

(No Model.)

3 Sheets—Sheet 1.

R. SENFTNER.
STATION INDICATOR.

No. 379,292.

Patented Mar. 13, 1888.

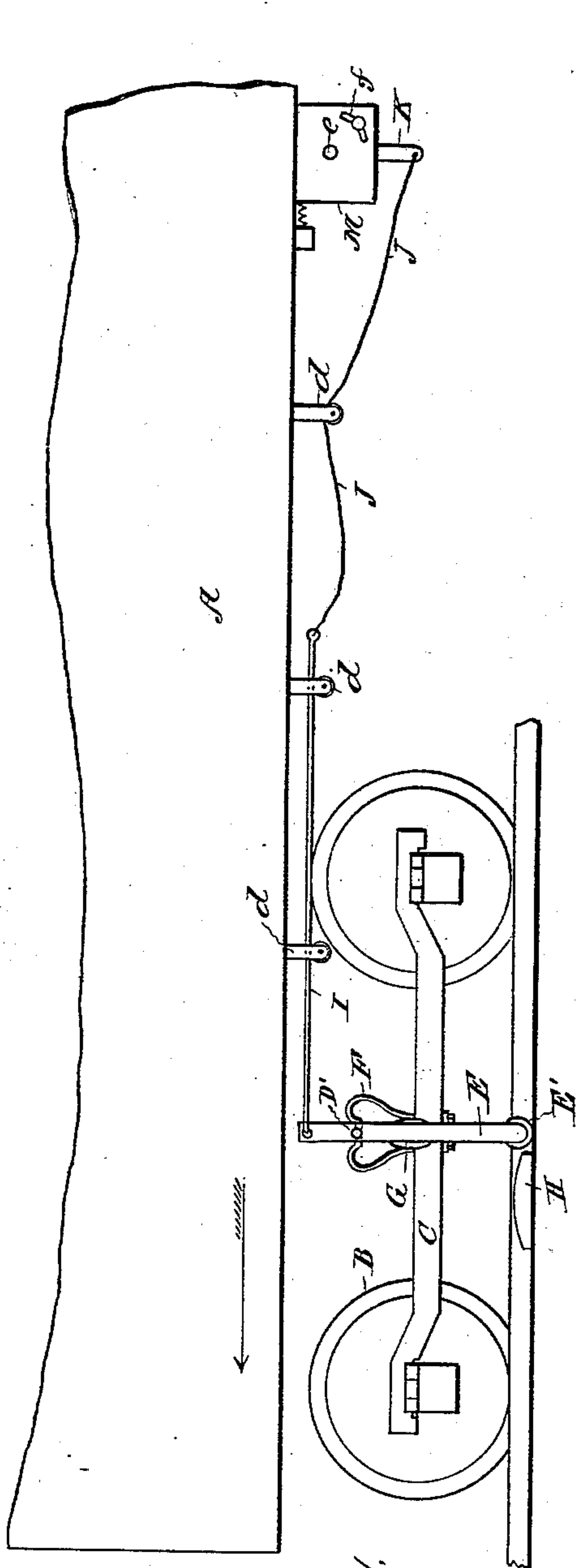


Fig. 1.

WITNESSES:

O. W. Benjamin.
W. C. Carville.

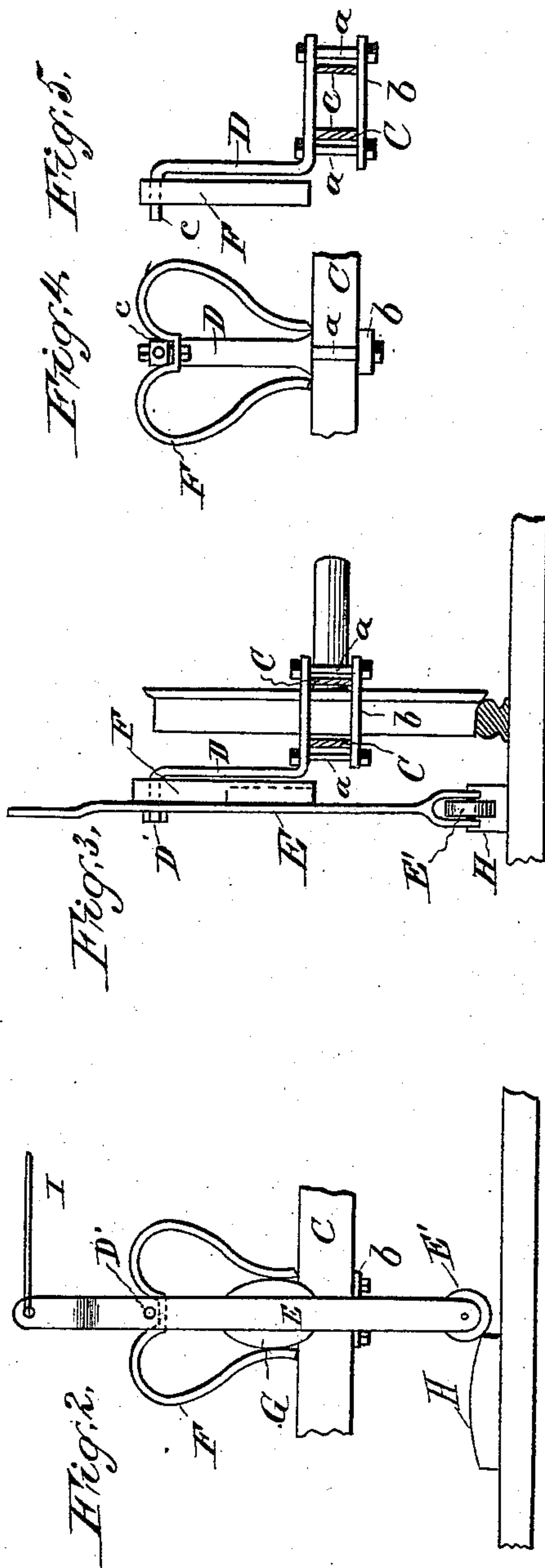


Fig. 4.

Fig. 3.

Fig. 2.

INVENTOR.

Robert Senftner.
BY *Joseph A. Levy.*
his ATTORNEY.

