

H. A. STEARNS.
Railway Safety-Gate.

No. 210,642.

Patented Dec. 10, 1878.

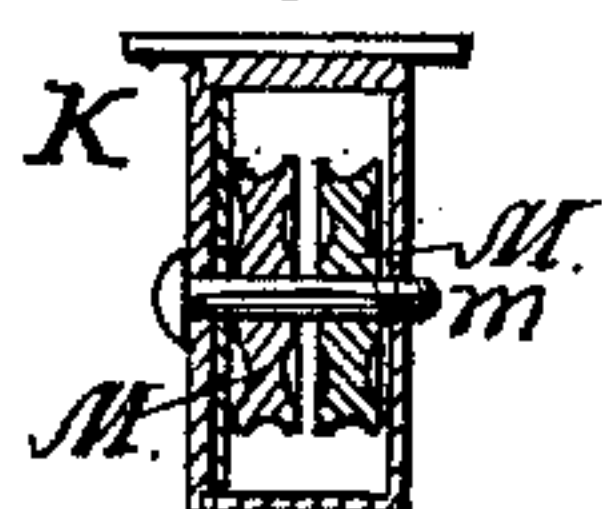
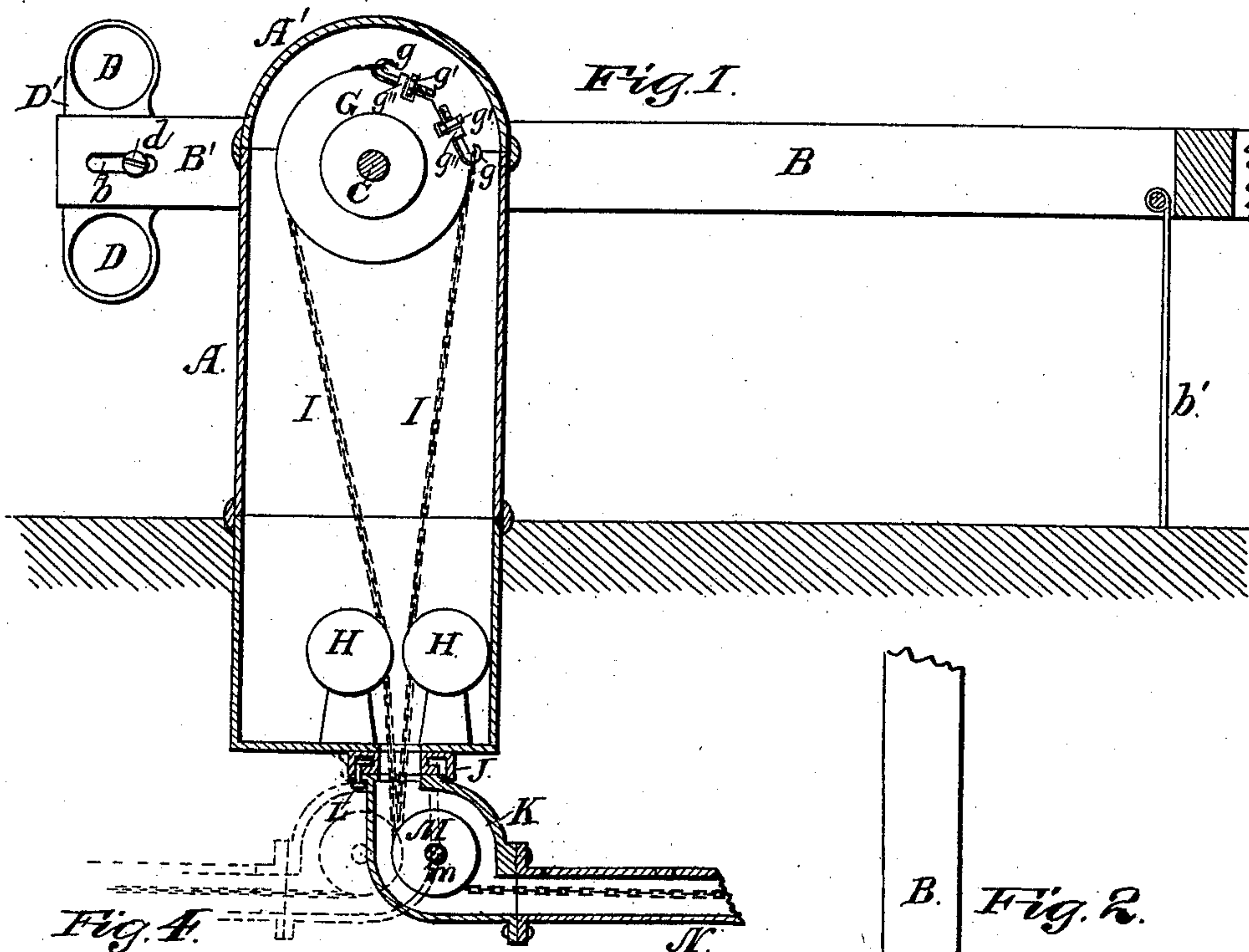


