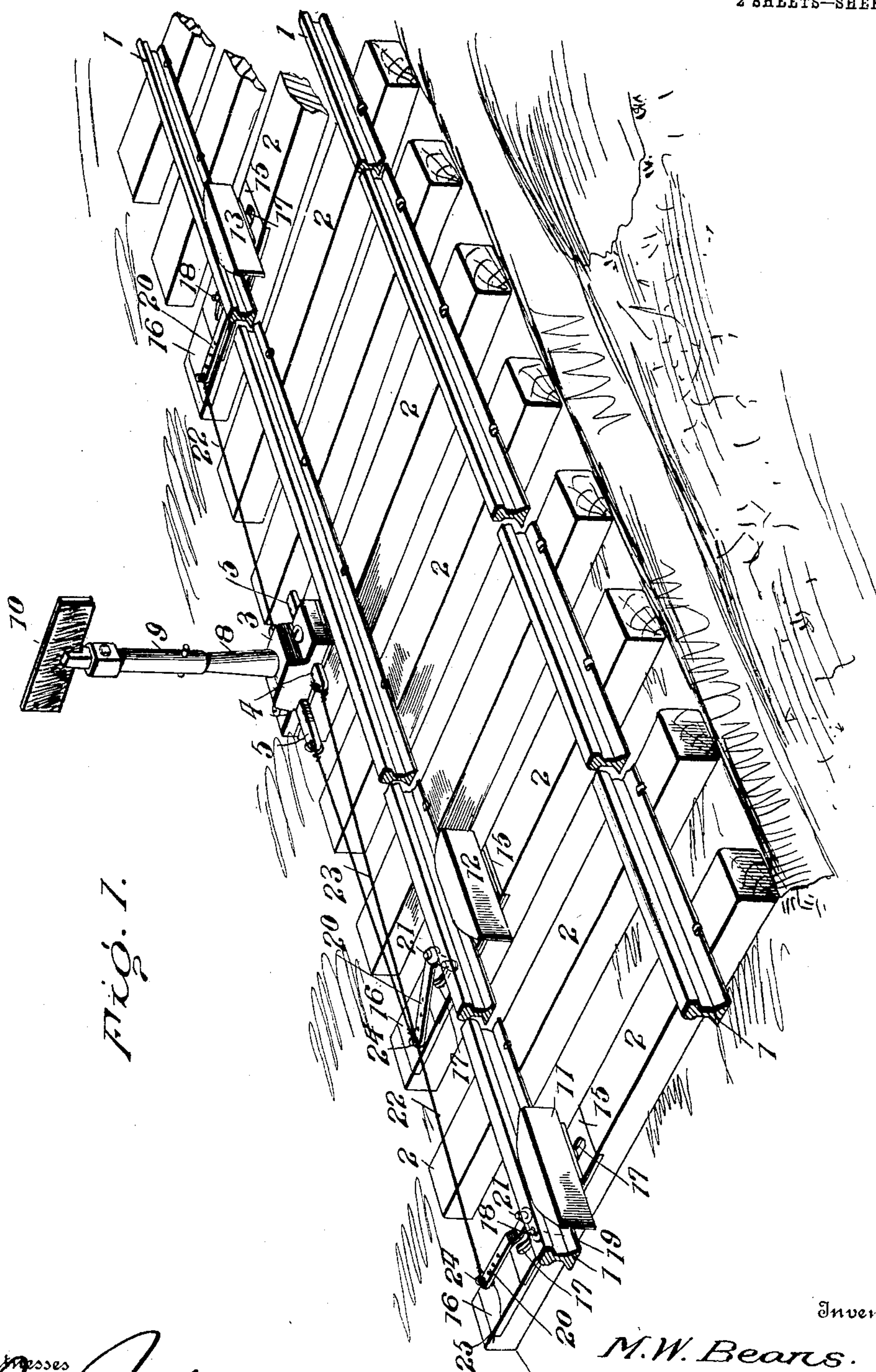


No. 810,387.

PATENTED JAN. 23, 1906.

