

(No Model.)

2 Sheets—Sheet 1.

G. H. WRIGHT.

SIGNAL DEVICE FOR CABLE RAILWAY CROSSINGS.

No. 413,120.

Patented Oct. 15, 1889.

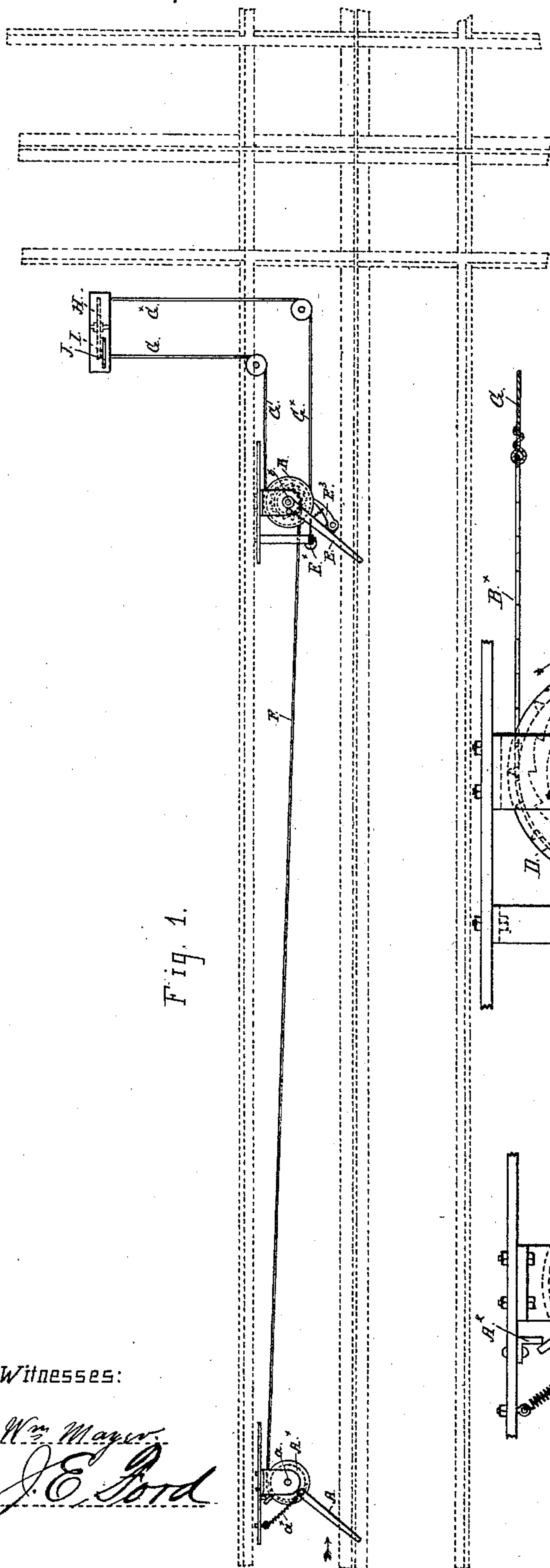


Fig. 1.