Fig. 5.

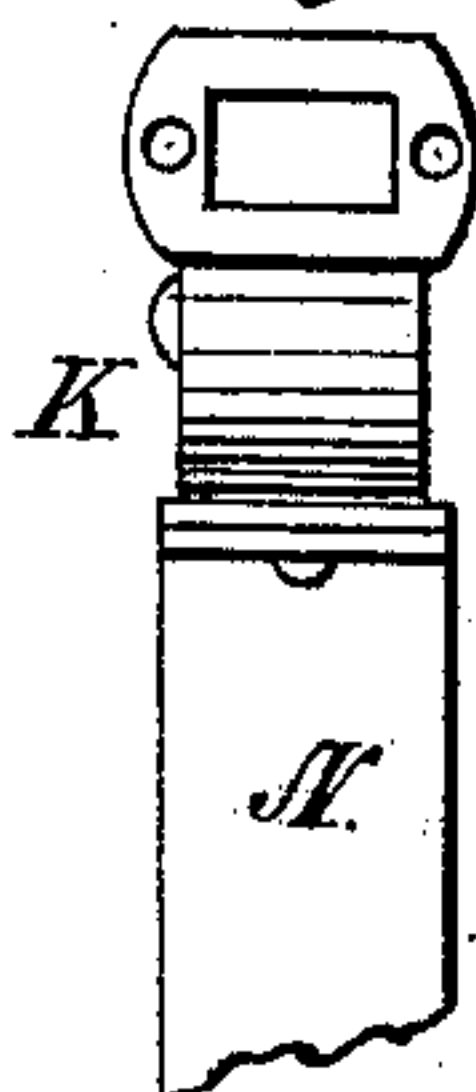


Fig. 6.

Fig. 3.