M. W. BEANS.
RAILWAY SIGNAL.
APPLICATION FILED APR. 25, 1935.

2 SHEETS—SHEET 1.



Witnesses

Witnesses
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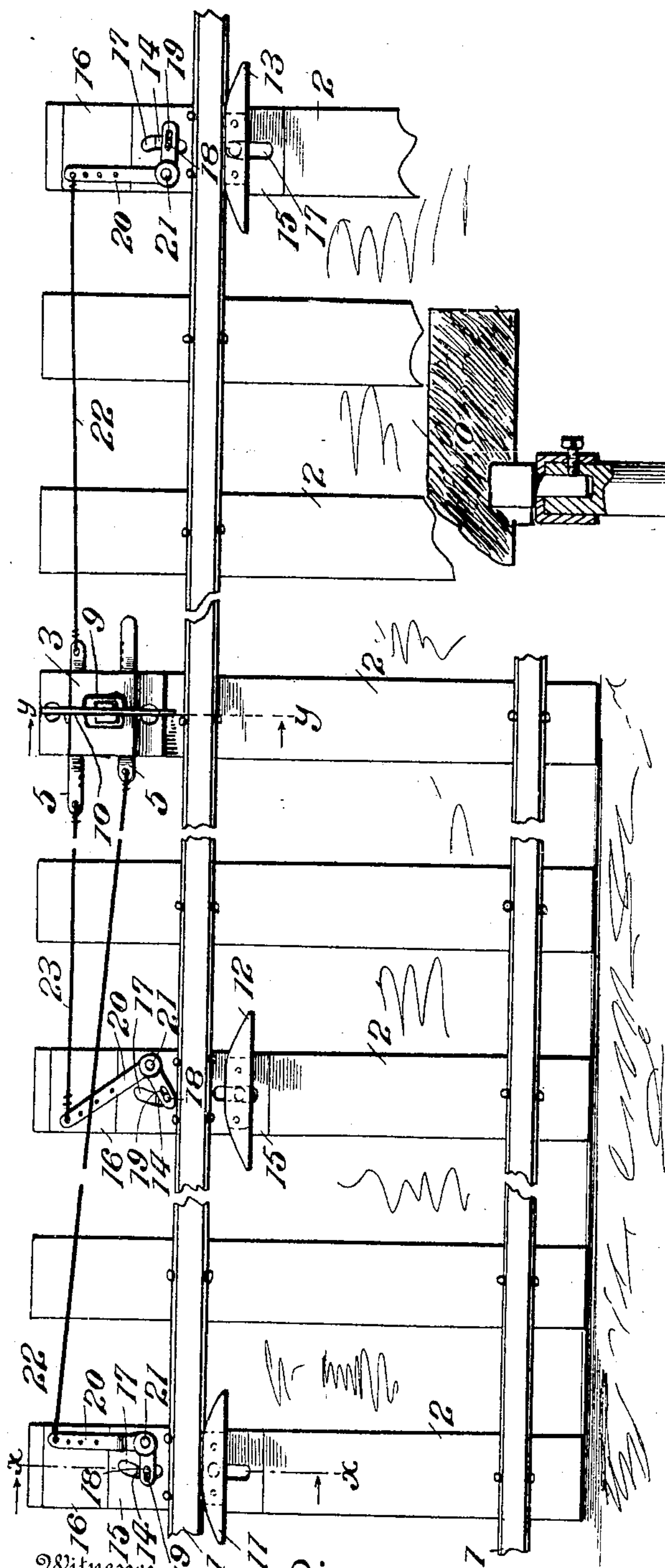
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2 SHEETS—SHEET 2.



Witnesses

W. W. Woodson
Fig. 2.

Fig. 4.