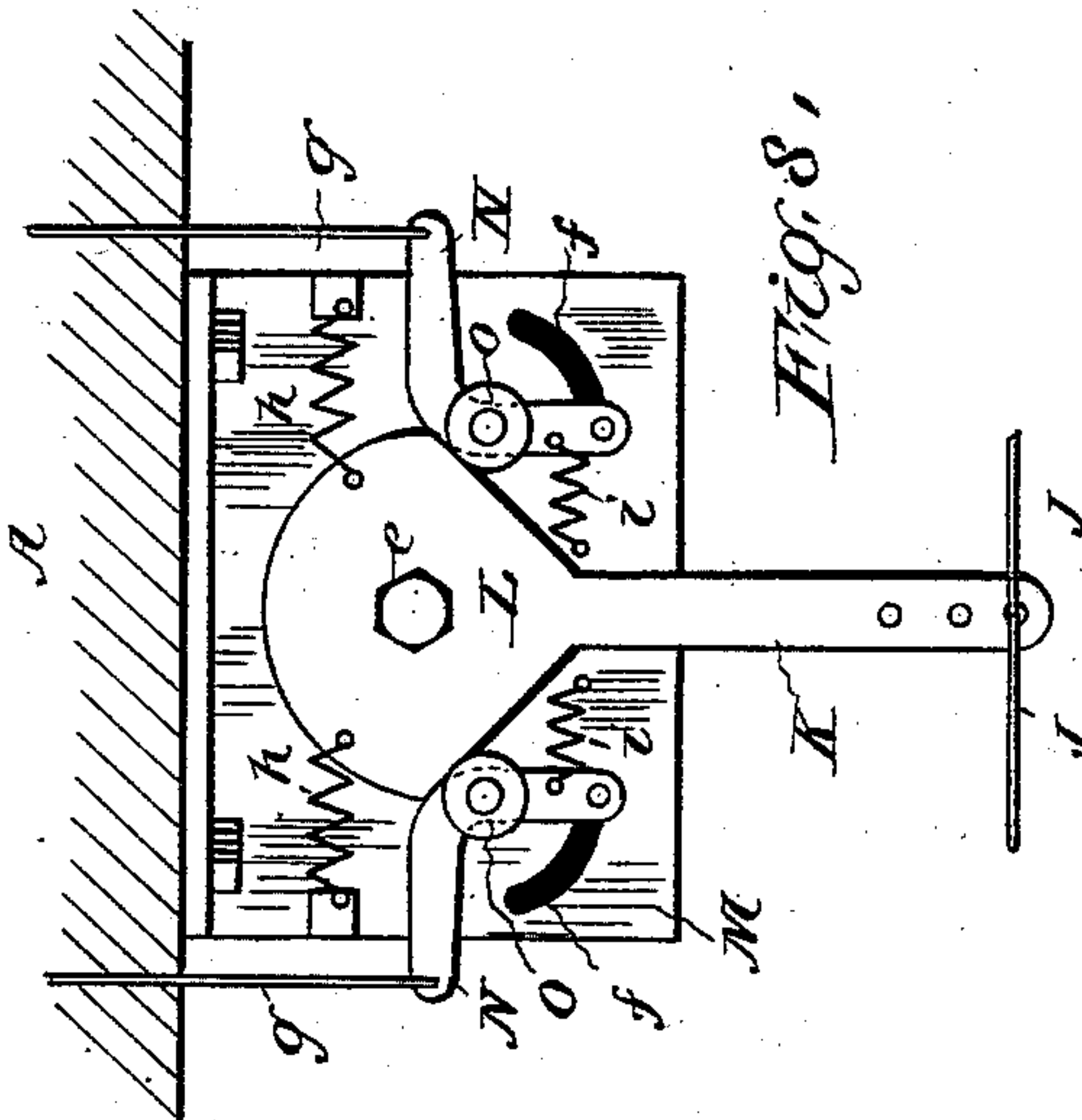
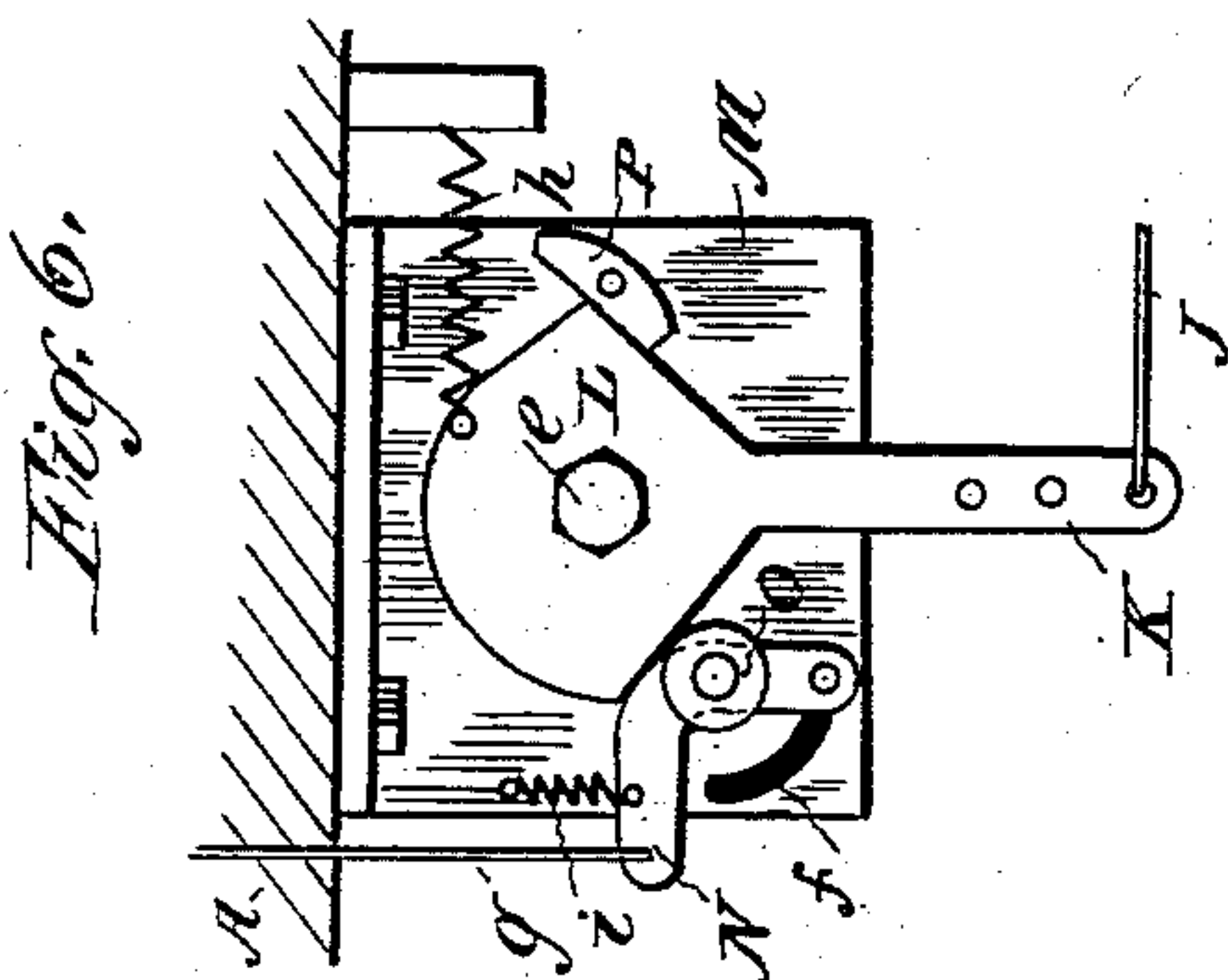
