

(No Model.)

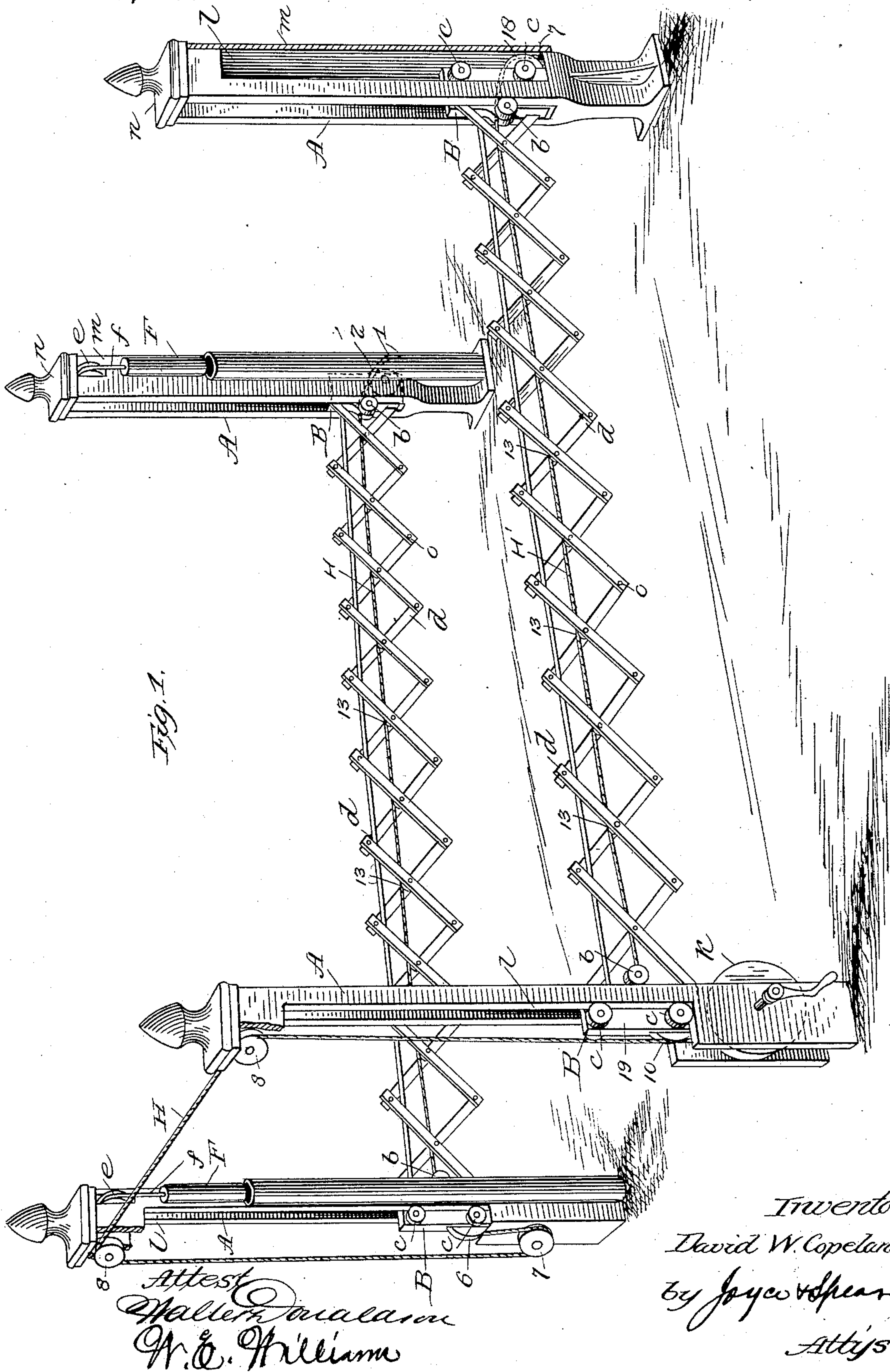
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D. W. COPELAND.

RAILWAY GATE.