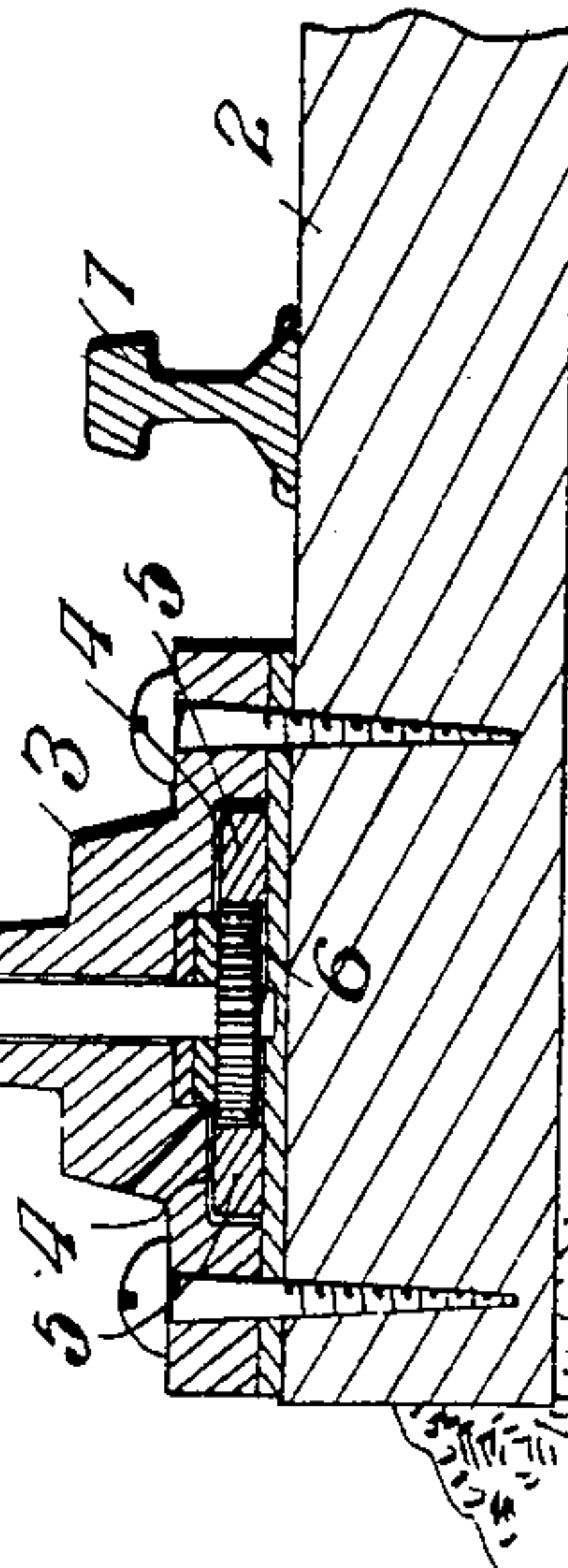
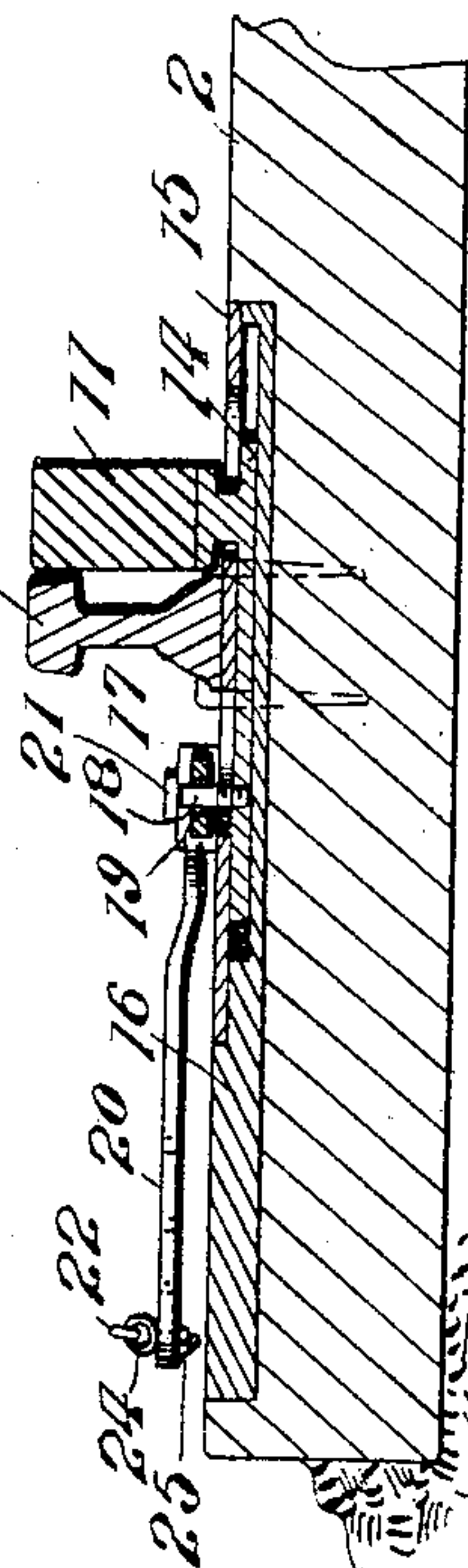


Fig. 3.