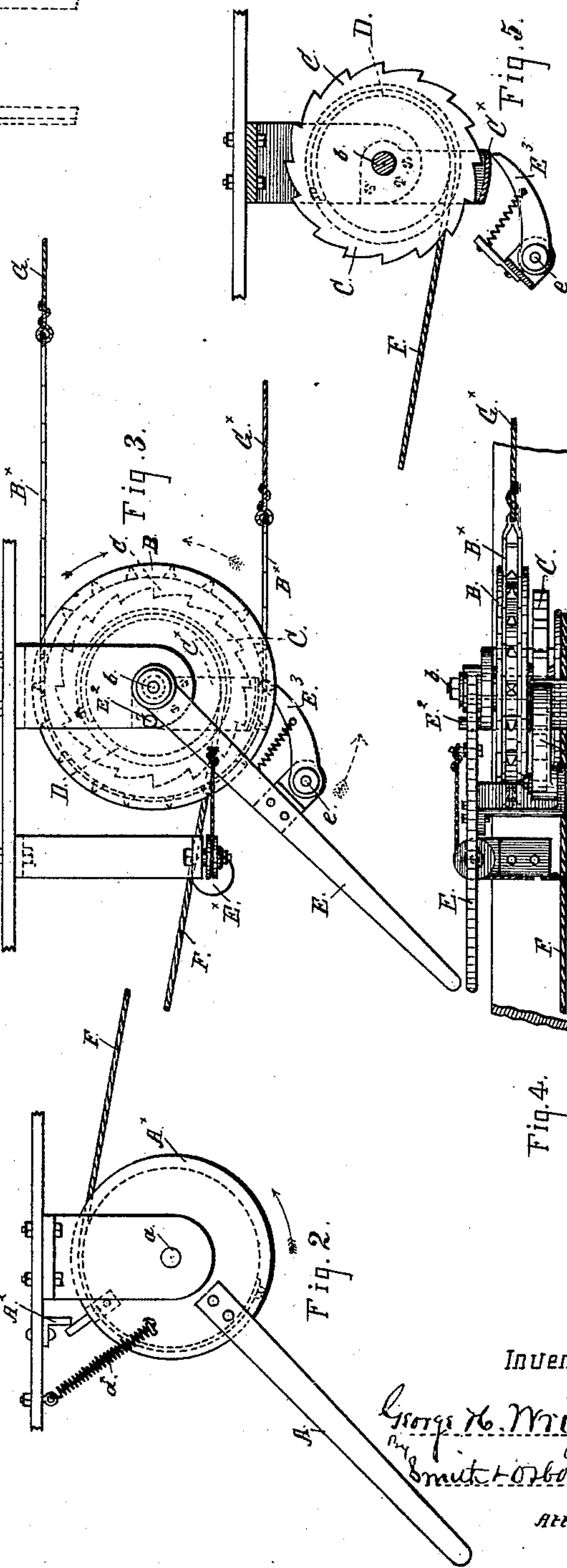


Fig. 2.

