

(No Model.)

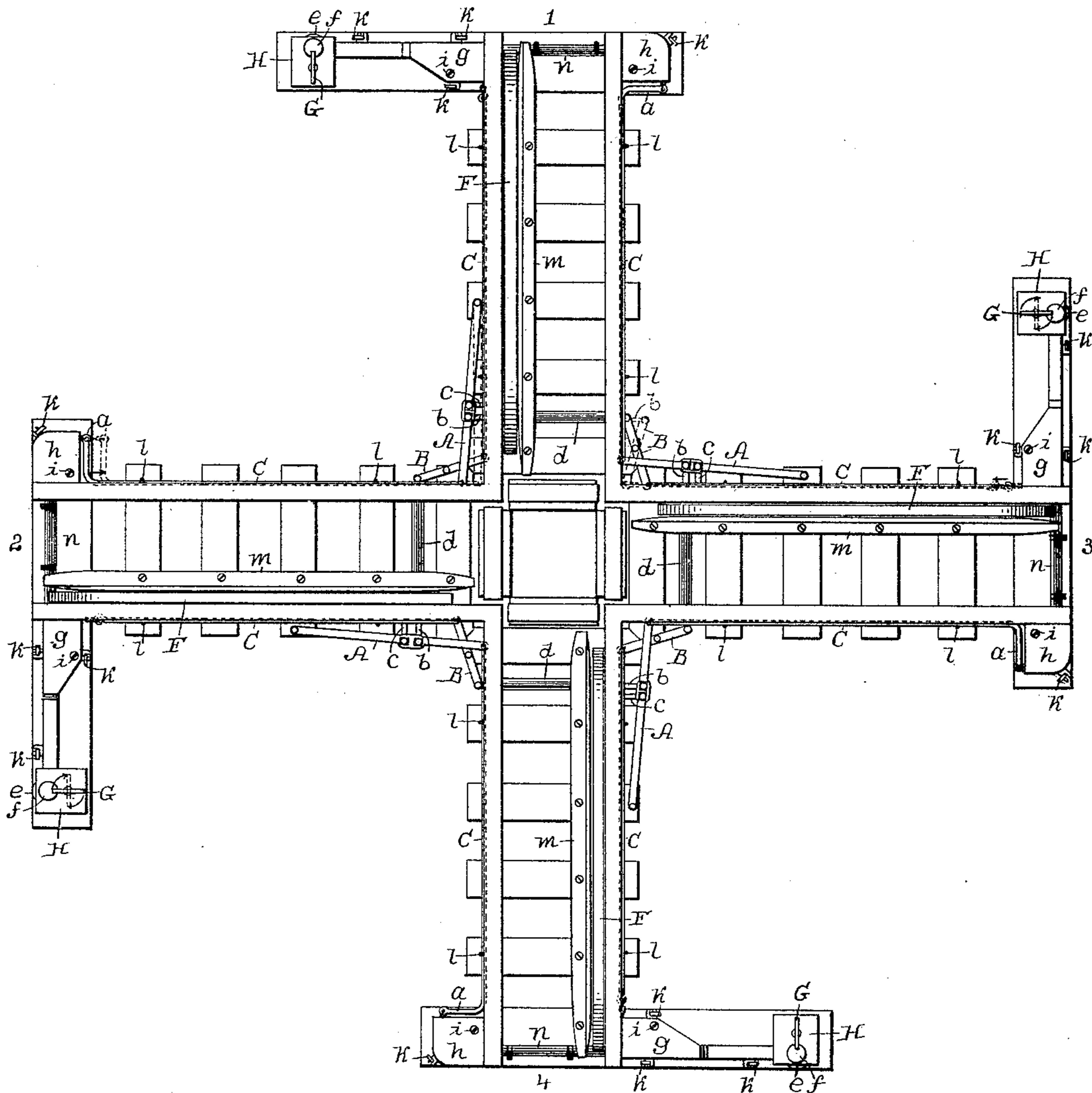
3 Sheets—Sheet 1.

D. H. IRWIN.
SIGNAL FOR RAILROAD CROSSINGS.

No. 410,690.