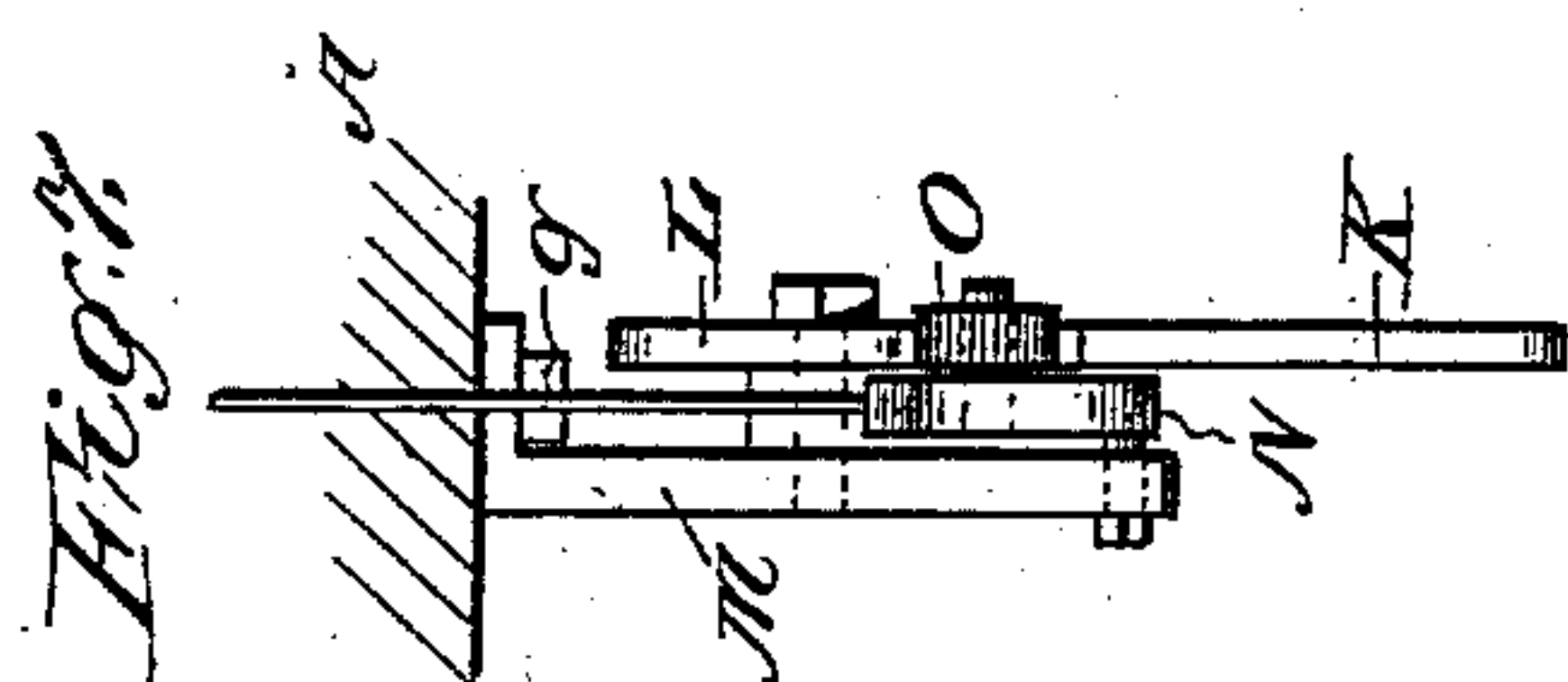
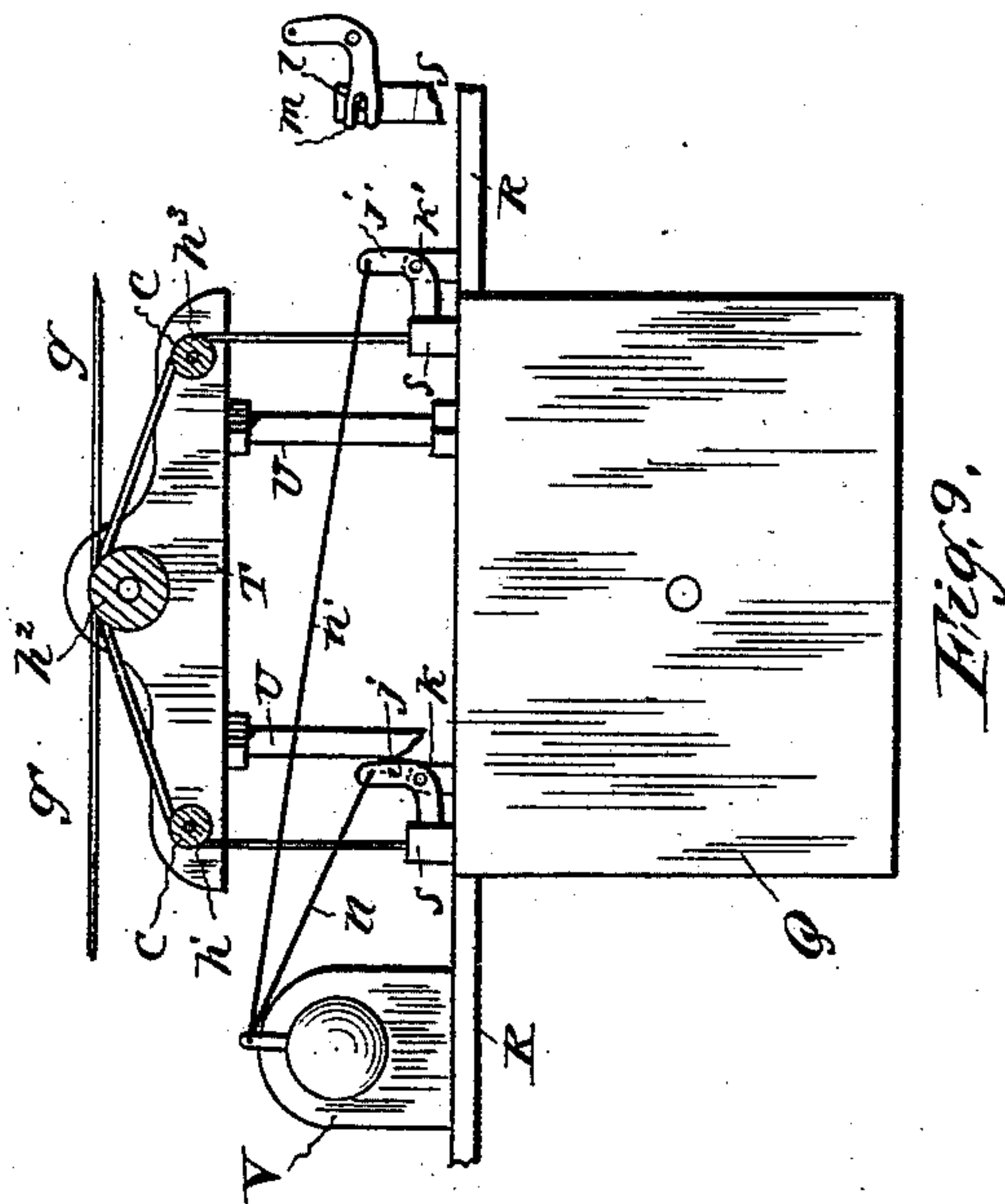