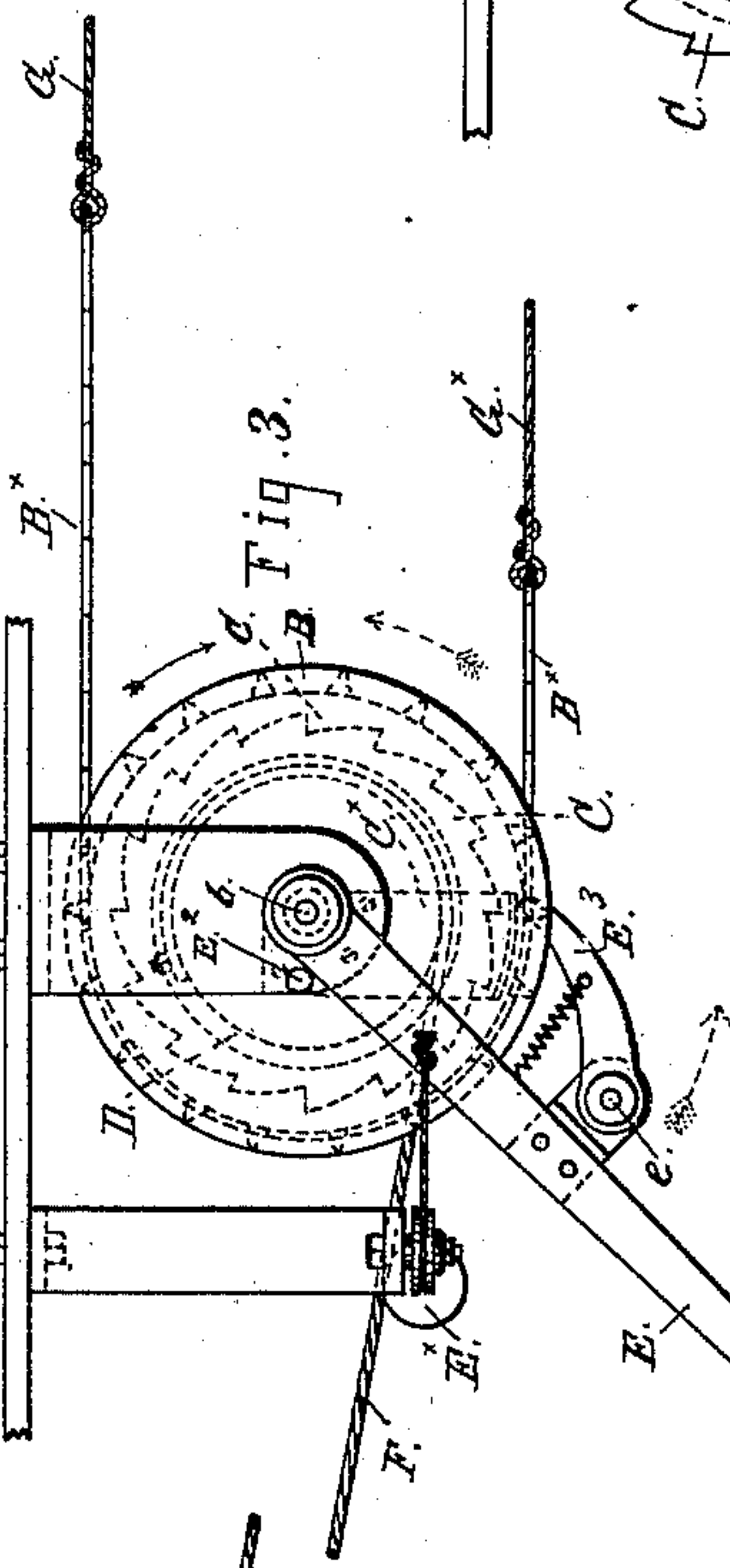


Fig. 3.