Patented Sept. 10, 1889.

Fig. 1.



WITNESSES:

L. G. Lischer
A. A. Kingston

INVENTOR
Daniel H. Irwin

By *J. O. Higdon*
his Attorney.

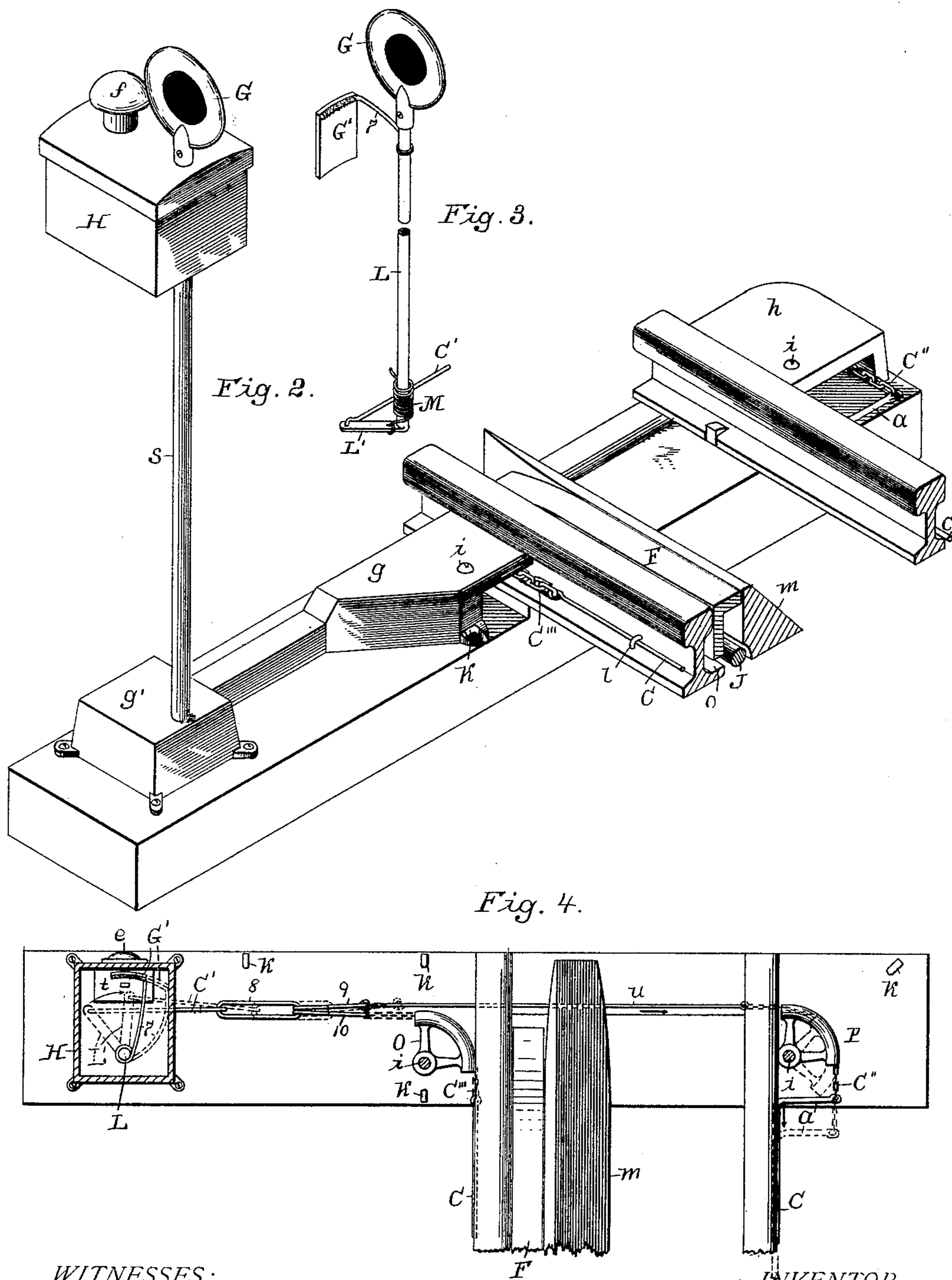
(No Model.)

