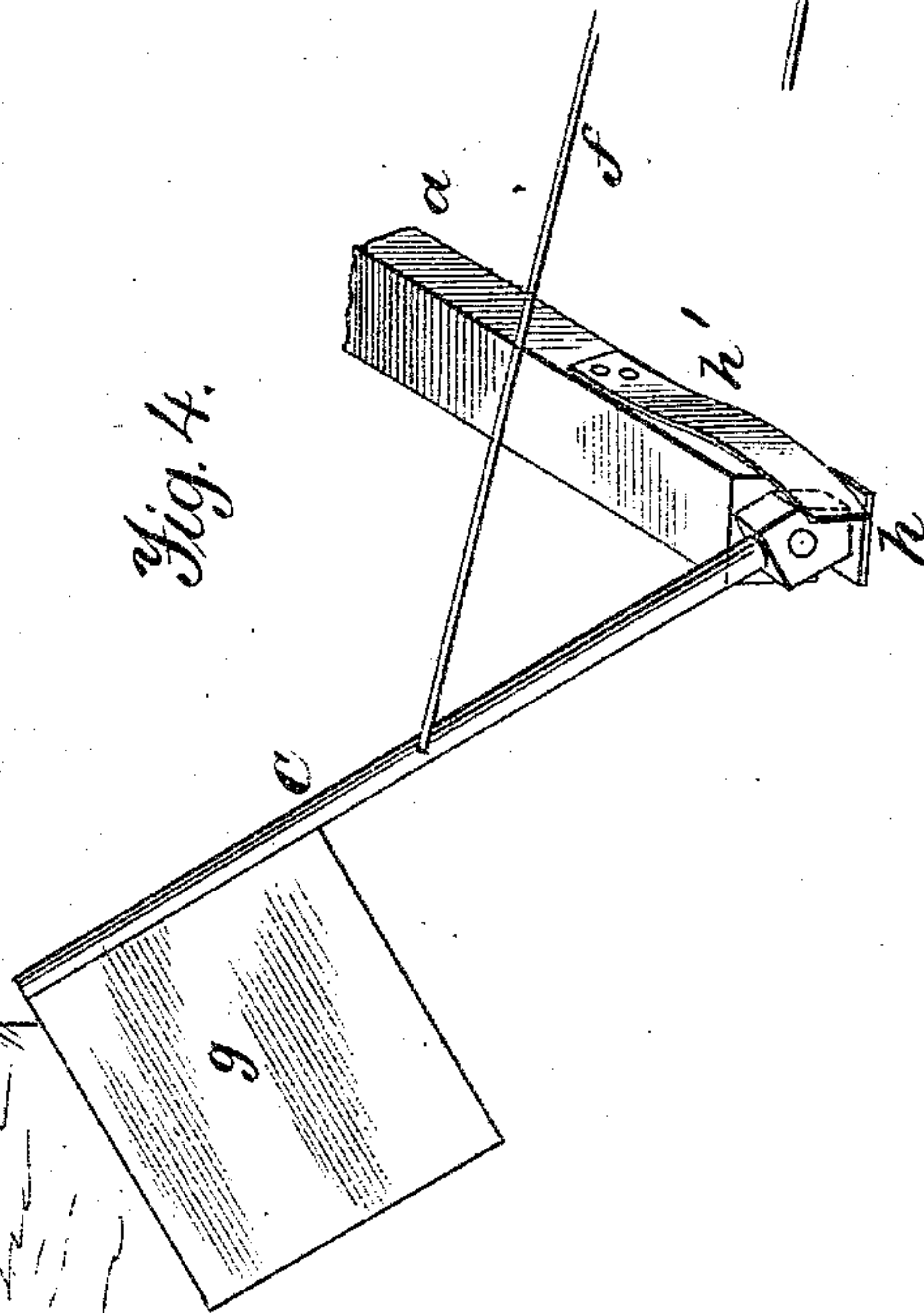
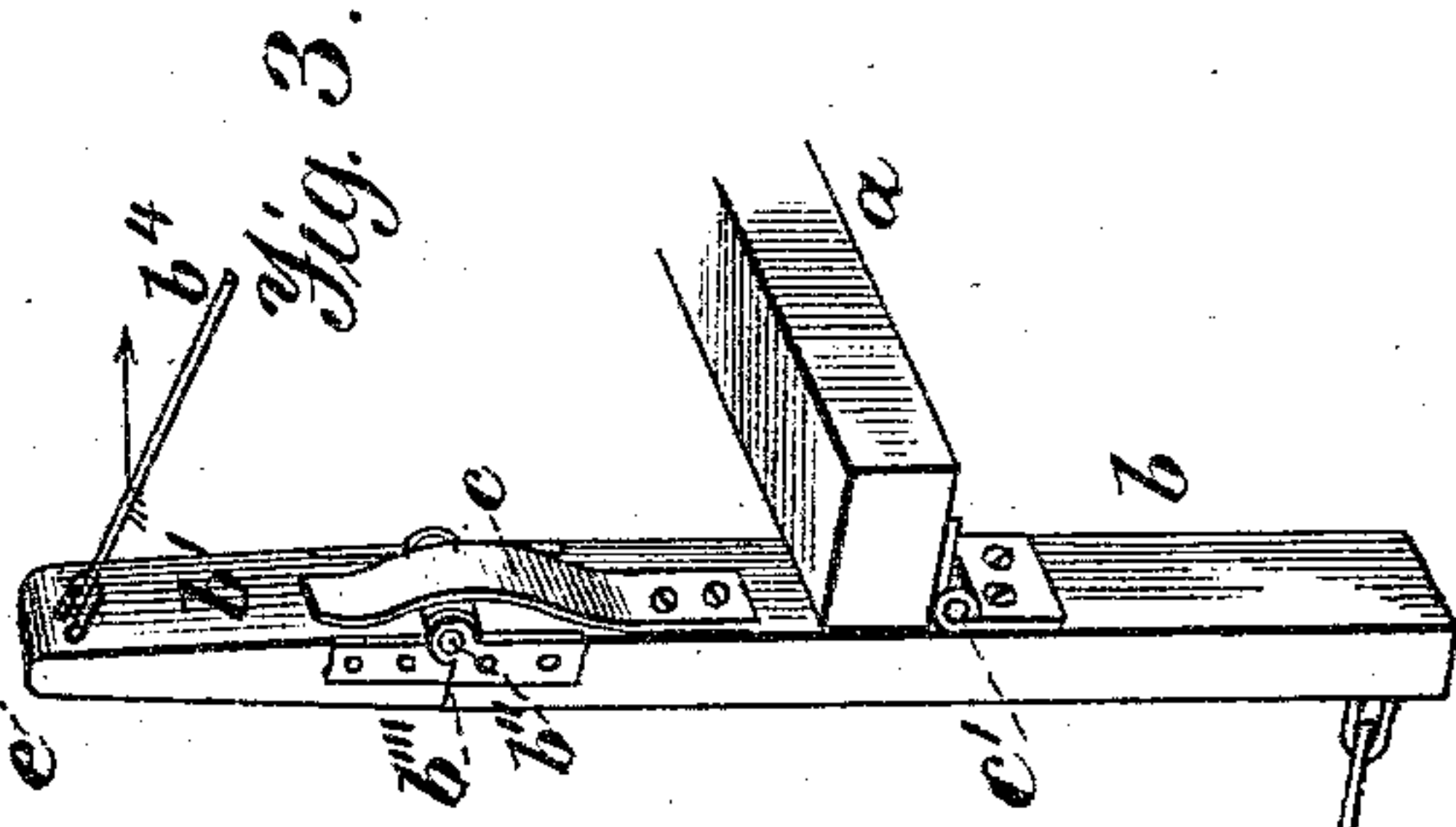