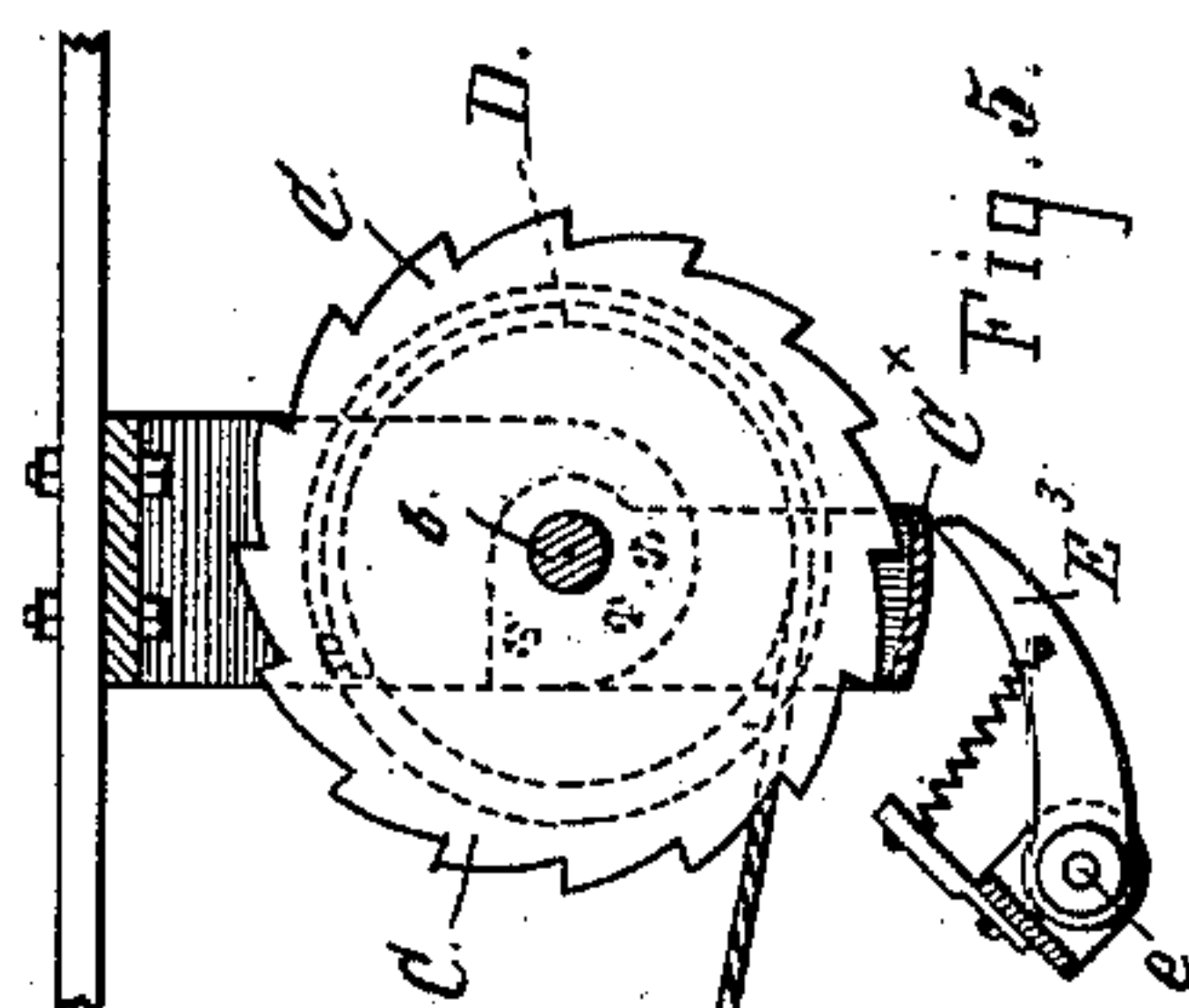


Fig. 4.

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Witnesses:

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