3 Sheets—Sheet 2.

D. H. IRWIN.
SIGNAL FOR RAILROAD CROSSINGS.

No. 410,690.

Patented Sept. 10, 1889.



WITNESSES:

F. G. Fischer
A. A. Higdon.

INVENTOR

Daniel H. Irwin

By *J. C. Sigdon,*
his Attorney.

(No Model.)

3 Sheets—Sheet 3.

D. H. IRWIN.
SIGNAL FOR RAILROAD CROSSINGS.

No. 410,690.

Patented Sept. 10, 1889.

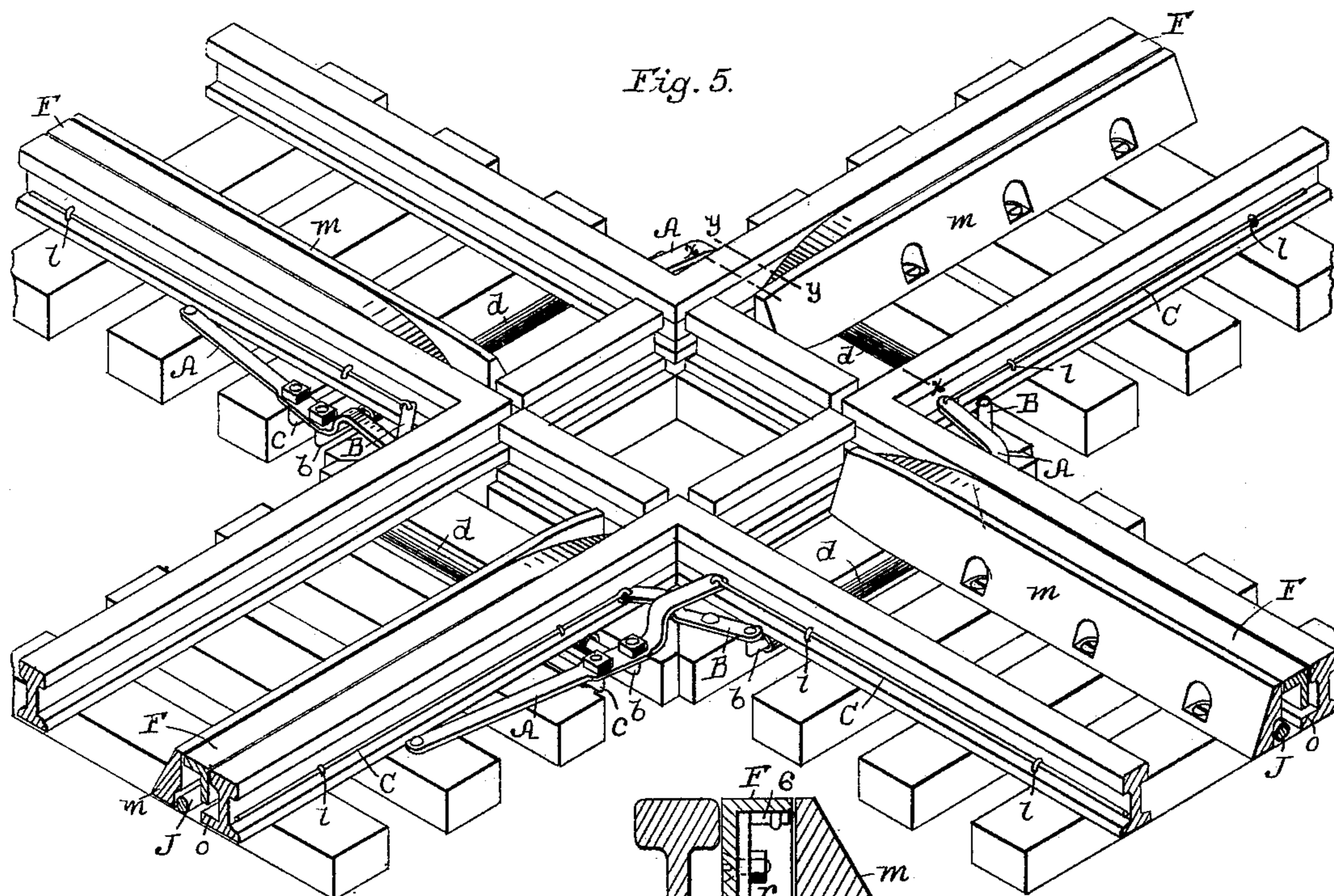


Fig. 5.

