

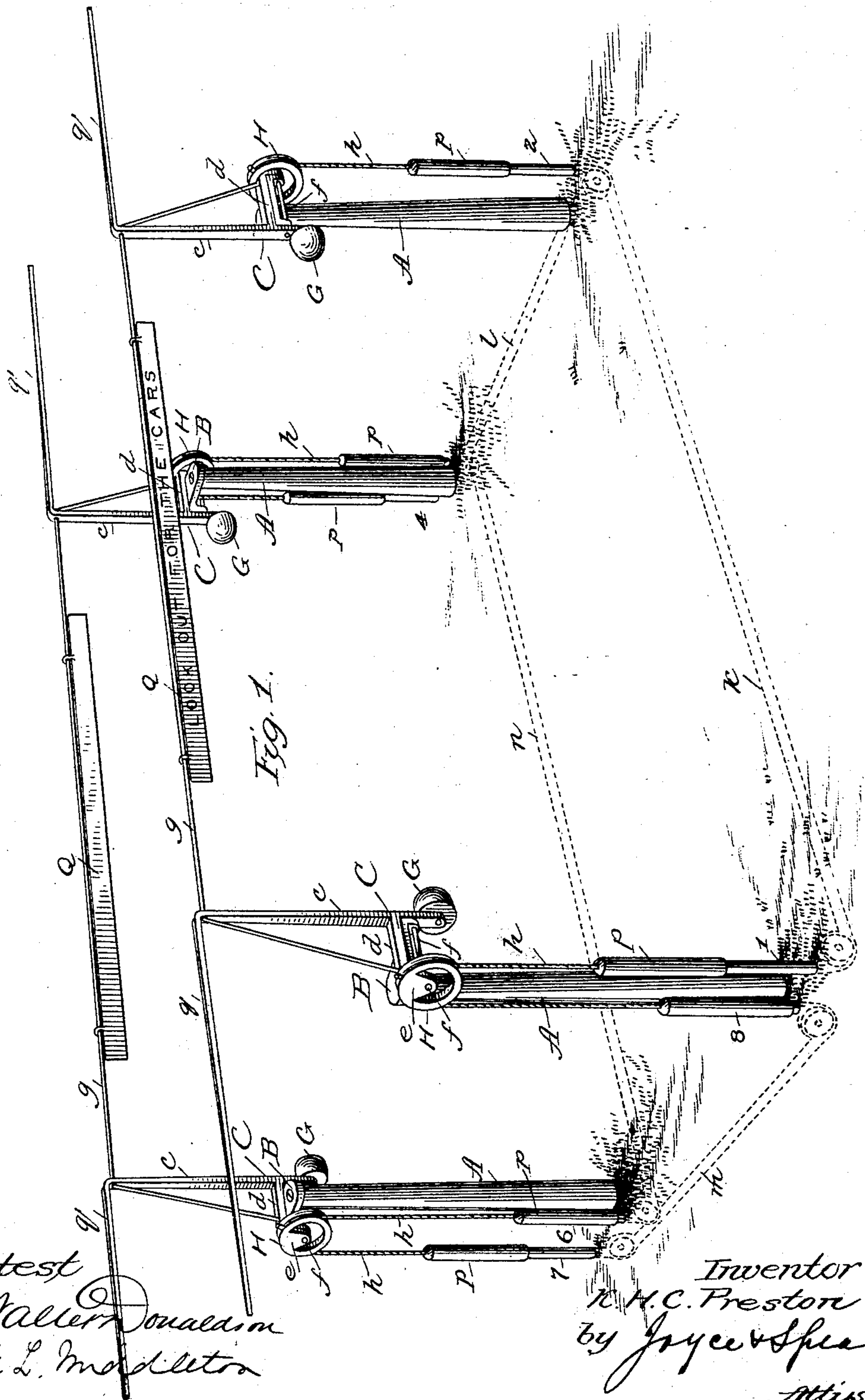
(No Model.)

2 Sheets—Sheet 1.

K. H. C. PRESTON.
GATE.

No. 338,298.

Patented Mar. 23, 1886.