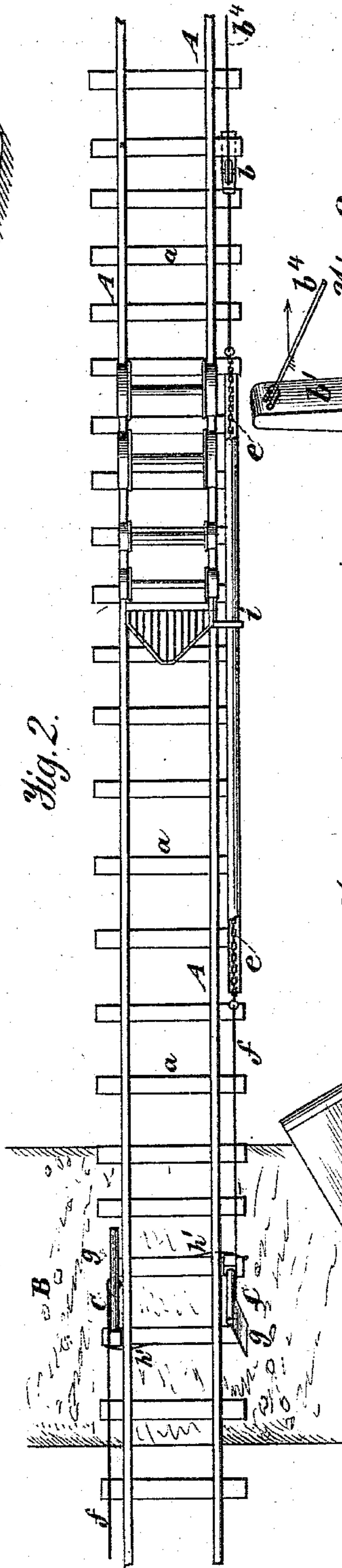
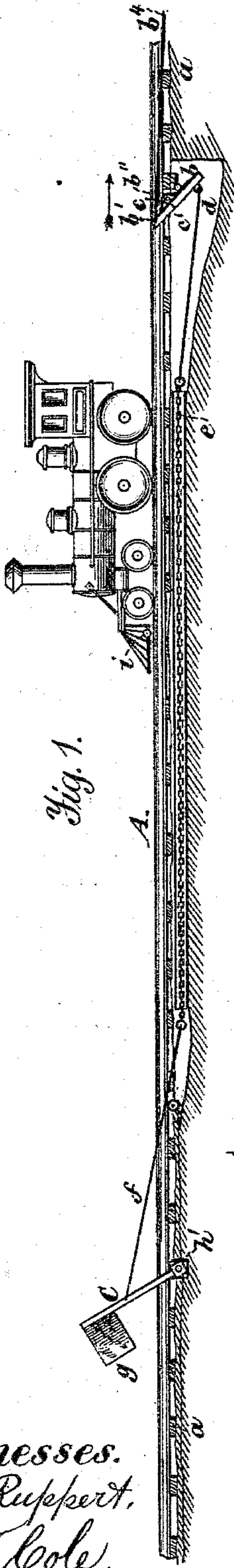