Fig. 6.

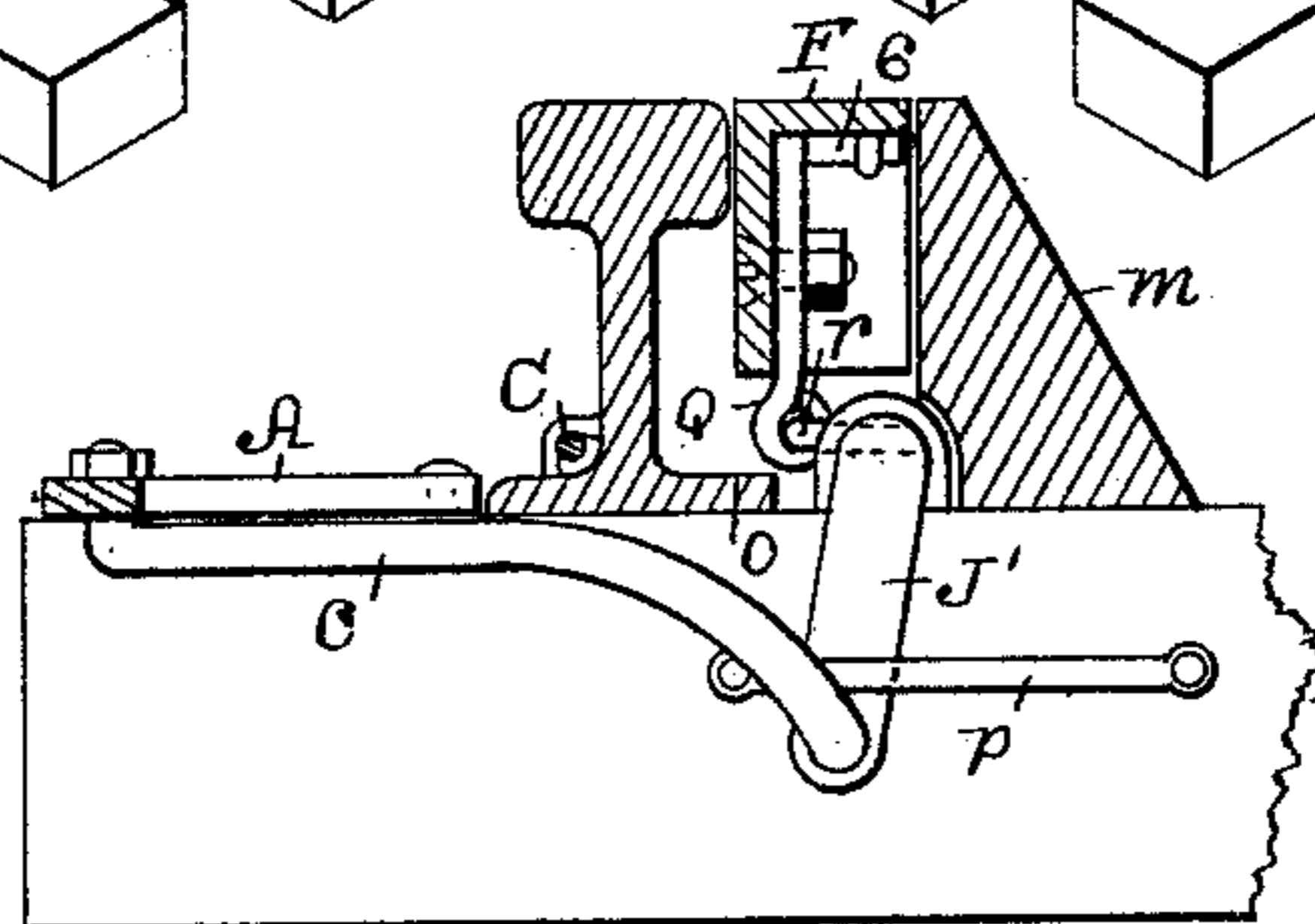
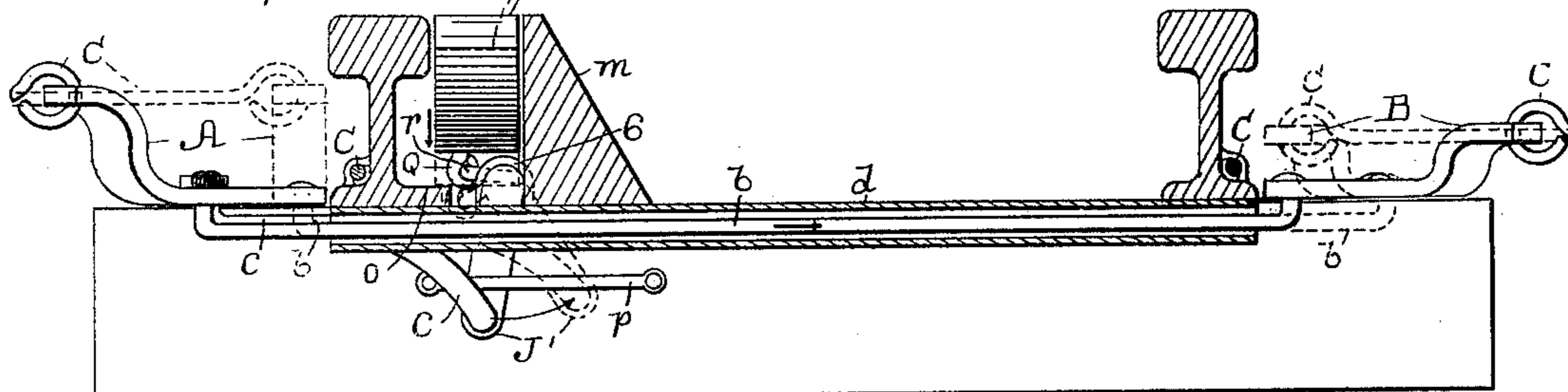
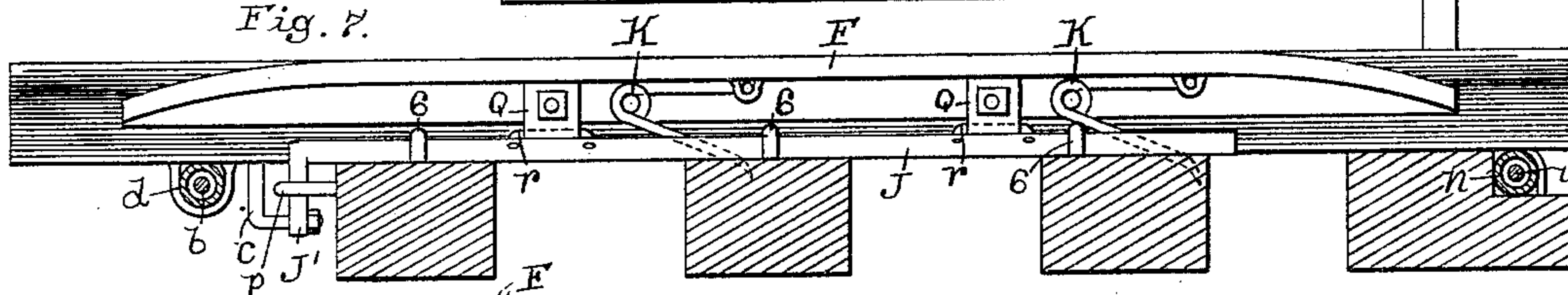


Fig. 7.



WITNESSES:

Fig. 8.

INVENTOR
Daniel H. Irwin

F. G. Fischer
A. A. Higdon

By *J. A. Higdon*
his Attorney.

UNITED STATES PATENT OFFICE.

DANIEL H. IRWIN, OF KANSAS CITY, KANSAS.