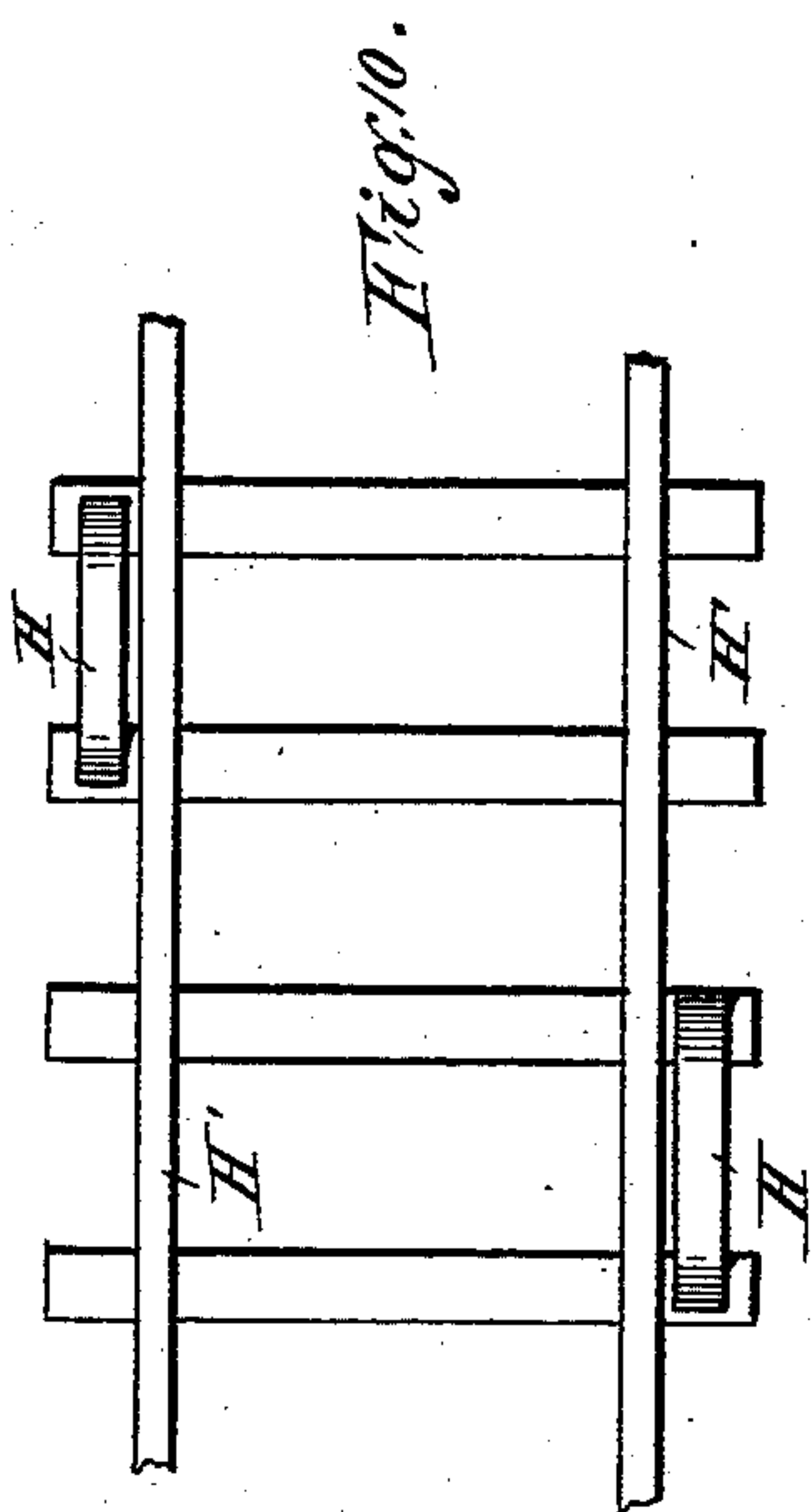
(No Model.)