J. E. Ford

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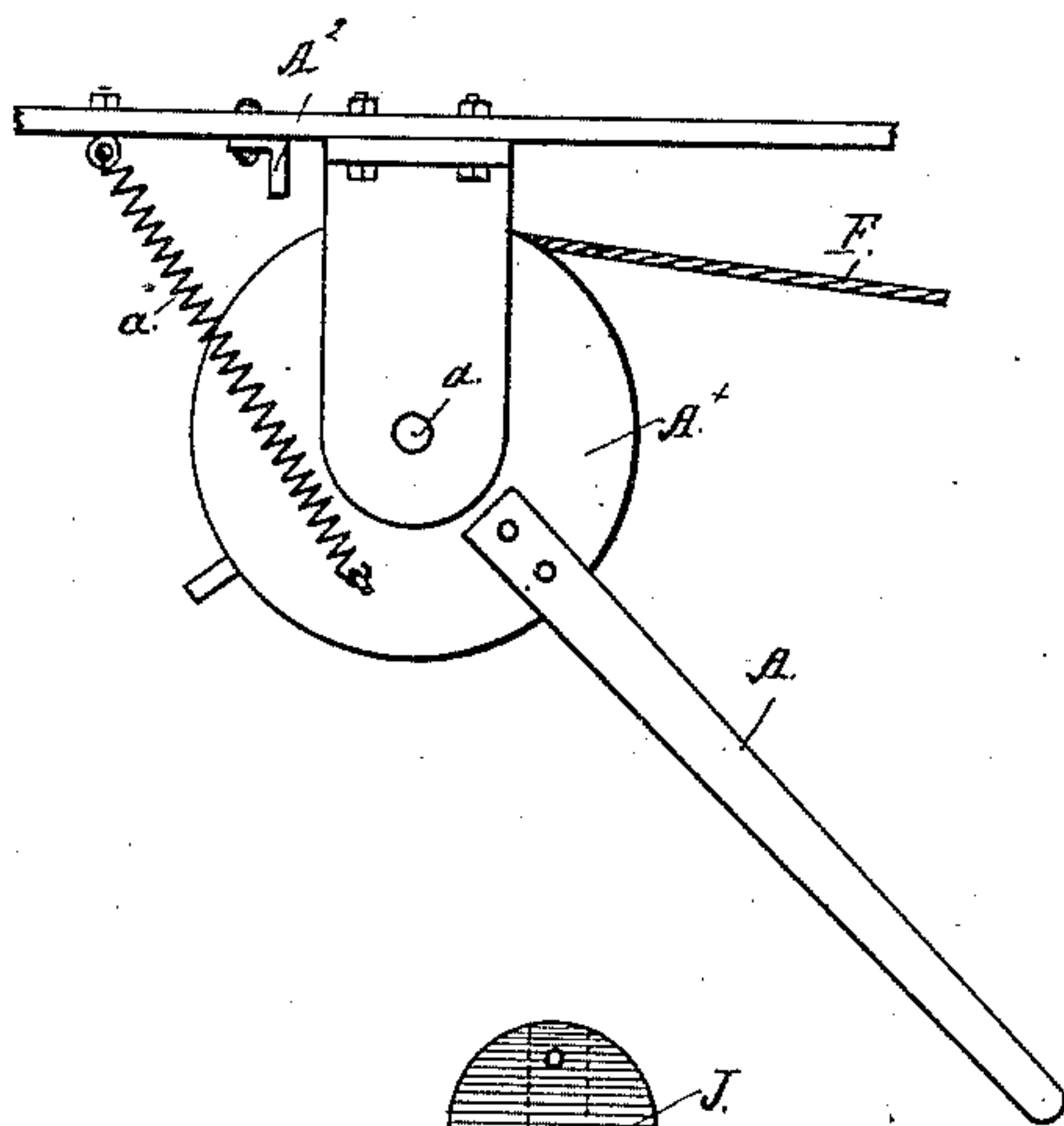


Fig. 6.