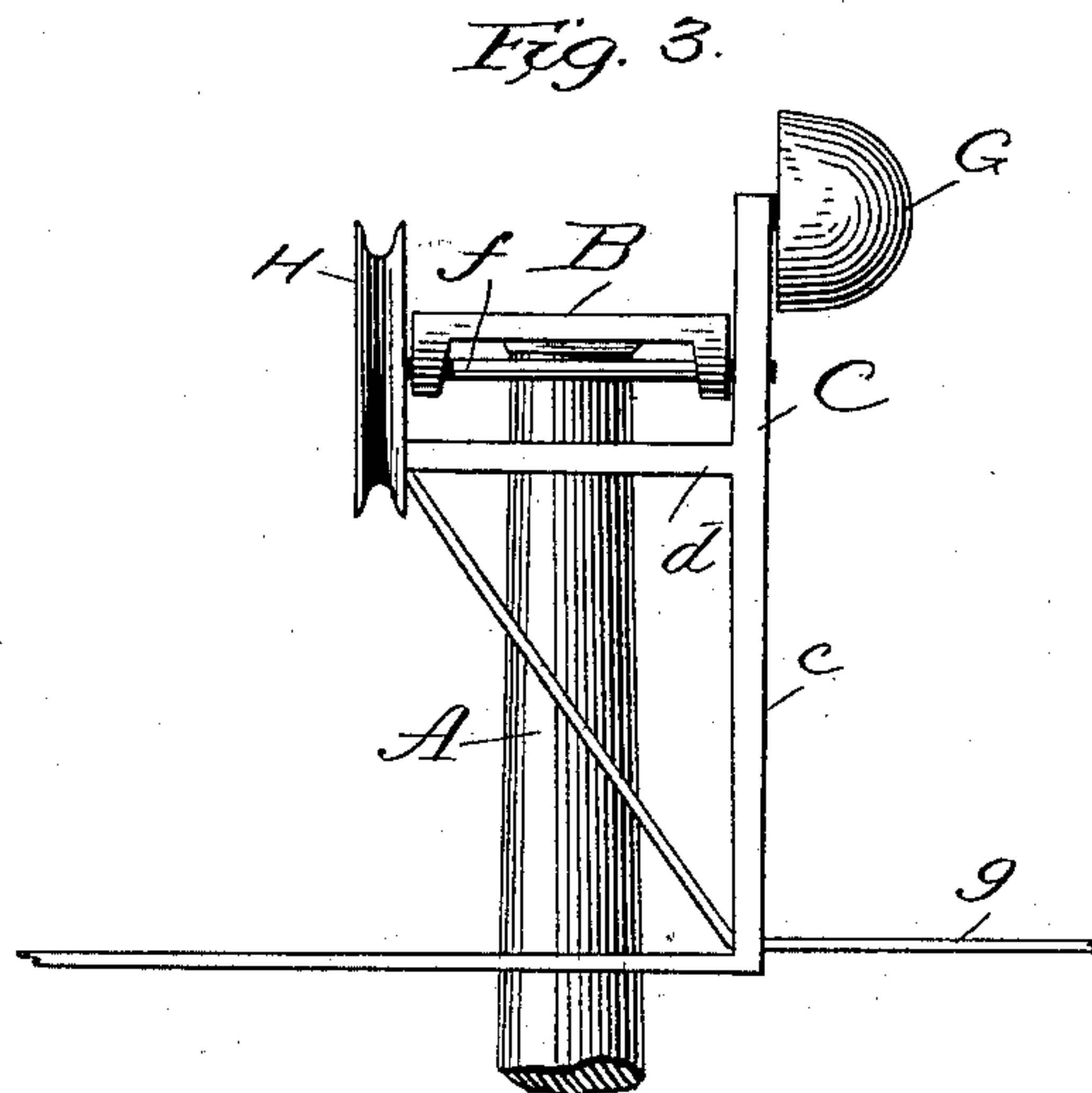
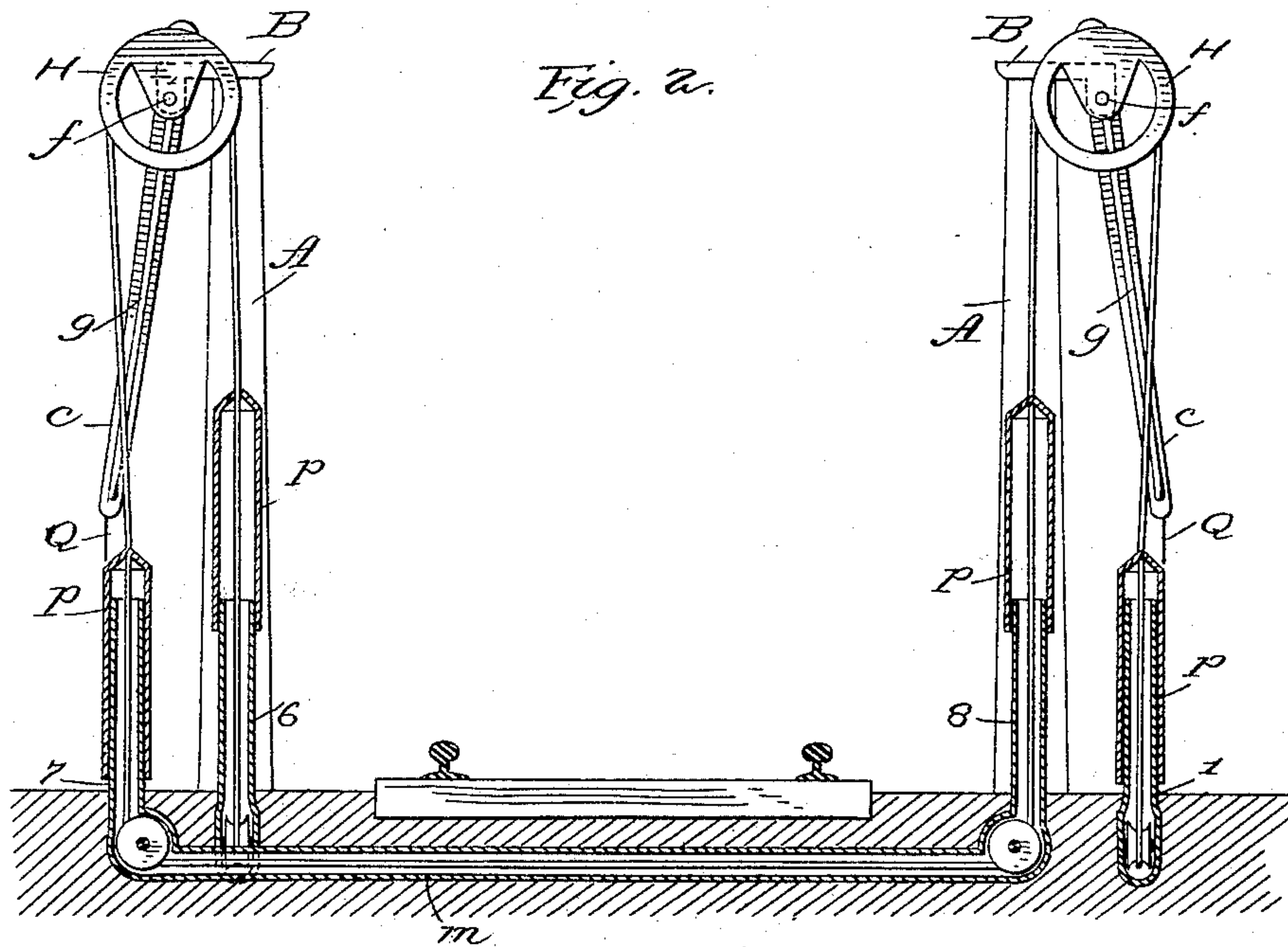
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Attest:
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Inventor
R. H. C. Preston
by Joyce & Spear
Attys.