SIGNAL FOR RAILROAD-CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 410,690, dated September 10, 1889.

Application filed May 1, 1889. Serial No. 309,191. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. IRWIN, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Automatic Signals for Railroad-Crossings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to certain improvements in railroad-crossing signals which are set by the action of the wheels of the approaching train, the same being automatically returned to an original position; and the nature of the invention consists of the novel combination of parts and their construction, as will fully appear from the following description and accompanying illustration, in which—

Figure 1 is a plan view of a railroad-crossing embodying my invention. Fig. 2 is an enlarged detailed perspective view, partly in section, disclosing more particularly the signal proper. Fig. 3 is a similar view in detail of the signal. Fig. 4 is a detailed plan view, partly in section, having the closures or casings of the signal-actuating mechanism removed. Fig. 5 is a perspective view of the crossing having my invention. Fig. 6 is an enlarged sectional view on the line *yy* of Fig. 5. Fig. 7 is a similar longitudinal sectional view just inside of a guard. Fig. 8 is also an enlarged sectional view on the line *xx* of Fig. 5, showing in dotted lines the position the signal-actuating levers occupy when a train is passing and in full lines the normal position of said levers and their adjunctive parts.

In the embodiment of my invention I employ at a railroad-crossing, in connection with each arm thereof, as shown, a shoe F, right-angled in cross-section, having downwardly-inclined upper surfaces at its ends to permit the truck-wheels of an engine or car to pass readily thereon. The shoe F is disposed alongside of a rail of the crossing, and is supported or upheld by stout springs K, preferably cylindric or bolt-like in cross-section, which permit the shoe, after the passage of the train, to return automatically to its original or elevated position, one arm of each spring being firmly connected to the under

side of the horizontal portion of the shoe, the other arm being coiled upon itself and driven or secured in a tie of the track. This shoe has bolted or attached to the inner side of its vertical portion plates Q, connected to a rock-shaft J by staples *r*, fixed to said shaft and articulated or hinged to said plates. The rock-shaft J is suitably held in place by staples or keepers 6, driven into the ties, and has at one end a crank-arm J', depending through and guided in its movement by a guide or bail *p*, secured to a tie.

m is a guide for the shoe F, which is firmly bolted to the ties alongside of the shoe.

A is a lever, having one end pivoted upon a tie near a rail of a track and having an upward-bent forward end standing closely to a rail of a crossing track and connecting with a rod *a* by a wire or rod C, supported in guide-staples *l*, and extending parallel with said crossing track. This rod *a* is connected to a chain C'', passed around a quadrant wheel or lever P, suitably journaled within a closure *h*, as at *i*, said casing or closure being arranged about in alignment with the outer end of a shoe F. The chain C'' is carried around said quadrant wheel or lever P at right angles to its former portion and connected to a rod *u*, connected by a short wire 9 to a link 8, in turn connected to a short rod C'. The rod C' extends into a closure *g'* and connects with the arm L' of a shaft L, carrying at its upper end a signal-disk G, having one face distinguished from the other or colored. It may be red, which is the face brought to view during the passage of a train. The various parts *u*, 9, 8, and C' are also incased, as shown, protecting the same from the weather and from being interfered with.

The shaft L is inclosed in an upright tube or tubular standard *s*, upon the upper end of which standard is secured a lamp box or closure H, having in one side a glass-covered opening *e*, in alignment with which is disposed a lamp *t*. Between this glass-covered opening and lamp *t* is arranged to operate or vibrate a shield or curtain G', which is applied through an arm 7 to the shaft L, near its upper end.