No. 353,481.

Patented Nov. 30, 1886.



(No Model.)

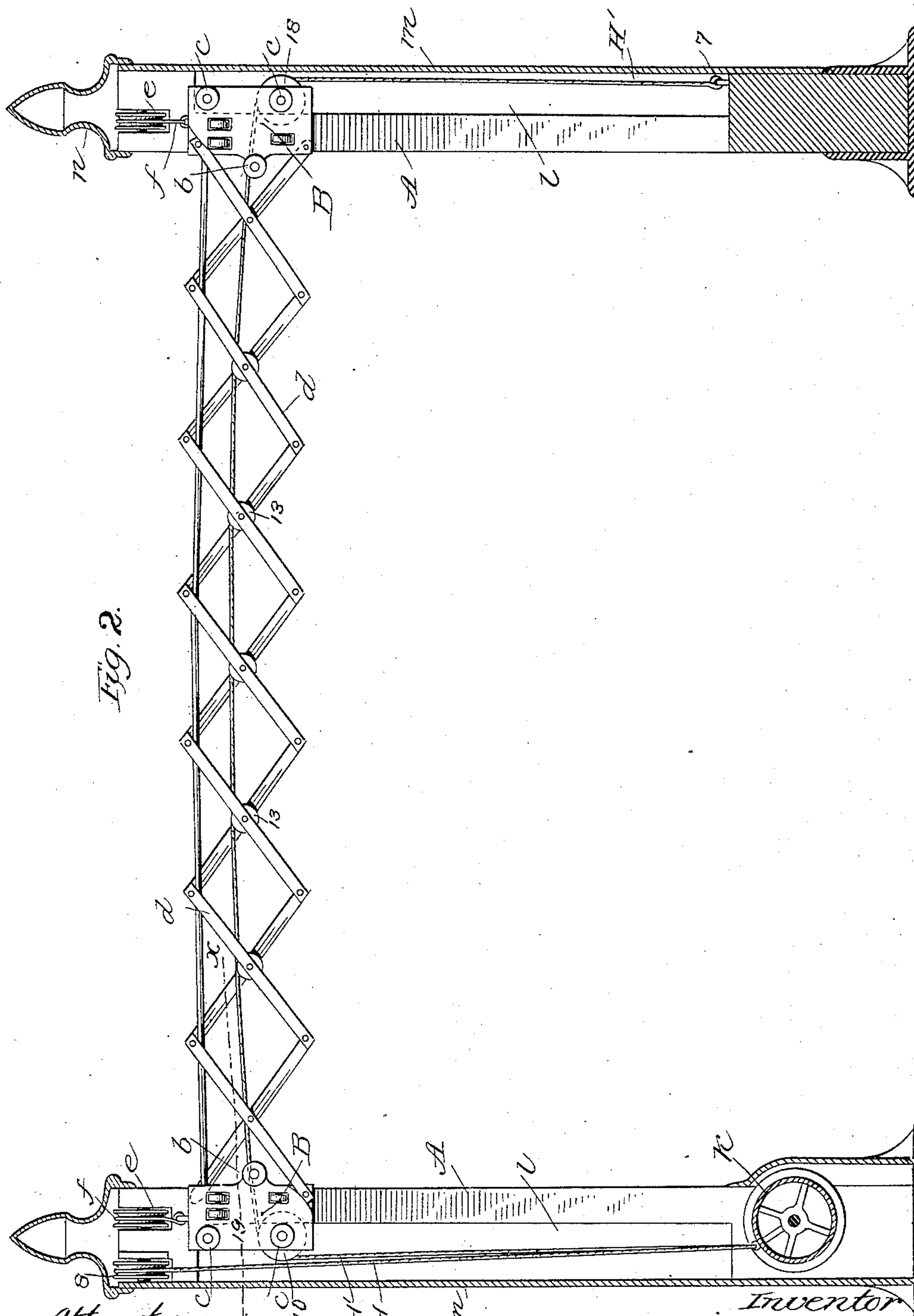
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Attest: 
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Inventor
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Attys

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3 Sheets—Sheet 3.

