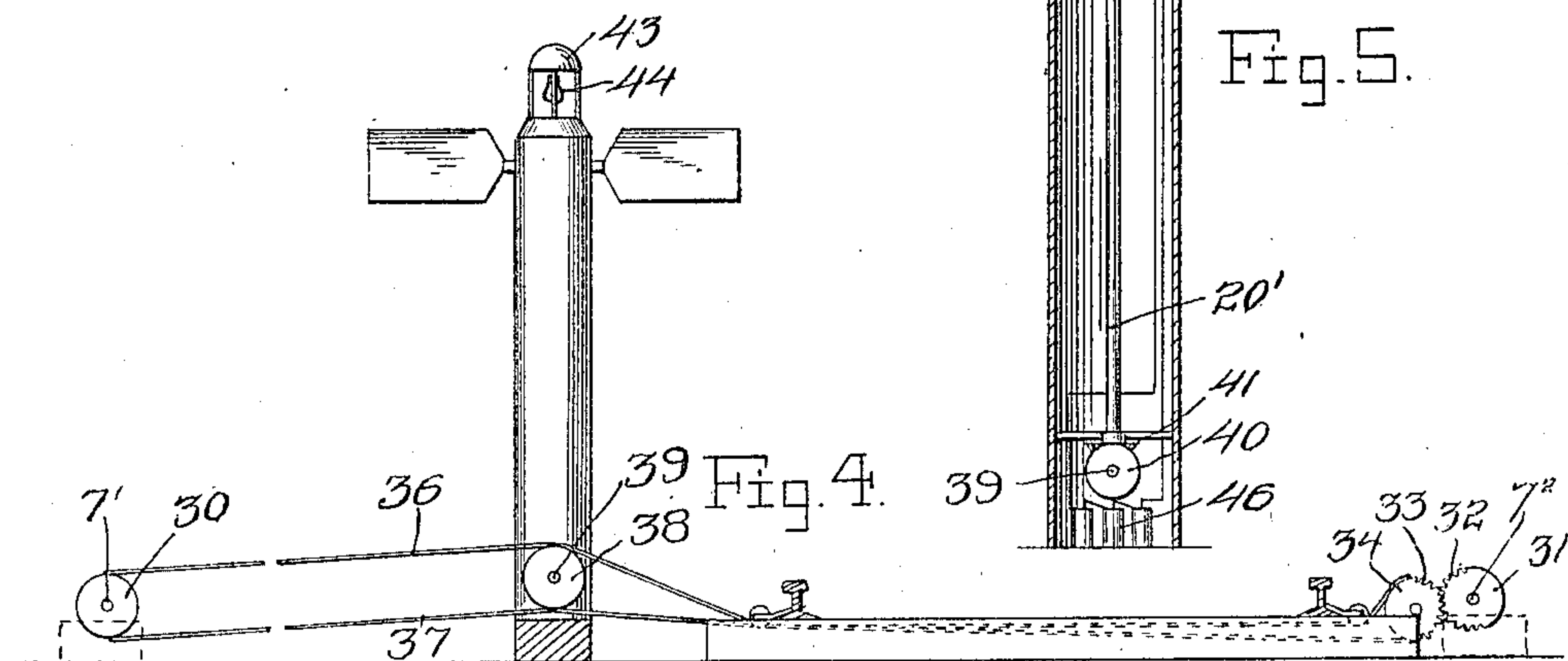


Fig. 4.

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UNITED STATES PATENT OFFICE.

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RAILWAY-SIGNAL.

No. 812,555.

Specification of Letters Patent.

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Application filed May 5, 1905. Serial No. 259,018.

To all whom it may concern:

Be it known that I, NICHOLAS ERSCHENS, a citizen of the United States, residing at Elkton, in the county of Brookings, State of South Dakota, have invented certain new and useful Improvements in Railway-Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to railroad-signals.

One object of the invention is to provide an exceedingly simple, inexpensive, durable, and efficient apparatus to warn the attendants of a train traveling over one track as to whether or not it is safe to proceed over a crossing.