Upon the lower end of the shaft L is arranged a spring M, one end of which is connected to the arm L' of said shaft and its

other end is secured to the casing or closure g' , the action of which is to automatically return the shield or curtain G' to its normal or original position, so as to obscure the light after the passage of the train.

c is a downwardly deflected or bent rod connection between the crank J' of the rock-shaft J and the lever A , which actuates the lever when the shoe F is depressed by the truck wheel or wheels.

b is a rod extending through the inclosing-tube d , and which is also connected to the lever A a little forward of the arm c , and to a second lever B at the opposite side of the track or arm of the crossing, lengthwise of which is arranged the lever A . The lever B is suitably pivoted upon a track-tie, and has an upturned or bent forward end, to which is connected a like rod or wire C , as applied to lever A , connecting with a separate similar signal disposed at the other side of the crossing-track and diagonally opposite the former signal. This connection is effected by means of a chain C''' , connected to said rod or wire and passed around a quadrant wheel or lever O , whose shaft i bears in a track-tie and a closure or casing g for said wheel or lever, said chain C''' being connected by a short rod or wire 10 to a link 8, common to the wire or connecting medium extending along the opposite side of the same arm or track of the crossing, as seen more fully in Fig. 4.

It will be seen that when the truck-wheel of the engine or train passes upon the shoe F the latter will be depressed, its lower edge limiting its downward movement. Simultaneously therewith the shaft J will be rocked, deflecting or turning its crank J' inward, as indicated in dotted lines, Fig. 8, pulling the forward or free end of the lever A toward the track, through the arm or connection c , and vibrating lever B on its pivot on the opposite side of the track through the rod b , as indicated in dotted lines, Fig. 1. This will actuate the shafts L of diagonally-opposite signals and withdraw or remove the blinds or curtains G' from between the lamp and the glass-covered opening of the closure H , thus displaying the signals desired.

After the passage of the train the curtains or shields, as before stated, will automatically return to their original positions, obscuring the light, consequently preventing further display of the signal.

In the day-time the signal G is used.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad-crossing signal, the combination, with the spring-supported shoe, of the upright shaft provided with an arm carrying a curtain or shield adapted to vibrate between the lamp and the glass-covered opening of the signal, and mechanism through which said shoe actuates said shaft, substantially as set forth.

2. The combination of the spring-supported

shoe, the downwardly-deflected arm, the sliding rod, the signal-operating levers having upwardly-bent forward or free ends and arranged upon opposite sides of a track or arm of the crossing, the crank rock-shaft connected to said shoe and said arm, wires connecting with said levers, the quadrant wheels or levers, the chains C'' C''' , the wires u , 9, and 10, link 8, and rod-wire C' , the shaft L , having an arm at its lower end, to which are connected said rods or wires C' , the spring applied to said arm of shaft and to a fixture, the signal G , and curtain or shield G' , applied to the upper end of the shaft L , and the lamp secured to the upper end of the tube or pipe inclosing the shaft L , substantially as specified.

3. In a railroad-crossing signal, the combination, with a spring-supported shoe right-angular in cross-section, with its horizontal flange beveled downwardly at its ends, of the cranked rock-shaft, the plates fixed to the shoe and hinged or articulated to rigid staples on the rock-shaft, the signal-lever connected to said rock-shaft, and the signal-shaft connected to said lever, substantially as specified.

4. In a railroad-crossing signal, the combination, with a spring-supported shoe and a rock-shaft connected thereto, of the revoluble signal-shafts arranged on opposite sides of the crossing track, and the signal-levers connected respectively to said signal-shafts and to each other, one of said levers being connected to the said rock-shaft, substantially as specified.

5. In a railroad-crossing signal, the combination, with a spring-supported shoe and a rock-shaft connected to said shoe, of the signal-lever A , pivoted at one end on one side of the track and connected at its free end to the signal, and the signal-lever B , pivoted at the opposite side of the track and connected to a signal, and also connected at one end to an intermediate point of the lever A , whereby said levers and the signals connected thereto are simultaneously operated, substantially as specified.

6. In a railroad-crossing signal, the combination, with a spring-supported shoe and a rock-shaft connected thereto, of the signal-lever connected to said rock-shaft, the revoluble signal-shaft provided with an arm which is connected to said signal-lever and bearing an actuating-spring whereby it is automatically returned to its normal position, and the curtain or shield fixed to an arm of the signal-shaft and arranged in a casing or closure provided with an opening to be closed by said curtain or shield, substantially as specified, for the purpose set forth.

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

DANIEL H. IRWIN.

Witnesses:

F. G. FISCHER,
A. A. HIGDON.