3 Sheets—Sheet 2.

R. SENFTNER.
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Patented Mar. 13, 1888.



WITNESSES:

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INVENTOR,

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(No Model.)

3 Sheets—Sheet 3.

R. SENFTNER.
STATION INDICATOR.

No. 379,292.

Patented Mar. 13, 1888.

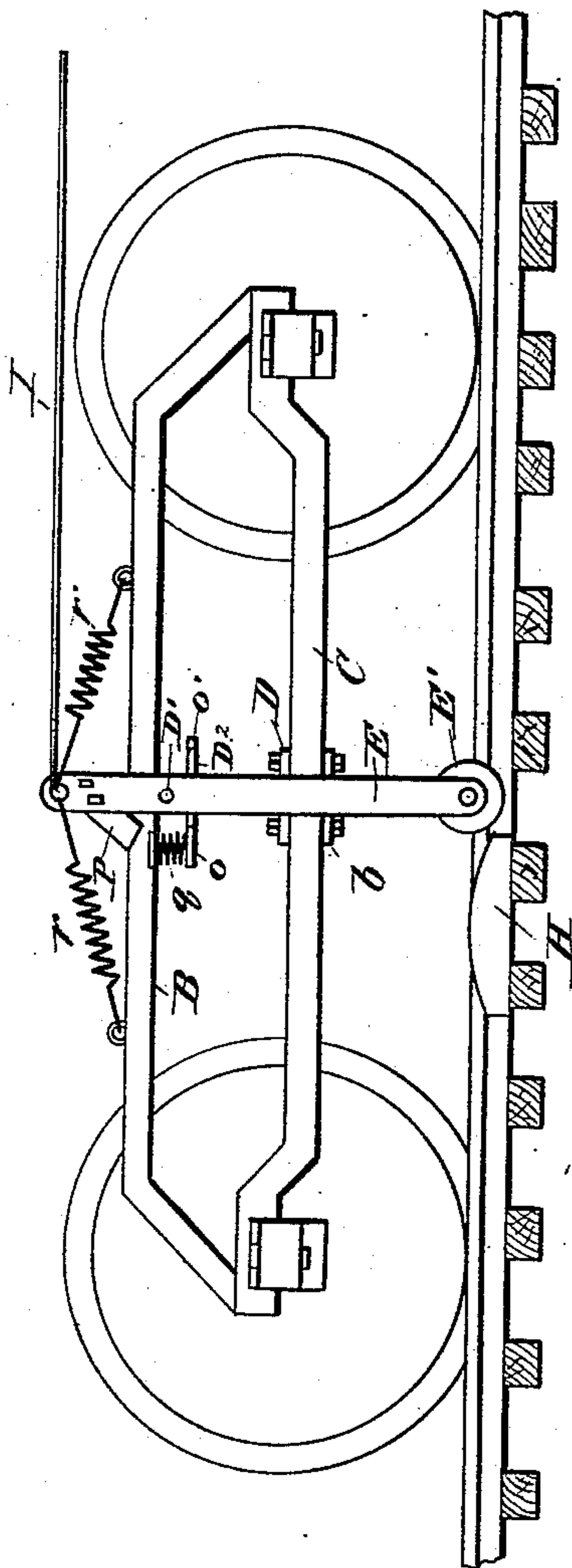


Fig. 11.



Fig. 13.



Fig. 14.

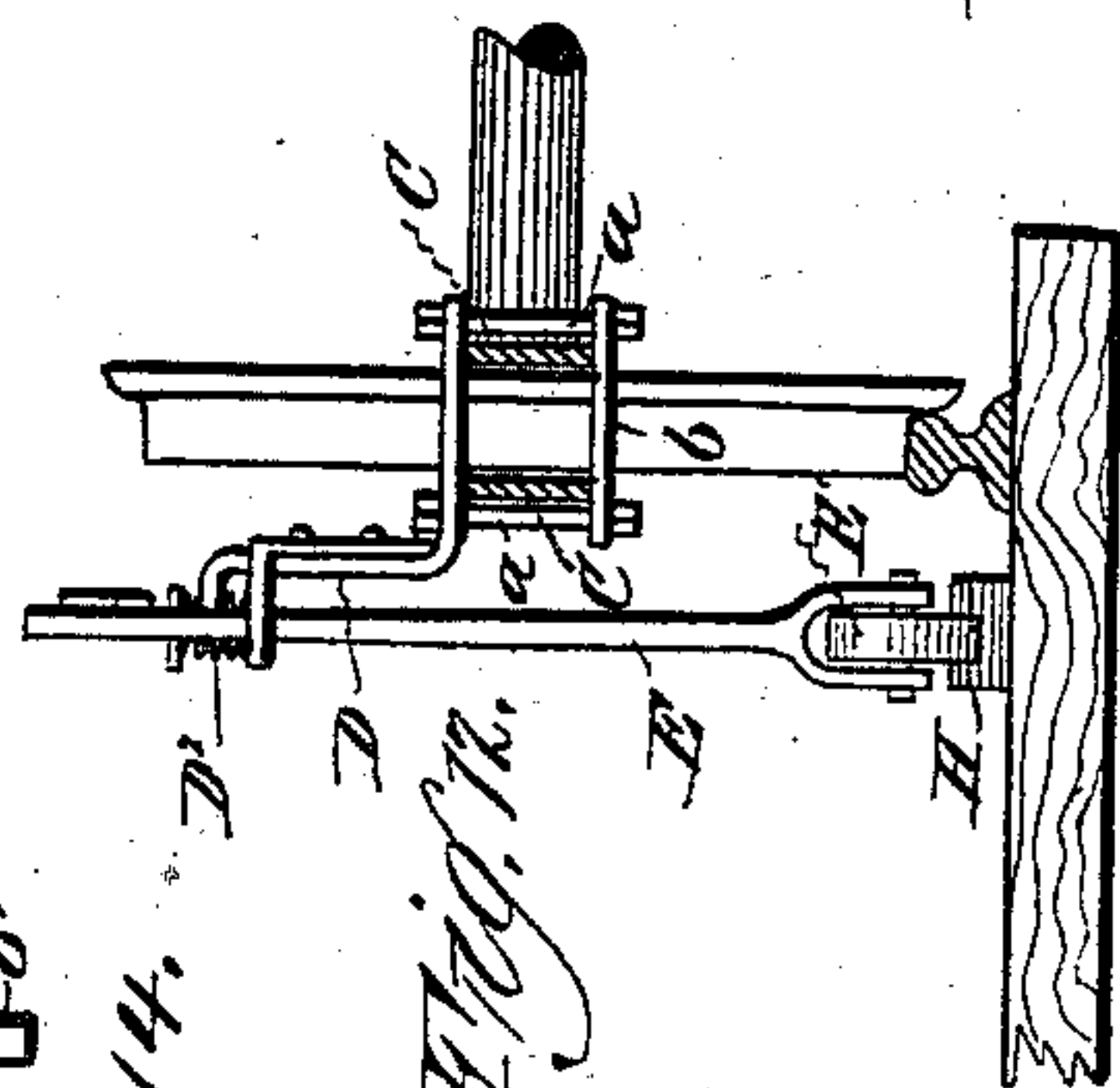


Fig. 15.