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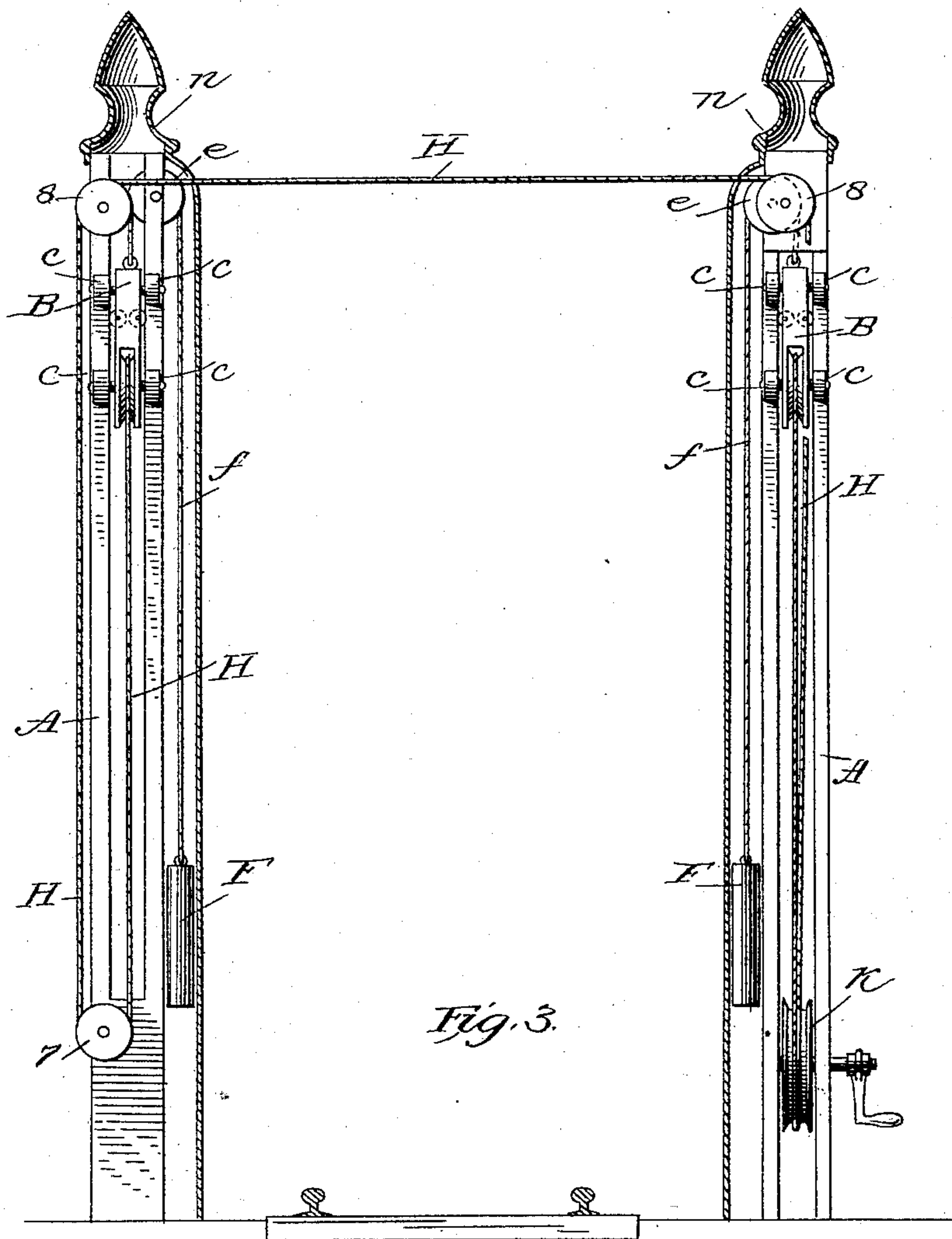


Fig. 3.