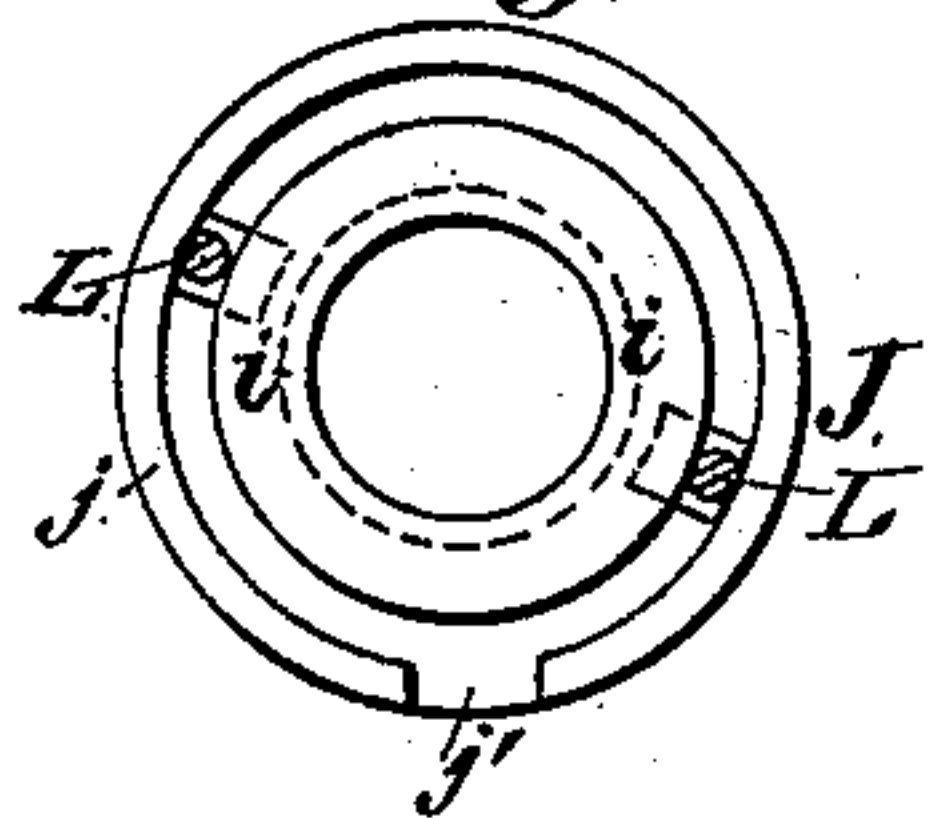


Fig. 7.

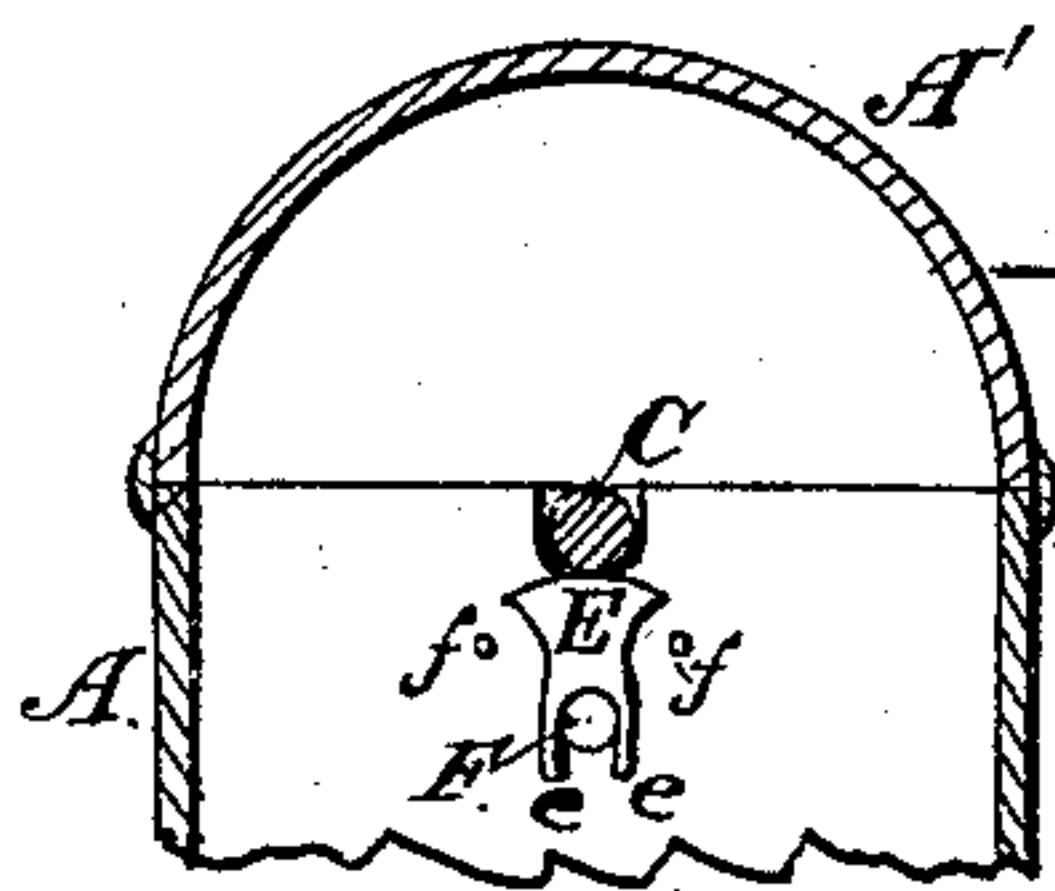


Fig. 9.