Another object of the invention resides in the provision of an apparatus of the character named wherein the apparatus can be operated by the train coming in either direction over a crossing.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the present invention.

In the drawings, Figure 1 is a top plan view. Fig. 2 is a view, partly in section, and partly in elevation, showing one of the signal-posts. Fig. 3 is a view similar to Fig. 1, illustrating a modification. Fig. 4 is a transverse section through the track with the signal and other parts in elevation. Fig. 5 is a view similar to Fig. 2 and illustrating a modification.

Referring now particularly to the accompanying drawings, the reference characters 1 and 2 designate railway rolling-stock rails, and 3 and 4 the rails crossing the aforesaid tracks, these tracks and the arrangement thereof being old and common.

Disposed between the rails 1 and 2 some little distance in advance of the crossing-rails 3 and 4 are suitable bearing-plates 5 and 6, one arranged slightly in advance of the other and in which is journaled a shaft 7, having its

intermediate portion provided with an elongated flat projection 8. These bearing-plates 5 and 6 are secured in any suitable manner to the ties or road-bed, but preferably by means of split spikes 9, which firmly hold the bearing-plates in position against accidental displacement, and they are arranged one in advance of the other, so that the projection 8 of the shaft 7 may be arranged upon an incline with respect to the rails 1 and 2, so that the projection of the train (not shown) which is designed to contact with the said projection to operate the signal will not be submitted to a great jar, but, on the other hand, will more quickly and effectually rock the shaft 7 when the projection 8 is moved by the said projection on the train. As there are two mechanisms such as has been described upon opposite sides of the crossing, it is obvious that a description of one will be sufficient.

Disposed between the rails 1 and 2 in close proximity to the crossing-rails 3 and 4 is a plate 9, having a depending portion 10 and a depression 11 in its upper face, the upper flanged sides 12 of the plate being secured, by means of spikes or other suitable elements 13, to a tie or other part of the road-bed. This plate 9 has a pintle 14 arranged centrally of its depression, upon which is pivoted a lever 15, whose ends are journaled in suitable bearing-plates 16, secured between the tracks in a manner similar to the method of securing the bearing-plates 5 and 6. While the shaft 15 is secured upon an incline with respect to the rails 1 and 2 and is also arranged in direct alinement with the inclined rock-shaft 7, it will be understood that the shaft 15 does not rock, but is designed to be shifted laterally upon its pivot. The shaft 15 is passed through an opening or slot 17 in the rail 2 and is provided at the end passing through the rail with a cross piece or rod 18, which projects upon both sides of the shaft 15 and at a direct right angle to the latter and upon an inclined plane with respect to the plane of the rail 2. To one end of the cross piece or bar 18 is secured a chain or other suitable element 19, which is passed around the lower end of a vertical upright 20 and secured in any suitable manner to the latter at 21, with its opposite end connected to the opposite end of the cross piece or bar 18, from the end to which the opposite end

thereof is attached, as clearly shown in the accompanying drawings.

The vertical shaft 20, it will be understood, is not arranged between the rails 1 and 2, but is disposed to one side of the latter rail and in such close proximity to the crossing-rails 3 and 4 as to be within the view of the attendants of a train upon either the main or crossing rails. This vertical shaft is secured within a suitable casing 22, which latter is secured fixedly in any suitable manner at its lower end and provided interiorly with spiders or other suitable bracing elements at its upper and lower ends, as at 23 and 24, respectively. The vertical shaft is journaled for rotation within the casing 22 in said spiders or other elements 23 and 24, the upper end thereof above the uppermost element 23 having a beveled gear 25, fixedly secured thereto, which is designed to mesh with a second beveled gear 26, carried by the horizontal signaling-shaft 27, which latter is adapted to oscillate in suitable openings in the top of the casing 22 whenever the vertical shaft is turned a portion of a revolution. In order to protect the vertical shaft and the elements within the casing against inclement weather, a suitable cap 28 is screwed or otherwise secured upon the upper end of the casing.