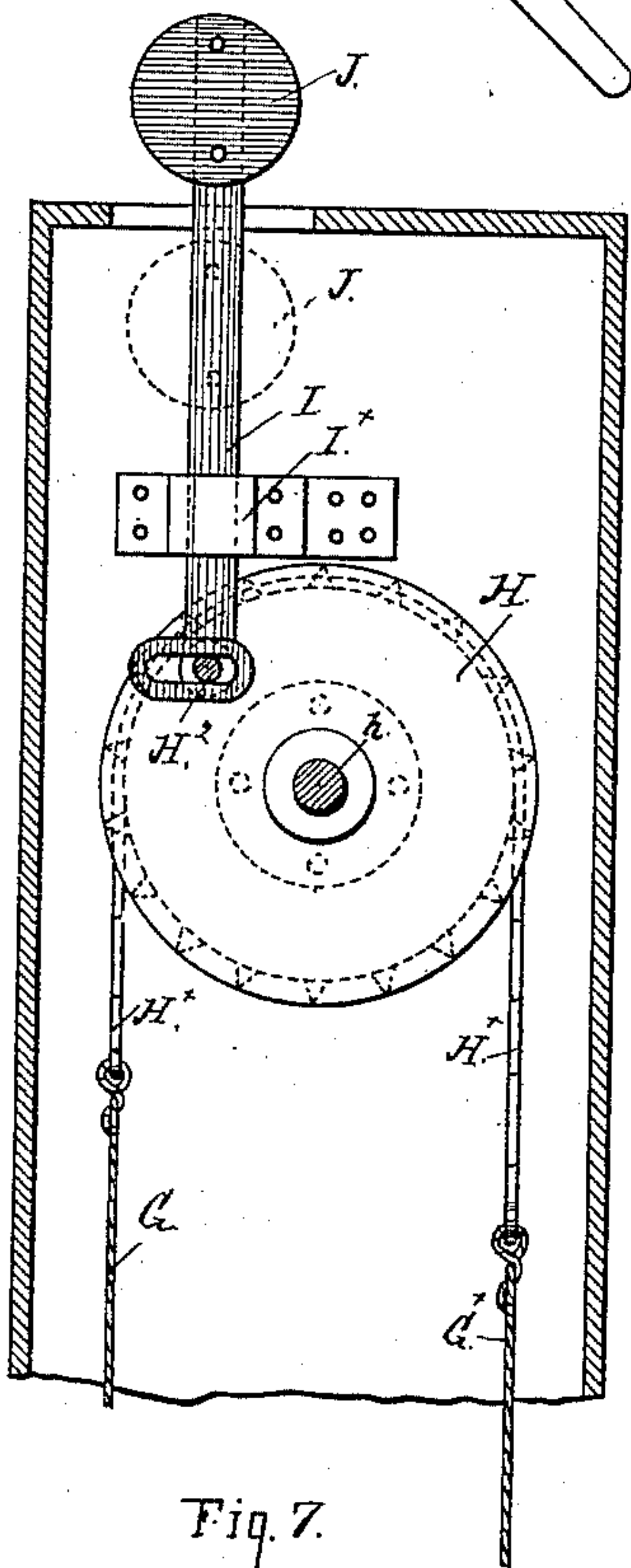
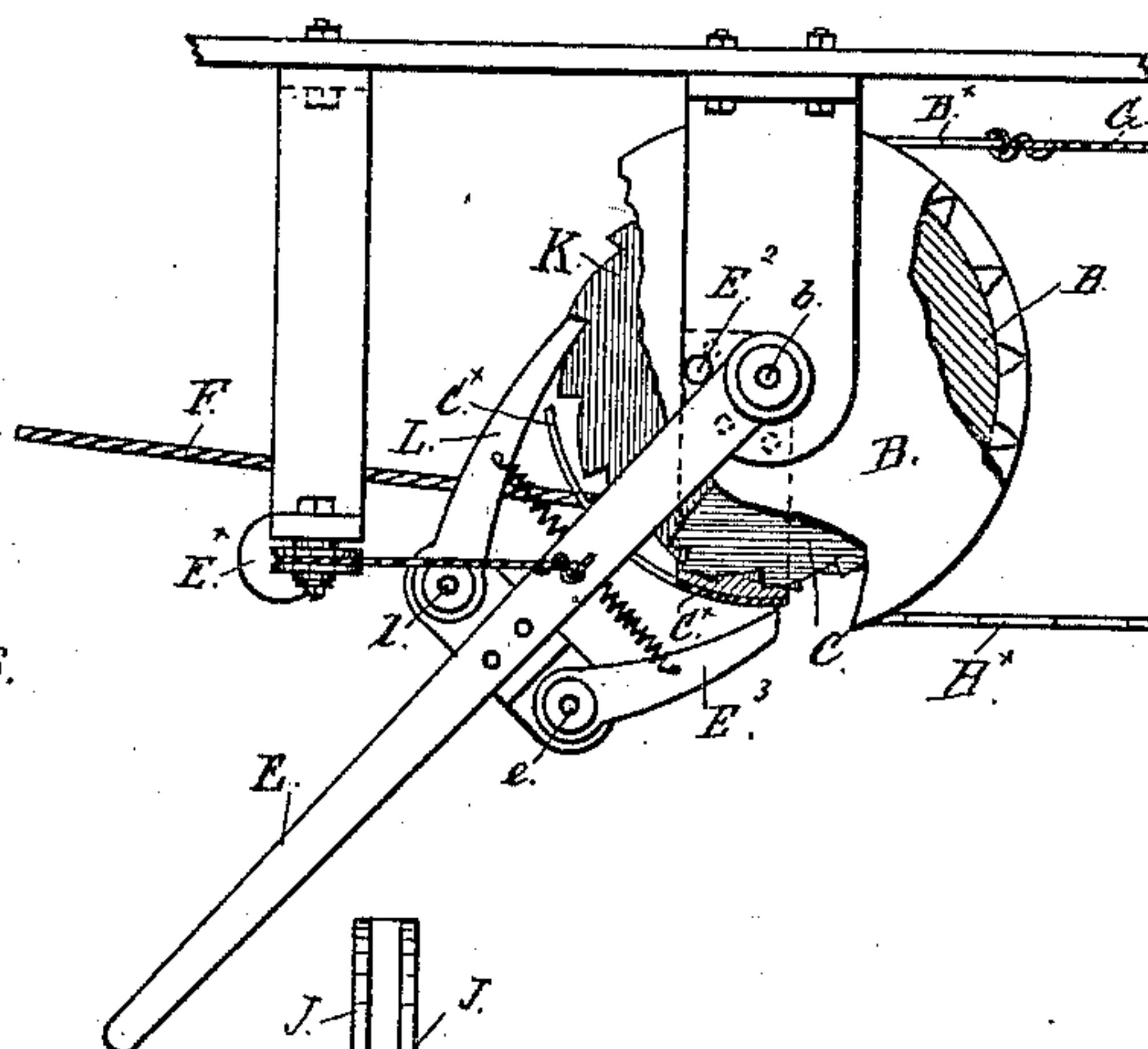