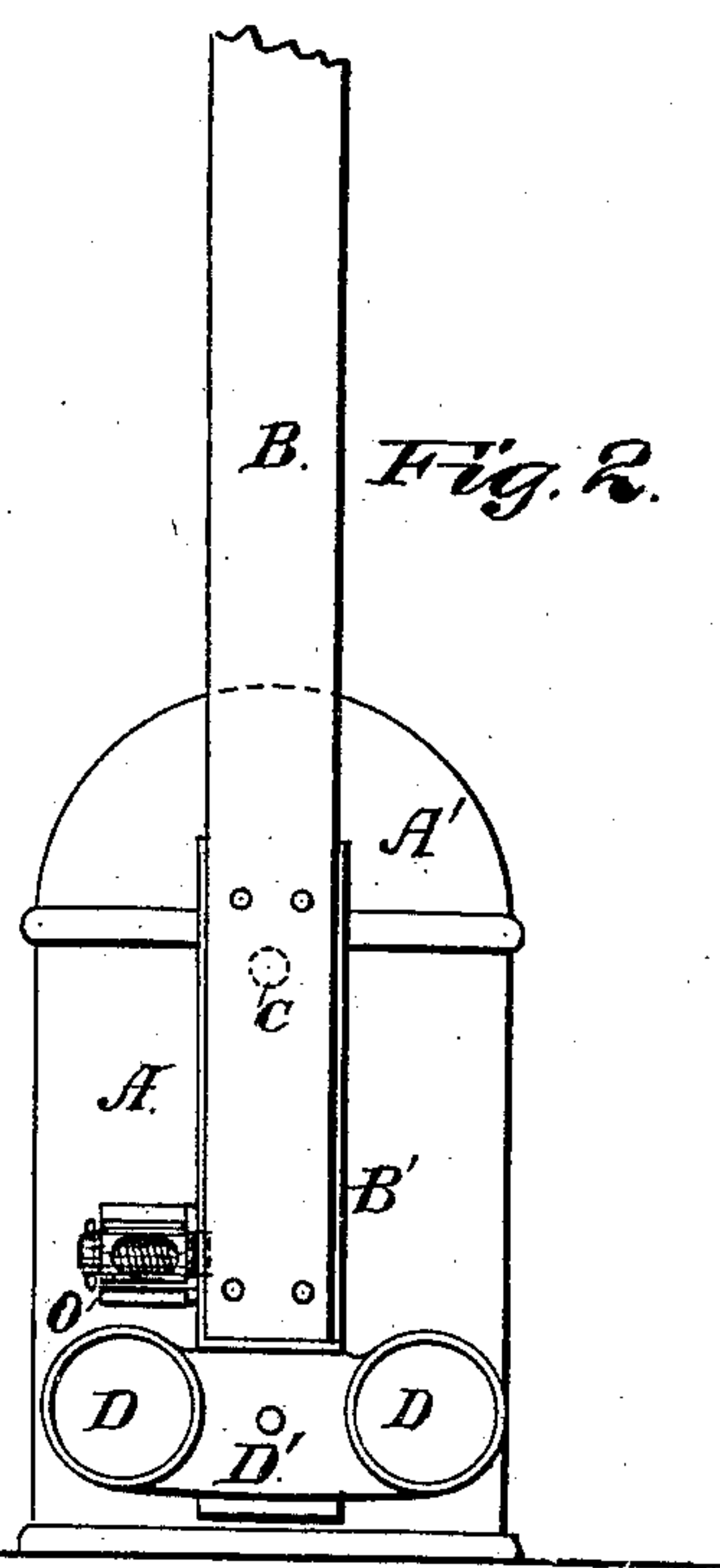


Fig. 2.