Arranged parallel between the main rails 1 and 2 are a pair of chains, ropes, or other cables 29 and 30, each of which are fixedly connected intermediate their ends to the shaft 15, as at 31 and 32, respectively, the free ends of each cable being adapted to be wound alternately upon the rollers 33 and 34, respectively, of the rock-shaft 7. As there is a second rock-shaft upon the opposite side of the crossing, as has already been stated, it is obvious that the same connections are made with respect to these cables and the rock-shafts.

From the foregoing it will be understood that when a train upon the main rails is approaching the crossing the aforesaid projection of the train, which two latter elements are not shown, contacts with the projections 8 of the rock-shaft 7, causing the latter to rock, and in doing so cause the cables 29 and 30 to be wound around the rollers 33 and 34, which causes the intermediate shaft 15 to be drawn in a plane substantially if not quite a direct right angle to the plane of the rails, obviously causing the chain or other connection 8 to revolve the shaft 20 of the signaling apparatus, whose upper beveled gear meshing with the beveled gear 26 causes the horizontal shaft 27 to oscillate and display the signaling-plates 25 in such a manner as to warn the attendants of the train on the crossing that a train on the main rails is about to intersect with the crossing. Of course the signaling apparatus and its connections are so

associated as regards distance from the crossing to display the signal in due time to prevent a collision, and if the signal indicates that the way is clear it will be understood that the train on the crossing is free to pass over the main rails. It will therefore be understood that if a train on the main rails is not directly over the crossing the way is clear for the train on the latter rails. It will also be understood that the weight of the projections 8 have a tendency to return to their normal positions to reset the mechanism immediately after contact therewith by the aforesaid projection of the train, and also that the signaling mechanism may be set by the approach of the train from either direction upon the main rails.

In Figs. 4 and 5 there is shown a modified arrangement of signaling apparatus. In this form the rock-shafts 7' and 7² are not in direct alinement, although both are preferably arranged upon an incline. Between the rails are disposed the bearing-plates 5' and 6', in which are journaled the said rock-shafts, the latter having the projecting portions 8' and 8². In this arrangement the rock-shafts are designed to pierce the rails 2, and each have secured to corresponding ends a wheel, (designated by the reference characters 30 and 31,) the latter having teeth 32 upon at least one-half of its periphery designed to mesh with the teeth 33, arranged upon at least one-half of the wheel 34, arranged in direct alinement therewith, there being a connection upon opposite sides of the wheel 31 and 34 to retain them in alinement. Two ropes, chains, or other elements 36 and 37 are arranged one above the other and are connected in any suitable manner to the peripheries of the wheels 30 and 34, as shown. Intermediate the wheels 30 and 34 is another wheel 38, mounted upon the stub-shaft 39, which carries a beveled gear 40, designed to mesh with the gear-wheel 41, carried by the vertical shaft 20'. In connection with this modified form of arrangement it might be stated that there is employed a second bearing-plate 42 for the shafts 8' and 8², the latter bearing-plates being disposed outside of the track-bed.

In the top of the casing 22' is a dome 43, in which is located an incandescent light 44, having connection with a battery 45, arranged in the bottom of the casing 22' by means of a wire 46.

What is claimed is—

In a railroad-signal apparatus, main rails and crossing-rails, a rock-shaft disposed between the main rails upon opposite sides of the crossing-rails, each shaft including a projection, a pivoted shaft arranged between one of the rock-shafts and the crossing, the pivoted shaft having an arm secured thereto,

a vertical shaft arranged adjacent the main
and crossing rails, a flexible connection be-
tween the aforesaid arm and the vertical
shaft, signaling elements associated with the
5 vertical shaft, and means constructed and ar-
ranged to operate said signaling elements
when either of the rock-shafts is rocked.

In testimony whereof I affix my signature
in presence of two witnesses.

NICHOLAS ERSCHENS.

Witnesses:

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MATHIAS ERSCHENS.