(No Model.)

C. M. RAFFENSPARGER.
AUTOMATIC RAILROAD SIGNAL.

No. 287,961.

Patented Nov. 6, 1883.



Witnesses.
A. Ruppert,
W. T. Cole.

Inventor:
Christian M. Raffensparger,
by *Wm. J. Starnes*
attor.

UNITED STATES PATENT OFFICE.

CHRISTIAN M. RAFFENSPARGER, OF HANOVER, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO G. MILTON BAIR, OF SAME PLACE.

AUTOMATIC RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 287,961, dated November 6, 1883.

Application filed February 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN M. RAFFENSPARGER, a citizen of the United States, residing in Hanover, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Railroad-Signals, of which the following is a specification.

My invention is designed for use at railroad-crossings to indicate the approach of a train, and is of that class of signals in which the signal is given or operated by the engine as it approaches a crossing.

In the accompanying drawings, Figure 1 is a side view of a section of a railroad-track intersected by a crossing, showing the application of the invention and the signal in position to announce the approach of a train. Fig. 2 is a top or plan view, showing the same features. Figs. 3 and 4 are views showing on enlarged scale certain details of the invention.

Similar letters of reference indicate similar parts in the respective figures.

A A are the rails of the track, the cross-ties being shown by *a*. The crossing is shown by B. At some distance from the crossing a lever, *b*, is hinged to a cross-tie or any other stationary object adjacent to the rail, said lever, when in position for operation, standing vertically.