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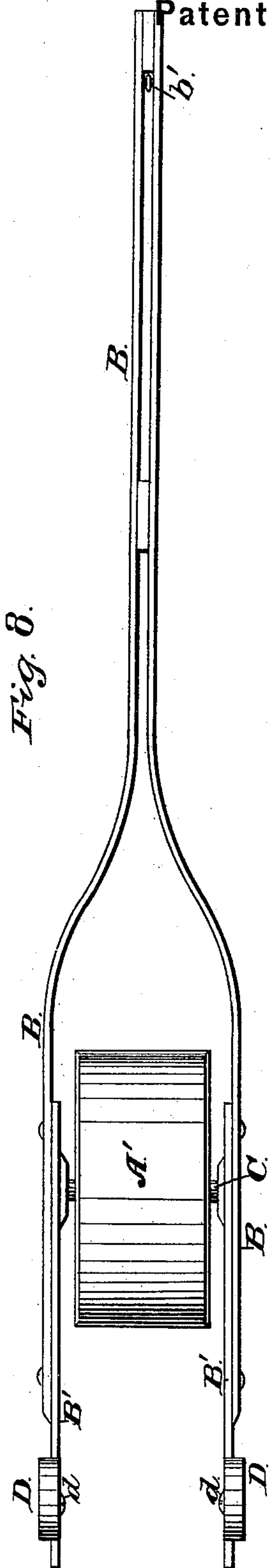
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UNITED STATES PATENT OFFICE.

HENRY A. STEARNS, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR TO
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IMPROVEMENT IN RAILWAY SAFETY-GATES.

Specification forming part of Letters Patent No. **210,642**, dated December 10, 1878; application filed August 15, 1878.

To all whom it may concern:

Be it known that I, HENRY A. STEARNS, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Railway Safety-Gates; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to railway safety-gates, such as are described in Letters Patent of the United States No. 194,383 granted to me August 21, 1877.

My present invention relates more particularly to certain improvements in the construction of the gates, whereby their operation is rendered more effective.

The invention consists, first, in a self-adjusting device, which I call a "goose-neck," and which is pivoted to the lower portion of the hollow gate-post, for the purpose of receiving and guiding the chains or ropes which connect the gate-bars on opposite sides of the track or road, so that they will operate simultaneously, said goose-neck being so connected to the post that it turns in a horizontal plane, and thereby permits of the gates being set at any required angle without requiring alterations or the use of any extra castings.

The invention consists, secondly, in the use of segmental friction-bearings for the shafts of the gate-arms, said bearings being of peculiar construction, and arranged to sustain the weight of and render the gate-bars more easily operated, as hereinafter more fully set forth.

The invention consists, further, in certain combinations of the devices embodied in the construction of the gate.

In the accompanying drawings, Figure 1 is a side elevation, representing a portion of one of the gate-arms, the post being in section to show the construction and arrangement of the operating mechanism arranged within it. Fig. 2 is a side elevation of one of the gate-arms and posts, showing the spring-stop device. Fig. 3 is a plan view of the socket-plate which

forms the pivot for the goose-neck. Fig. 4 is a sectional view of the goose-neck, showing the position of the pulleys therein. Fig. 5 is a plan view of the goose-neck detached. Fig. 6 is a view of one of the bolts which connect the goose-neck with the socket. Fig. 7 is a sectional view of a portion of one of the hollow posts, showing the friction-bearings for the shaft of the gate-arm. Fig. 8 is a plan view showing the construction of the gate-arm.

Referring to the parts by letters, A represents one of the hollow posts, made preferably of metal, and fitted with a removable top or cover, A', the whole being water-tight. B represents one of the gate-arms, which are arranged to swing vertically. The post end of the gate-arm is bifurcated and secured to metal plates or sockets B', which are located one on each side of the gate-post, and rigidly connected together by means of the shaft C, which passes through the gate-post, the latter being provided with suitable journal-bearings, within which the shaft turns. D D are counterbalance-weights, secured to or forming part of a plate, D', which is adjustably secured to the plate B' by means of a screw-bolt, d, which is passed through an elongated slot, b, formed through the plate B'. The plate D' is formed with a lateral groove, into which the plate B' fits. The object of this peculiar construction of the gate-arm and counterbalance-weights is to accurately balance the gate-arm—an object which is accomplished with the greatest accuracy by moving the weights to or from the posts, the slots b in the plates B' permitting of such adjustment.