Fig. 7.

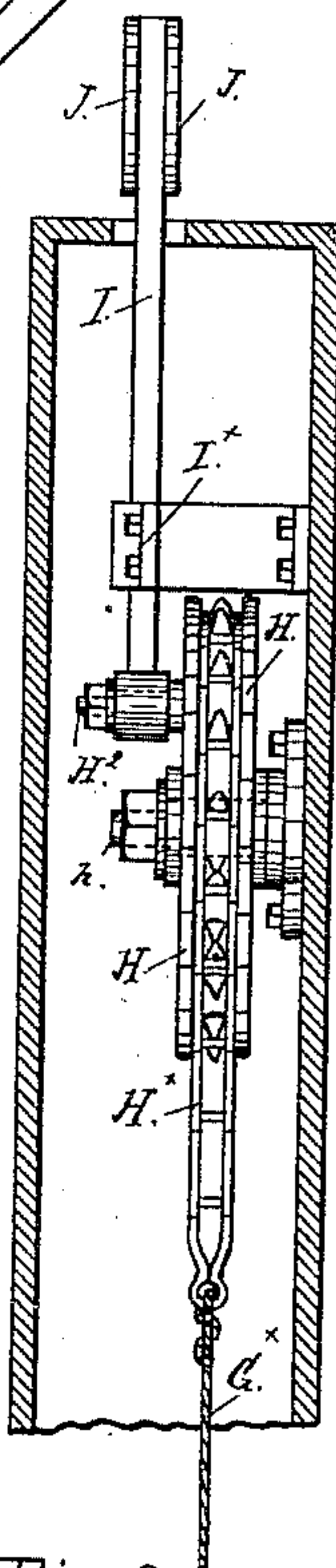


Fig. 8.

Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE H. WRIGHT, OF SAN FRANCISCO, CALIFORNIA.

SIGNAL DEVICE FOR CABLE-RAILWAY CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 413,120, dated October 15, 1889.

Application filed February 20, 1889. Serial No. 300,592. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. WRIGHT, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented certain new and useful Improvements in Automatic Signal Devices for Cable-Railway Crossings, of which the following is a specification.

My invention relates to a device the purpose of which is that by the action of the car running on one line of a cable-road system a signal is displayed at the intersection with another line, whereby the approach of the car on that line is announced in order to obtain the right of way.

My invention consists of a combination of mechanical appliances connected by wire ropes to each other and to the mechanism in the signal-box, the appliances to be operated upon by the grip of a cable car when it passes the points where they are situated; and the object of my invention is to raise and display to view a signal at the crossing of the tracks, and at a proper time to lower and hide from view said signal, all of which will be hereinafter fully described. I attain this object of my invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents on a small scale and in plan the mechanical appliances as located on the line of a cable road. Fig. 2 shows on a larger scale a top view of the appliance by which the signal is raised and displayed. Fig. 3 represents a top view of the appliance by which the signal is lowered. Fig. 4 shows an elevation of the parts shown in Fig. 3. Fig. 5 is a detail view, in plan, of parts shown in Fig. 3. Fig. 6 represents a top view of both appliances in a position obtained after the signal has been raised. Fig. 7 is an elevation of the signal mechanism. Fig. 8 is a side view of the same.

Similar letters refer to similar parts throughout the several views.

At the intersection of streets which are provided with a cable-road system I place a signal-box containing the signal mechanism, and located at a convenient point, or so that a signal displayed thereon can easily and readily be observed by the gripman of a car running on the intersecting line.

At a suitable distance from the crossing

those parts of my device which are intended to effect the raising and displaying of the signal are situated and connect with suitable supports in the tunnel of the cable road. The other parts of my device by which I am enabled to lower the signal are brought into connection by a wire rope with the parts above mentioned located near the intersection of the lines, not far from the signal-box, and are in their turn connected by wire ropes to the signal mechanism inclosed in the signal-box.

The operating appliance consists of a lever A, running across the slot underneath the slot-irons of a cable railroad, so that the grip of a cable car will come into contact with said lever. The end of this lever is firmly attached to a sheave A^x, turning around the pin *a* of a hanger or bracket that is connected to a suitable support between the yokes forming the cable-tunnel.

The parts shown in Figs. 3, 4, and 5, which operate to raise and lower the signal, consist of a sprocket-wheel B, a ratchet-wheel C, and a sheave D, all in one piece or else firmly connected to each other, and operate around the pin *b* of a bracket, that also is connected to some support between the yokes of the cable-tunnel. On top of the upper arm of said bracket a lever E turns loosely around the pin *b*, and extends a short distance across the slot. It is kept in proper position by the weight E^x and a stop E² on the surface of the bracket. The lever E is also provided with a pawl E³, pivoted at *e* to engage with the notches of the ratchet-wheel C. From the under surface of the lower arm of said bracket an apron C^x extends upwardly to protect for a short distance the notches of the ratchet from contact with the pawl E³, as shown in Figs. 3 and 5. The wire rope F, partly wound around the sheave A^x and fastened thereto, runs through the cable-tunnel to the sheave D, and is fastened to the same. To the ends of a chain B^x, around the sprocket-wheel B, are connected the wire ropes G G^x, which run through the tunnel to the signal mechanism and connect with a chain H^x of a sprocket-wheel H in the signal-box. Therefore the chain B^x, ropes G G^x, and chain H^x form a continuous endless rope. The sprocket-wheel H, turning around the shaft *h*, has a

pin H^2 projecting therefrom, which works in the slot of a vertical bar I, that carries at its upper end a signal-disk J. The bar I is held in a vertical position by a guide I^x , and it will therefore be seen that a reciprocating rotation of the sprocket-wheel H will cause an up-and-down movement of the signal-bar I.