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MANASSEH W. BEANS, OF MEMPHIS, MISSOURI.

RAILWAY-SIGNAL.

No. 810,387.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed Apr. 25, 1905. Serial No. 257,326.

To all whom it may concern:

Be it known that I, MANASSEH W. BEANS, a citizen of the United States, residing at Memphis, in the county of Scotland and State of Missouri, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification.

This invention embodies novel improvements in operating mechanisms particularly designed for use in connection with railway-signals.

The invention resides particularly in the peculiar means employed for actuating the signal or semaphore, such means including operating devices which are to be actuated by the rolling-stock as it approaches that point in the length of the track at which the signal may be located.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a perspective view of a signal embodying the invention. Fig. 2 is a top plan view. Fig. 3 is a vertical sectional view taken about on the line X X of Fig. 2. Fig. 4 is a vertical sectional view taken about on the line Y Y of Fig. 2.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Specifically describing the exact construction and application of the invention as illustrated in the drawings, the numeral 1 designates the main rails of the track, and the numeral 2 the cross-ties upon which the rails are disposed. At a suitable point in the length of the track where it is desired to locate the signal one of the ties 2 has secured thereto a casing or housing 3, having longitudinal guide-slots 4 therethrough, in which operate spaced toothed or rack bars 5. Arranged within the casing 3 is a toothed pinion 6, the latter being disposed between the rack-bars 5 and having its teeth in mesh with the teeth thereof, so that upon movement of the members 5 rotary movement will be imparted to the pinion in an obvious manner. Extending upwardly from the pinion 6 through the top of the casing 3 is a vertical shaft 7, the lower end of said shaft being keyed or otherwise attached to the pinion to be actuated thereby. To afford an extended bearing for

the shaft 7, it is preferred to provide a tubular extension 8 upon the casing 3, said extension projecting upwardly from the top of the casing and having the shaft 7 operating therein. A tubular member 9 receives the upper end of the shaft 7 and is attached thereto for movement therewith in any suitable manner, and this member carries the semaphore or signal 10.

It will be understood that the signal may be attached to the shaft 7 in any suitable manner, however, within the contemplation of the invention, and said signal may be adjustable so as to be adjusted to operate under the actuation of the shaft 7 to assume positions agreed upon by those who are to be governed by the mechanism.

The signal is operated by means of movable members or rails 11, 12, and 13, which are situated at intervals in the length of the track at determinate distances, dependent upon working conditions. The rails aforesaid are situated adjacent to and are movable toward and from the inner side of one of the main rails 1 of the track, and these rails 11, 12, and 13 are carried by horizontally-movable slides 14, which operate beneath the main rail adjacent which the movable rails are located. The rails 11, 12, and 13 will be made of a length suitable for the purposes of the invention and are adapted to be forced away from the adjacent main rail by contact of the flanges of the wheels of the rolling-stock therewith. The slides 14, to which the rails 11, 12, and 13 are secured, are slidably mounted between upper and lower plates 15 and 16, respectively, which are attached to ties 2 of the road-bed beneath the main rail adjacent which the movable rails operate.

Certain of the main rails at one side of the track rest directly upon the uppermost plate 15, and it is preferred that the spikes which secure such rails to the ties 2 pass directly through the said plates 15 and 16, so as to not only secure the rails to the ties, but to firmly attach the plates thereto, so that the latter cannot be displaced from beneath the rails. The lower plate 16 of the sets of plates 15 and 16, which coöperate with the slides 14 of the various movable rails, is cut away between its side edges, so that the slide 14, movable relative thereto, may operate in the portion which is cut away, so as to be guided properly and direct the movement of the movable rail carried thereby toward and from the adjacent side of the main rail. The