UNITED STATES PATENT OFFICE.

KING H. C. PRESTON, OF SYRACUSE, ASSIGNOR TO THE COPELAND MANUFACTURING COMPANY, OF NEW YORK, N. Y.

GATE.

SPECIFICATION forming part of Letters Patent No. 338,298, dated March 23, 1886.

Application filed December 26, 1885. Serial No. 186,775. (No model.)

To all whom it may concern:

Be it known that I, KING H. C. PRESTON, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Gates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is an improvement in railway-gates, and designed for the purpose of securing lightness, strength, ease in handling, and economy. It embodies the principle heretofore applied to farm-gates and shown in the United States Letters Patent to Riley, No. 75,792, of 1858, in which the gate is provided with arms which are pivoted to posts on which the arms swing in vertical planes and allow the gate to be swung to a lower position to obstruct the way or to an elevated position to open the way.

In the gate shown in the patent referred to, a stiff-framed gate is used, and provision is made for raising or lowering. Mechanism for this purpose is shown in a similar form of gate described in the United States Letters Patent to Anderson, No. 231,851, of 1880, in which a gear and toothed segment are applied to the pivot or shaft on one side, the gate being short and stiff enough to permit it to be swung up by power applied to one side. Such a stiff and heavy gate could not be used at railway-crossings for the reason that the great length required and consequent weight would render the gate unmanageable. It is therefore impracticable to apply the form of gate shown in the aforesaid patent to railway-crossings with the ordinary means for applying the lifting-power on one end only of the gate, as it could not be raised and lowered. Further, if mechanism were devised for simultaneously raising and lowering both ends, it would still be necessary to devise means for reducing the weight of the gate to adapt it to the length required.

My invention therefore consists of the devices and combination of devices hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 is a perspective view of the gates in their raised position, the underground connections being shown in dotted lines. Fig. 2 is a view rep-

resenting in elevation the gates and their supports upon opposite sides of the railway, and in section the conduit for the operating rope or chain. Fig. 3 is a detail view of one of the gate-bars and its post.