When not in operation, the signal-disk J is situated, as shown in dotted lines, Fig. 7, inside the signal-box, and it is brought to view only by the action of the grip on the heretofore-described mechanical appliances.

By the aforementioned description it will be clearly seen that a car running toward a crossing in the direction of the arrow in Fig. 1, will by its grip take along the end of the lever A, and cause thereby a partial revolving of the sheave A^x . This revolving motion will, through the wire rope F, be transmitted to the sheave D, and thereby to the ratchet C and sprocket-wheel B, in the direction of the arrow in full lines in Fig. 3, and from thence through the medium of the chain B^x , the ropes G G^x , and the chain H^x to the sprocket-wheel H, causing a correspondingly revolving motion of the latter that will effect an upward movement of the signal-bar I, and therefore raise the signal J out of the box into full view of any approaching car on the intersecting line. The first-mentioned car, having thus exposed the signal indicating its approach, will, in proceeding, shortly before the crossing of the road is made, encounter the appliance shown in Figs. 3, 4, and 5. The grip in striking the lever E throws the same in the direction of the arrows shown in dotted lines in Fig. 3, and causes the pawl E^3 to slip off the apron C^x to engage with the notches of the ratchet C, which produces a partially-rotating motion of the same, while the sprocket-wheel B and the sheave D will assume a contrary motion. Through the medium of the chain B^x , the ropes G G^x , and the chain H^x this latter movement will be transmitted to the sprocket-wheel H, and thereby create a downward movement of the signal-bar I, hiding from view the signal J. At the same time the rotating of the sheave D causes the lever A, through the medium of the rope F, to assume its original position, where it is held by a stop A^2 . The spring a^x is applied to the sheave A^x , for the purpose of bringing it back always to the same position, which is regulated by the two stops seen at A^2 , Fig. 2, one on the plate and the other on the sheave. After the grip has passed the lever E the same will, by the action of the weight E^x , be drawn backward again and held in its former position by the stop E^2 .

Should it be found necessary to hold the signal exposed to view by some mechanical

means, I use the appliance shown in Fig. 6, instead of one ratchet C. I employ another ratchet K, also in one piece with the ratchet C, the sheave D, and the sprocket-wheel B, the latter having its notches in opposite direction to those of ratchet C. A pawl L is pivoted at I to the lever E, and connects by a spring with the pawl E^3 . Therefore, after the signal has been raised the pawl L engages with the notches of the ratchet K, keeping the same in position and with it the sprocket-wheel B. The apron C^x also extends a short distance over the ratchet K to protect the notches from contact with the pawl. Again, in lowering the signal the lever E, turning around the pin b, causes the pawl E^3 to engage with the notches of the ratchet C, producing the aforementioned action, while the pawl L runs upon the apron C^x to allow the ratchet K to turn with the other parts. The spring connecting both pawls serves to bring the same always into contact with the notches of one ratchet. By means of the apron C^x these pawls are also prevented from interfering with the movement of the ratchets.

As shown in Fig. 1, my appliances are illustrated as adapted to a single track only; but it is evident that the same can be used as well on a double track by duplicating the appliances on one and the same road having the right of way.

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

1. The combination of the lever E, having the pawl E^3 , with the ratchet C, and the sprocket-wheels B and H, and connection between the said sprocket-wheels to effect the lowering of the signal, as described.

2. The combination of the lever E, the pawl E^3 , with the ratchet C, and the sheaves D and A^x , having the lever A and connections between the sheaves, substantially as and for the purpose set forth.

3. The combination of the lever E, the pawls E^3 and L, the ratchet-wheels C and K, the weight E^x , and stop E^2 , substantially as and for the purpose set forth.

4. The combination of an apron C^x with the ratchet-wheels C and K, and the pawls E^3 and L on the lever E with the sheaves D and A^x , sprocket-wheels B and H, and connections between the sprocket-wheels and between the sheaves, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

GEORGE H. WRIGHT. [L. S.]

Witnesses:

C. W. M. SMITH,
CHAS. E. KELLY.