uppermost plates 15 merely constitute housing-plates for the slides 14 and prevent the main rails above said slides from coming into direct contact therewith. Each of the upper plates 15 is formed with a longitudinal slot 17, and a lug 18 projects upwardly from the adjacent slide 14 through each slot. The lug 18 of each slide 14 extends through a slot 19 in one arm of a bell-crank lever 20, pivoted above the adjacent upper plate 15, as shown at 21. The bell-crank levers 20, which are operably connected with the slides 14 of the rails 11 and 13 in the manner above described, are connected, by means of rods 22, with one end of separate rack-bars 5. The lever 20, however, which is actuated by the rail 12, is connected by an adjustable rod 23 with the opposite end of one of the rack-bars 5, which is actuated with the more remote bell-crank lever 20. It is preferred to connect the rods 22 and 23 with the levers 20 by means of eyebolts 24, which pass through extremities of the outer arms of the levers and have nuts 25 adjustable, so as to permit of adjustment to allow for expansion and contraction of the parts of the mechanism in hot and cold weather.

A signal and operating mechanism therefor is located at one side of the track only, as illustrated in the drawings; but under certain conditions of use this signal would be duplicated at the opposite side of this track in order to admit of signaling trains traveling toward each other upon a single track. It is preferred that the rails 11 and 13 when forced away from the rails 1 adjacent by the rolling-stock passing over the track will throw the signal out of danger position and indicate that the track is clear. The rail 12, which is disposed between the rails 11 and 13, however, is designed to actuate the signal in a direction opposite to the movement thereof under the actuation of the rails 11 and 13, so as to set the signal in a position indicating that the track is not clear. A train approaching the signal and actuating the rail 11 will move the signal from its normal position, which position, we will say, is such as to indicate that the track is not clear. As soon as the train operates the intermediate rail 12; however, said rail will set the signal in danger position. The train after passing the signal will now actuate the rail 13 beyond the same, and such operation will restore the signal to its original position. Two signals, such as before described, located at opposite sides of the single track, may be readily operated by trains traveling toward each other upon said track, so that said trains will be signaled to stop before a collision is had in a manner which will be readily apparent. Further, it is obvious that the mechanism before described will be connected for operation of signals and similar

means in various ways and accomplish advantageous results.

Having thus described the invention, what is claimed as new is—

1. In a device of the class described, the combination of a track, a casing at one side of the track, a toothed pinion mounted in said casing, a shaft connected with said pinion, a semaphore operable by said shaft spaced rack-bars having the teeth thereof in mesh with the teeth of the pinion, movable members in the length of the track upon opposite sides of the casing aforesaid to be actuated by the rolling-stock, and means connecting each of said movable members with a respective one of the rack-bars for actuation of the latter.

2. In a device of the class described, the combination of the main rails of a track, a casing at one side of the track, a toothed pinion mounted in said casing, a shaft connected with said pinion, a semaphore operable by said shaft, spaced rack-bars having the teeth thereof in mesh with the teeth of the pinion, movable rails in the length of the track upon opposite sides of the casing aforesaid, means connecting each of said movable rails with a respective one of the rack-bars for actuation of the latter, and another movable rail situated between the first-mentioned movable rails and operably connected with one of the rack-bars.

3. In a device of the class described, the combination of the main rails of a track, a casing at one side of the track, a pinion mounted in said casing, a shaft connected with said pinion, a semaphore carried by the shaft, spaced rack-bars having the teeth thereof in mesh with the teeth of the pinion and operating in the casing, the movable rails 11, 12 and 13 arranged in the length of the track for operation by the rolling-stock passing thereover, said movable rails being located adjacent main rails of the track, slides operating beneath the adjacent main rails and carrying the movable rails aforesaid, spaced plates arranged beneath said main rails and receiving the slides aforesaid therebetween, bell-crank levers operably connected with the slides at one end, the bell-crank levers connected with the rails 11 and 13 being connected with an end of opposite rack-bars in the casing, the bell-crank lever connected with the rail 12 being connected with an end of one of said rack-bars, and means for adjusting the connections between the rack-bars and the bell-crank levers.

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

MANASSEH W. BEANS. [L. s.]

Witnesses:

THOMAS S. PINNELL,
F. M. CARVELL.