On the inner side of the post A, immediately beneath the shaft C, segmental bearing-plates E are located, one on each side of the post. The lower ends of these plates E are formed with a circular groove and projecting bifurcated ends e, the grooved portion fitting over a stud, F, secured to the side of the post and constituting the pivot upon which the bearing E turns or rocks.

f f are stop-pins, arranged one on each side of the bearing, to limit the rocking motion of the same.

The shaft C of the gate-arm rests upon and

in close contact with the segmental bearings E, the object being to provide frictional bearings for the shaft, and thereby relieve the gate-post, or that portion of it through which the shaft passes, from frictional contact with the post, the advantage resulting from this arrangement of the parts being that the gate-arm swings with much greater ease.

Friction-wheels might be substituted for the bearing-plates E; but I prefer the latter device, it being more economical and more easily fitted and replaced if necessary.

b' represents a pivoted support for the gate-arm when the latter is closed or in a horizontal position. When the arm is elevated or swung into a horizontal position the support assumes the same position, hanging vertically between the bifurcated ends of the arm.

G represents a pulley, which is rigidly secured to the shaft C, so as to turn with it, though this pulley need not be more than a segment of a pulley. As shown by Fig. 1 of the drawings, a portion of the periphery of the pulley G is notched to receive hooks and nuts *g g'*, the threaded portion of the hooks passing through lugs *g''*. The object of this arrangement of devices is to provide a convenient means for tightening up the chains or ropes which connect the several gate-arms, and the desired object is accomplished by screwing up the nuts *g'*.

H H are guide-pulleys, located in the lower portion of the hollow post A, their function being to guide the operating-chains I I into the goose-neck, to be hereinafter described.

J is the socket-plate of the goose-neck. It is secured to the lower end of the post A on the outside and formed with an exterior annular flange, *j*, having an opening, *j'*, formed through it. It is also formed with an inner annular flange, *i*, which has a projecting lip, the space left between the two flanges *i* and *j* being angular or L-shaped in cross-section, as clearly shown in Fig. 1 of the drawings.

K is the goose-neck proper, its upper portion being provided with a flange which bears against the face of the flange *i* and fits within the periphery of the flange *j* of socket-plate J.

L represents bolts which connect the goose-neck with the socket. As shown by Fig. 6 of the drawings, the head of the bolt is elongated in one direction, so as to fit the L-shaped form of the groove in the socket-plate J, and thereby permit of the goose-neck being turned to any angle in a horizontal plane without becoming disconnected from the socket-plate. In putting the parts together the elongated bolt-heads are passed through the opening *j'* before the nuts are screwed up.

M M are pulleys, located within the goose-neck and journaled on a shaft or bolt, *m*.

N is a duct or passage through which the connecting chain or chains pass beneath the ground or roadway to connect with the other gate arm or arms. It is secured to the goose-neck K in any suitable manner, and may be conveniently made from ordinary iron gas-pipe, the object being to form a water-tight connection with the goose-neck and post, so that all the connections are made water-proof, and no water, snow, ice, or other extraneous matter can get at the operating mechanism or interfere with the free working of the gate.

O represents a spring stop or bunter, located on the outside of the post A in proper position, so that the gate-arm, when raised to a vertical position, will come in contact with its projecting end, as clearly shown by Fig. 2 of the drawings, the object being to break the shock and prevent injury to the parts through any sudden jar caused by the opening of the gate.

In the drawings I have shown a spring inclosed within a cylindrical projection and coiled around a shaft as a suitable device for accomplishing this desired result; but, as will be obvious to those skilled in the art, a piece of rubber or any other convenient form of spring may be used in place of the device I have shown.

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

1. The goose-neck K, pivoted to the hollow post A, so as to turn to any desired angle, in combination with suitable internal mechanism for connecting and operating the gate-arms, substantially as and for the purpose specified.

2. The goose-neck K, pivoted to the hollow post A, and arranged to operate in combination with the pulleys G, H, and M, and the chains or ropes I, substantially as and for the purpose specified.

3. The combination of the pivoted goose-neck K with the hollow water-tight post A and duct N, substantially as and for the purpose specified.

4. The segmental bearings E, constructed as described, and arranged to operate in combination with the studs F, stops *f*, and shaft C, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY A. STEARNS.

Witnesses:

P. E. HAYES,

D. F. STEARNS.