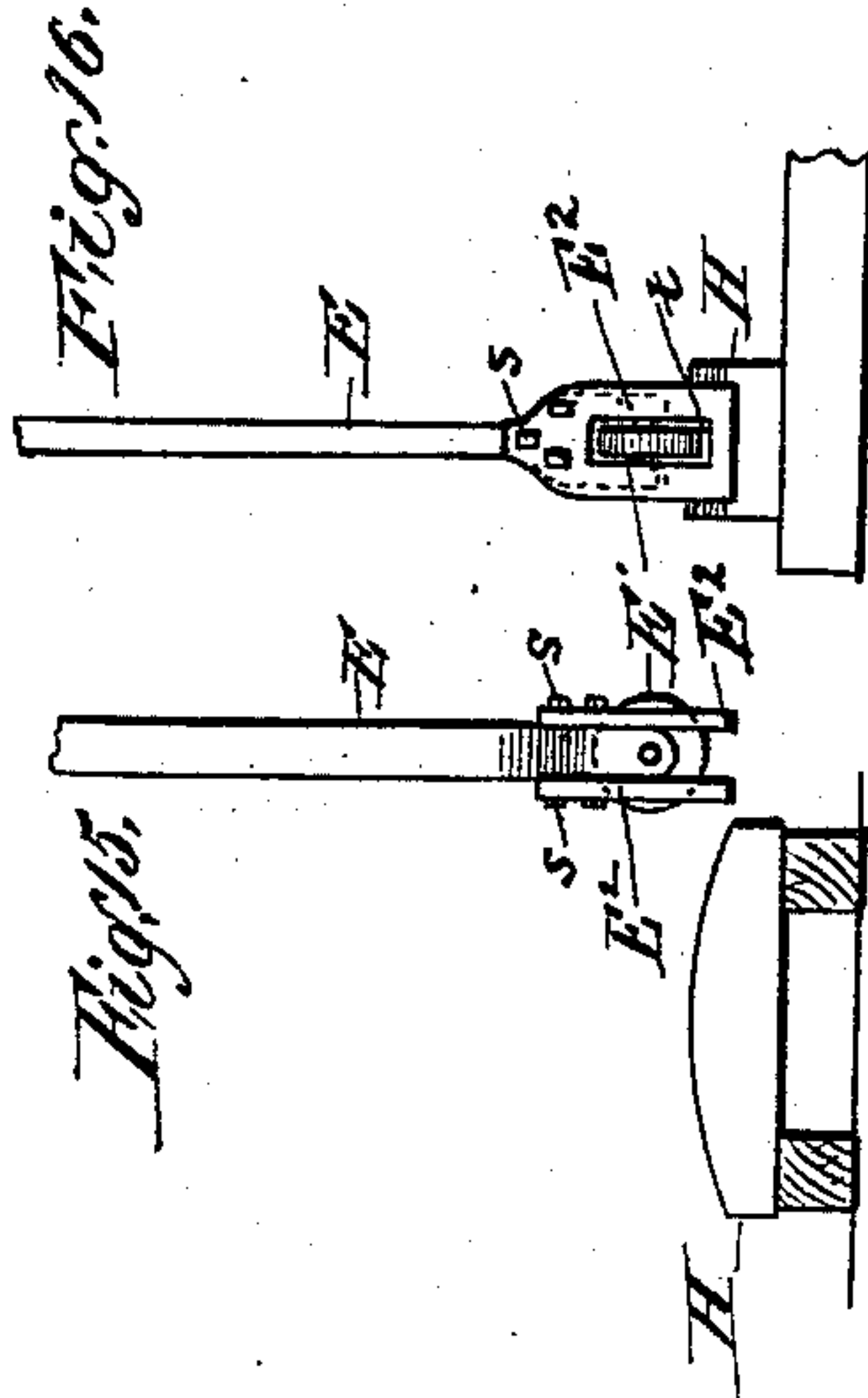


Fig. 16.

Witnesses:
W. Benjamin,
W. E. Caffie.

Inventor:
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by Joseph A. Levy,
his Attorney.

UNITED STATES PATENT OFFICE.

ROBERT SENFTNER, OF BROOKLYN, NEW YORK.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 379,292, dated March 13, 1888.

Application filed August 2, 1887. Serial No. 245,993. (No model.)

To all whom it may concern:

Be it known that I, ROBERT SENFTNER, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Station-Indicator, of which the following is a specification.

Letters Patent No. 352,576, of November 16, 1886, were granted to me for a station-indicator, which consists, essentially, of an indicator placed inside the car and the striking and indicator-operating mechanism fixed to the body of the car. It is to this latter part that my present invention relates, and in this description I shall identify it, for the sake of brevity and better identification, as the "striking" and "indicator-operating" mechanism.

It also consists in a novel method of combining a bell with the indicator-operating mechanism to attract the passenger's attention to the indicator.

In my patent before referred to the striking mechanism is attached directly to and depends from the body of the car.

In this case I place the striking mechanism upon the truck of the car at any part that will be sure to remain always in the same relation to the track and the indicator-operating mechanism upon the body of the car, connecting them together and inserting in the line of this connection a slackened portion, to allow for the constantly-changing distance between the truck and the place where the indicator-operating mechanism is affixed to the body of the car while going around a curve. In this way I entirely do away with the inconvenience resulting from the oscillation of the car, and at the same time lessen the stroke of the striking mechanism. I attain these objects by the mechanism herein described, and further illustrated by the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of part of a railroad-car, showing the general position of the striking mechanism. Figs. 2 and 3 show, respectively, a front and side view of the pendent lever and its manner of fixture to the truck. Figs. 4 and 5 are respectively side and transverse views of the support for the pendent lever. Figs. 6 and 7 are respectively front

and side views of the indicator-operating mechanism, and Fig. 8 a modification of the same. Fig. 9 is a front elevation, partly in section, of the bell-ringing mechanism. Fig. 10 is a plan of the position of the stationary projecting pieces. Fig. 11 is a side elevation of an alternative form of the striking mechanism. Fig. 12 is a transverse view of the same. Figs. 13 and 14 are respectively side and top views of a detailed portion of the same. Figs. 15 and 16 are respectively side and transverse views of my auxiliary stroke-resisting device.