In the drawings, A represents the posts which support the gate. They are set upon opposite sides of roads or railways. These posts are not extended to the full height of the gate when raised, but may be ten feet high, more or less, according to the height required. Upon these posts are set iron caps B, and on these are pivoted the frames C. Each frame consists of a vertical bar, *c*, and horizontal arm *d*, the outer end of which is provided with an ear, *e*. Through this ear and through ears on the cap and through the vertical bar *c*, extends a bolt, *f*. This forms an elongated bearing to sustain the strain of the wire. It will be understood that the caps are the same on all the posts, and the frames on one side of the railway are connected by a wire, *g*, which is shown as running through holes in the ends of the frames, and thence down to the outer end of the arm *d*, to which the wire is attached; but the wire may be attached to the outer or free ends of the arms *c*, and a separate rod, chain, or bar be carried down to the end of the arm *d*. The arm *c* may be, for example, six feet long from the pivot when swung up. Therefore, as shown in Fig. 1, the wire *g* will be suspended sixteen feet above the roadway; but when the arms are swung down to a vertical position the wire will be suspended four feet from the roadway, and the wire then forms a barrier to obstruct the road and prevent teams from crossing the railway when a train is approaching. The gate being duplicate and on both sides of the railway, any one is barred from approach in either direction.

In order to balance the longer ends of the arms and the weight of the wire, I place weights G on the shorter ends of the arms sufficient for the purpose.

In order to move the frames which carry the wire *g* simultaneously at both ends of the gates, I form connections by means of pulleys passing through gas-tubes placed underground. Pulleys H are fixed to the outer ends

of the arms *d* and concentric with the pivoted bolts of the frames. The pulleys are grooved, and the rope or chain *h* passes over them. The rope extends from one pulley down
 5 through a vertical gas-pipe, 1, over a small pulley in the bend of the gas-pipe, and from this bend through a connected gas-pipe, *k*, over another pulley in the bend, and there-
 10 from up through a vertical piece of connected pipe, 2, thence over the grooved pulley at the other end of the gate and down through another piece of vertical gas-pipe, over a pulley in the bend at the bottom, and through a hori-
 15 zontal piece of pipe, 1, under the railway, over a pulley in its end and up its vertical connecting-piece 4, over the grooved pulley on the frame, and down through another vertical pipe, 5, over a pulley in the bend thereof, and through a connected horizontal pipe, *n*, ex-
 20 tending under the roadway, to a vertical extension thereof, 6, thence over the fourth grooved pulley on the frame and through another horizontal pipe, *m*, under the railway, which has upright ends 7 8 and pulleys, such
 25 as have been heretofore described. Then the end of the rope is connected to the other end brought over the first pulley. The rope is marked *h*, and forms a continuous connection between the four pulleys on the ends of the
 30 gates. The power may be applied by hand at any exposed point in the rope to move the gate, and it acts simultaneously on both ends on both of the gates. The joints in the pipes at the bends are made tight, and the pipes are
 35 filled with mineral oil or some other suitable non-freezing lubricating material, so that the rope is caused to pass easily. Over the upper ends of the pipes I place a tubular cap, *p*, which is attached to the rope, and is made long
 40 enough to allow all the movement necessary of the rope in swinging the gate without uncovering the pipe. These caps prevent water or dirt from falling into the ends of the tubes, and there is no appreciable waste of the oil in
 45 the movement of the rope.

I have shown wires extended between the arms to form the barrier, and these are conveniently strong and little exposed to the ac-

tion of the wind. I also form the arms of thin material, so as to be exposed as little as possi-
 50 ble laterally to the force of the wind. In order to render the barrier more plainly visible, I suspend upon the wires signs *Q*. These may extend the whole or only a part of the way across the railway. They are suspended from
 55 the wire so as to turn freely and always to hang down by their own weight, but they are made of any suitable thin and light material, and a lantern may be suspended in the same
 60 manner from the wires in the night-time.

When there is a sidewalk outside of the posts, I place an arm, *q*, on the end of each arm *c*, and extend it horizontally across the sidewalk.

I claim as my invention—

1. In combination, the end frames pivoted upon supporting-posts, a wire stretched between the ends of the arms *c* of said frames, the grooved pulleys secured to said frames, and the connecting-ropes, substantially as de-
 70 scribed.

2. The combination, in a railroad-gate, of supporting-posts, end frames pivoted upon said posts, having suitable operating-pulleys and a connecting rope or chain, a wire stretched
 75 between the arms *c* of said frames to form a barrier across the road, and a supplemental arm, *q*, extending at right angles to the arm *c* and adapted to form a barrier across the sidewalk, substantially as described.
 80

3. In combination with the gates, their pulleys and the connecting-ropes, the pipes having upturned ends, the filling of non-freezing lubricant, and the protecting-caps *p*, substan-
 85 tially as described.

4. In combination with the gates, the ropes, and the pipes having upturned ends, the tubular caps attached to the ropes, substantially as described.

In testimony whereof I have signed my name
 90 to this specification in the presence of two subscribing witnesses.

KING H. C. PRESTON.

Witnesses:

CHAS. H. PRESTON,
 JOHN C. KEEFFE.