The lever *b* is made in two sections, the upper one, *b'*, being hinged to the lower by a joint, *b''*, situated at that side of the lever which is most remote from the crossing. A shoulder, *b'''*, prevents the deflection of the section *b'* except in one direction—viz., that indicated by the arrow. A spring, *c*, is placed on the lower section of the lever facing the joint, for a purpose hereinafter described. The entire lever *b*, including the upper and lower sections, is capable of movement on its hinge *c'* by a passing train only in direction of the crossing, the movement of the lower section in the opposite direction beyond the normal point, as shown in Fig. 3, being prevented by the side of the tie or other object to which it is hinged.

The lower end of the lever *b* extends into a pit or well, *d*, in which it is free to move. To the said lower end of the lever *b* is attached a chain, *e*, which may be run through a trough or suitable pipe, in which its movement may

be unobstructed. The trough or pipe extends to within a short distance of the crossing—say twenty to fifty yards—at which point it terminates, and the chain *e* connects with a bar or rod, *f*, which may for some portion of its length be suitably supported by rollers or other devices, enabling it to slide longitudinally.

To a tie or other stationary object contiguous to the crossing is pivoted a staff or standard, C, on which a flag, *g*, is mounted as a signaling device. As shown in Fig. 1, the signal indicates that the engine has passed the lever *b*, the signal being thrown up to a position to bring the flag about midway of the crossing. The lower end of the signal staff or standard is squared, as shown, a plate-spring, *h*, being on the under side, and a similar spring, *h'*, at the inner side of the tie or other object to which the staff is pivoted, said springs, by engaging the squared end of the staff, maintaining it in an inclined position, as indicated.

The upper section of the lever *b* is provided with a rod, *b⁴*, loosely pivoted to its top and extending from the crossing, the end or termination of said rod being free and capable of longitudinal movement.

The mode of operation is as follows: The lever *b* being in a vertical position, the staff C is in substantially a horizontal position, the entire signaling device proper, consisting of the staff and flag, being below the level of the track. A projection, *i*, is attached to the pilot of the engine, which projection, on the engine approaching the crossing, strikes the rod *b⁴* and gradually depresses the lever *b*, drawing on the chain *e* and rod *f* and elevating the staff or standard C, whereby the flag is brought directly in the way of the crossing, indicating that the train is near at hand. The train continuing toward the crossing, the projection *i* from the pilot strikes and rides upon the rod *f*, forcing down the signal-staff and again bringing the lever *b* to a vertical position, ready to be operated by the next train approaching the crossing from the direction of the lever. To allow the passage of a train from the contrary direction without elevating the signal-staff, the lever *b* is made with an upper hinged section, which may be deflected against the spring *c* to break the shock of the impact.

It will be understood that the devices here-

inbefore described serve only to signal the approach of a train from one direction. A similar combination of parts is therefore attached to the opposite side of the track, the conditions of arrangement of which are, as will be readily seen, the reverse of those described.

I do not restrict myself to the use of a staff having a flag at its end, as any device having enough area to make it sufficiently conspicuous for the purpose of a signal may be substituted.

It is believed that this invention affords a simple, effective, and cheap appliance for the purpose, and that its use at crossings will result in much saving of life and property. At many crossings a railroad company is not justified in employing labor for signaling purposes, and the object of my invention is to supply an automatic appliance which may be relied upon as an efficient substitute.

The spring arrangement described as placed at the base of the signal-staff may be omitted, and, if preferred, the staff may extend below the pivot and be weighted.

I claim as my invention—

In an automatic railroad-signal, a jointed lever and a signal-staff connected thereto, adapted to be depressed and set by passing trains, combined with devices, connected, respectively, to the lever and staff, for breaking the shock of impact of the train thereon, substantially as set forth.

In testimony whereof I have hereunto set my hand and affixed my seal this 6th day of February, 1883.

CHRISTIAN M. RAFFENSPARGER. [L. S.]

Witnesses:

GEORGE H. HOWARD,
CHAS. P. WEBSTER.