In the drawings, A is the body of the car, B the truck, and C the equalizing-lever thereof. In the case illustrated in the drawings there are two equalizing-levers—one in front and one behind the wheel—which are shown in this manner as being the most convenient form for illustration; but my device may be adapted to any form of truck. I fix to these levers a Z-shaped hanger, D, by means of the bolts *a a* and bolt-plate *b*, said hanger being provided with a rounded end, *c*, upon which the pendent lever E is pivoted at *D'*, said lever E being provided with a roller, *E'*, to facilitate its travel over the projecting piece H.

In the construction shown in Figs. 1, 2, 3, 4, and 5 I bolt to the hanger D a heart-shaped spring, F, which acts upon the block G, fastened to the lever E, to return the lever E to its perpendicular position after it has passed over the stationary projecting piece H.

My alternative construction is illustrated in Figs. 11, 12, 13, and 14. In this case the pendent lever E is pivoted to the hanger D, which is the same as in the preceding construction. I fasten to the back of the hanger D a bracket, *D'*, (best seen at Fig. 13,) which is provided at its ends with two extensions, *o o'*. Near the top of the pendent lever E, I fix a projection, *p*. On the extension *o*, I place a spring, *q*, which may be made of metal or rubber. It will now be apparent that when the lever E is deflected by riding over the projecting piece H the projection *p* will come in contact with the spring *q* and compress it. By this arrangement any undue bounding or vibration of the pendent lever is entirely obviated, and should the blow on the lever be so hard, when striking the projecting piece, that it would more than compress the spring *q*, it will meet the

stop or projection o' , which limits its throw, and by the assistance of the springs r r' be returned to its perpendicular position and ready to ride over the projecting piece. The springs r r' are fastened at one end of the truck B and at the other to the lever E, always keeping said lever in a perpendicular position. I intend to use either one of these constructions, as circumstances require.

In order to further insure smoothness of action in the travel of the pendent lever E over the projecting piece H, I fasten to the said lever, as at s s , Figs. 15 and 16, strips of rubber or other flexible material, E^2 E^2 , which depend below the roller E' and are provided with slots t to allow the roller E' to project through them. The strip E^2 is so placed on the lever E in relation to the projecting piece H that it shall strike it before the roller E' and ride over a portion of the projecting piece before the roller E' begins to act, and in doing this it is bent, thus offering extra resistance to the blow of the lever and making its action smooth and regular. As will be seen, the same action takes place whether the car moves backward or forward.

I can use the lever E either with or without the strip E^2 E^2 , and do not therefore limit myself to either one alone.

I connect with the pendent lever E, in any way so that it shall be free to turn upon the same, a link, I, and to that a chain, rope, or other non-rigid connection, J, which in its turn is fastened to the lever K of the cam L of the indicator-operating mechanism. (Shown enlarged in Figs. 6 and 7.) The link I and chain J move within and are supported by the straps d d .

I rigidly affix at or about the center of the car, as shown in Fig. 1, a supporting plate, M, to which the cam L is pivoted, as at e . This plate M is provided with a slot, f , in which is adjustably pivoted a bell-crank lever, N, provided with a roller, O, the lever N being connected at its upper end with a wire, g , leading up into the car to the indicator.

I have shown in Fig. 1 but one striking and indicator-operating mechanism, and this, assuming that the car is moving in the direction of the arrow, will register all the stations while continuing that trip; but should the car be moved back past the stationary projecting piece after having registered the coming station, it will be seen that another station will be registered and thus make confusion. I obviate this by duplicating this mechanism on the other side of the car, and fixing the pendent lever to the rear truck, and also placing stationary projecting pieces on both sides of the track, as illustrated in Fig. 10. As now arranged the car may pass over the same stationary projecting pieces any number of times, and even may be turned completely around, and the proper indication of the stations will be insured. It will now be apparent that when, during the progress of the car, the lever E rides over the stationary projecting piece

H said lever will be deflected, carrying with it the link L and chain J, making the same taut, and by means of the lever K rotating the cam L on its pivot e . The roller O is fixed to the bell-crank lever N within the periphery of the cam L, so that when the cam is rotated upon its pivot it will depress the bell-crank lever N, and with it the wire g , thus operating the indicator. The advantages that result from this arrangement will be readily seen when it is considered that with the proper arrangement of the parts an extremely small depression of the lever N will be sufficient to operate the indicator, this stroke being regulated at will by adjusting the lever N in the slot f , so as to bring the roller O nearer to or farther from the periphery of the cam L and entirely preventing any undue shock or jar.

When the pendent lever E is released from the stationary projecting piece, the spring F or the springs r r' will return it and the link I to their normal position, thus allowing the chain J to become slack. The cam L is provided with a spring, h , and the bell-crank lever with a spring, i , which return them to their position of rest, both of which springs are placed in the most convenient position. The plate M is also provided with a pad, P, of rubber or other elastic material, which takes the return blow of the cam, and also prevents its moving out of its perpendicular position.

In Fig. 8 is shown a modification of the mechanism illustrated in Figs. 6 and 7. This arrangement does not differ materially from that shown in Figs. 6 and 7, all the parts except the cam L being duplicated, and it can be used when it is neither convenient nor desirable to use two single sets of mechanism, as shown in Figs. 6 and 7. It is not considered necessary to further describe it, as its operation is exactly similar to the single mechanism, with the exception that the rollers O O on the bell-crank lever N receive the return blow of the cam L instead of the rubber cushion P, and the chains J J connect the lever K with the pendent lever E on the front and back trucks.

In Fig. 9 is illustrated my device for ringing a bell to attract the attention of the passengers to the indicator. Q is the indicator, which is suspended inside the car by means of the support R. S S are two sliding blocks working within the indicator, and are described in my before-mentioned patent. T is a frame (one-half only of which is shown) supported over the indicator by means of the pillars U U, and which is provided with three pulleys, h' h^2 h^3 , over which the wires g g' are led from the indicator-operating mechanism, crossing over the pulley h^3 and being connected at their ends with the sliding blocks S S. j j' are two bell-crank levers pivoted at k k' , one end of which is provided with slots l , which engage with pins m , fastened on the back of the sliding blocks S S, the other end of which is connected to the bell V by means of the wires n n' . From this it will be seen that when the indicator is worked the wire g , in lifting up the

block S, vibrates the bell-crank lever *j*, pulling the wire *n* and thus ringing the bell. But one wire *g* works at a time, and when the strain on this is released a spring on the end of the block S returns it to its former position, and with it the bell-crank lever *j*, while the spring in the bell V keep the wire *n* taut; and this is true of both sets.

In Fig. 10 are shown the stationary projecting pieces H H, fastened by the sides of the rails H' H'. I have here shown them as being separated by about the width of a tie; but they may be placed adjacent or in any desired position.

I am aware of the patent to E. C. Dean, No. 104,563, June 21, 1870, wherein a lever is connected to and has for its fulcrum the axle of the truck of the car, said lever being connected with his "rocking arm" by a rigid connection; so I do not broadly claim a lever affixed to the truck of the car as one of the features of my invention.

I am also aware of the patent granted to J. Matzinger, No. 314,037, which shows a station-indicator in which there is a lever rigidly connected to both the truck and the floor of the car, and in which there are also connections between the lever and the station-indicator, partly rigid and partly flexible; but this is not my invention, as one special feature thereof consists in the striking-lever on the truck, the indicator-operating mechanism attached to the body of the car, and flexible connections between the striking-lever on the truck and the operating mechanism on the car, which will permit of independent movement of the truck with relation to the car without interfering with the operation of the device; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a station-indicator, the combination of the striking-lever E, pendent from the truck of a car and independent of the body of the car, and an indicator-operating mechanism attached to the body of the car, the said striking-lever being connected with the indicator-operating mechanism by a connecting mechanism, a portion of which is rigid and a portion of which is flexible, substantially as described.

2. In a striking mechanism for a station-indicator, the combination of a pendent lever adapted to engage with a projection on the track, a hanger attached to the truck of the car and which supports the said lever, a spring fastened to said hanger, and a block affixed to the pendent lever and which is adapted to engage with the said spring, substantially as described.

3. In a striking mechanism for a station-indicator, the combination of the pendent lever E, adapted to engage with a projection on the track, means for supporting said lever, projection *p*, carried by said lever, spring *g*, carried by the said supporting means, said projection *p* being so placed as to compress said spring when the lever is operated, and stop *o'*,

arranged to limit the throw of the said pendent lever, substantially as described.

4. In a device for supporting a pendent lever in a station-indicator, the Z-shaped hanger D, attached to the truck of a car, carrying a pendent lever, said hanger D being provided with a bracket, D², having a spring-carrying extension, *o*, and stop *o'*, in combination with the semi-rigid connection I J and the indicator-operating mechanism, substantially as described.

5. In an indicator-operating mechanism for a station-indicator, the combination of a supporting-plate attached to the body of the car, an adjustably pivoted lever pivoted to the said supporting-plate and connected with the indicator, a cam pivoted to the said supporting-plate and which vibrates the said lever, the said lever being pivoted within the periphery of the said cam, and means for operating the said cam, substantially as described.

6. In an indicator-operating mechanism for a station-indicator, the combination of a supporting-plate fastened to the body of a car, a lever adjustably pivoted to said supporting-plate and which is suitably connected to the indicator, a slot in said supporting-plate within which the said lever may be adjusted, a cam pivoted to said supporting-plate and which operates said lever, said cam and lever being provided with springs to return them to their normal position, a cushion or pad so placed on the supporting-plate as to receive the return blow of the cam, and means to operate the cam, substantially as described.

7. In a striking mechanism for a station-indicator, the Z-shaped hanger D, attached to the truck of a car, provided with a pivotal point, *c*, and spring F, fixed to said hanger, in combination with the pendent lever E, substantially as described.

8. In a station-indicator, the combination of the cam L and lever K, pivoted to the supporting-plate M, fastened to the body of the car, spring *h*, for returning the cam to its position of rest, adjustably pivoted lever N, and cord *g*, for connecting said lever to the indicator, pad or cushion P, arranged to receive the return blow of the cam, pendent lever E, pivoted by suitable means to the truck, semi-rigid connection for connecting the pendent lever E and cam-lever K, composed of the rigid link I and chain J, and the supports *d d d*, in which the link and chain move, substantially as described.

9. In a station-indicator, the combination of the supporting-plate M, attached to the body of the car, cam L, provided with the lever K and pivoted to said plate, bell-crank lever N, wire *g*, connecting the lever N to the indicator, slot *f* in the plate M, in which the lever N is adjustably pivoted, roller O, journaled on the lever N within the periphery of the said cam, and the pad or cushion P, so arranged as to receive the return blow of the cam, substantially as described.

10. In a station-indicator, the combination,

with the cam L, pivoted to the supporting-plate M, fixed to the body of the car, and means for operating said cam, of the adjustably-pivoted lever N, pivoted to said supporting-plate, 5 roller O, journaled on said lever, spring *i*, for returning the lever N to its position of rest, and chain *g*, connecting the lever N with the indicator Q, substantially as described.

11. In a device for ringing a bell in connection with a station-indicator, the combination 10 of the cords *g g'*, leading to the indicator Q, and means for supporting and operating the same, sliding blocks S S within the indicator and operated by the said cords, bell-crank 15 levers *j j'*, located above the indicator and operated by the said sliding blocks, bell V, and wires *n n'*, connecting the said bell and levers, substantially as described.

12. In a striking mechanism for a station- 20 indicator, the combination, with the means to support a pendent lever to the truck of a car,

of the pendent lever E, roller E' at the end of said lever, and the elastic strips E², surrounding the said roller and end of said lever, substantially as described. 25

13. In a striking mechanism for a station-indicator, the combination, with a pendent lever provided with a roller or like device at its point of contact with a projection on the track and means for supporting said lever, of 30 an elastic stroke-resisting medium fixed to the end of said lever and leading it in its travel over said projecting piece, substantially as described.

Signed at New York, in the county of New York and State of New York, this 27th day of 35 July, A. D. 1887.

ROBERT SENFTNER.

Witnesses:

JOSEPH A. LEVY,
B. T. VETTERLEIN.