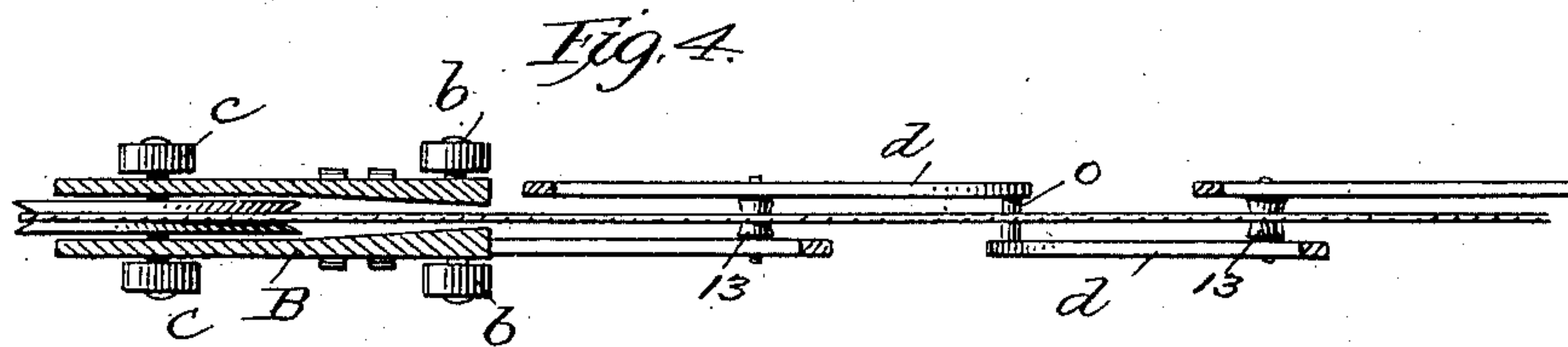


Fig. 4.

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UNITED STATES PATENT OFFICE.

DAVID W. COPELAND, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE
COPELAND MANUFACTURING COMPANY.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 353,481, dated November 30, 1886.

Application filed September 17, 1885. Serial No. 177,374. (No model.)

To all whom it may concern:

Be it known that I, DAVID W. COPELAND, of Syracuse, in the county of Onondaga and State of New York, have invented a new and
5 useful Improvement in Railway-Gates; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to railway-gates of the class designed to obstruct the passage on streets
10 or roads crossing railways.

The vertical swinging gates heretofore known or used are efficient in many respects, but are slow moving, and, being composed of single bars, are not plainly visible, and are
15 liable to be caught by passing carriages or wagons before the gate is raised out of the way. Such gates also do not afford a complete obstruction of the way.

My object is to provide a gate easily handled, quickly lowered and raised, and capable of affording a complete and easily-seen obstruction to bar the passage across the railway in front of the trains. I also propose to arrange the ropes or chains which simultane-
25 ously move the gates on each side of the railway above the way, instead of placing them in tubes under ground, thereby avoiding any obstruction by reason of ice, and also rendering the mechanism easily accessible for repairs.

30 In the accompanying drawings, Figure 1 is a perspective view of my improved gate lowered. Fig. 2 is a side elevation of the gate raised. Fig. 3 is an end elevation. Fig. 4 is a detail sectional view on line *xx* of Fig. 2.

35 In the drawings are shown four posts, each marked A, one of the posts standing at each of the corners formed by the railway and road or street crossing the railway. Each of these posts is formed with a slot whose sides are
40 parallel with the railway. The slots in the posts begin at the point where the gate is to rest when down, and extend to or near the upper end of the post sixteen feet, (more or less,) according to the height required of the gate
45 when raised. In these slotted posts slide thin blocks or plates B. They are provided with anti-friction rollers—one, *b*, on one side, and others, *c c*, on the other side—bearing on the edges of the post, and maintaining the blocks
50 in vertical position as they are raised or low-

ered. To the upper part of the blocks or plates, on each side of the railway, is fixed a light truss consisting of struts *dd*, which may be either of wood or metal, and are light and strong. To give additional strength, I stretch
55 in each truss in the upper part a wire from block to block, the wire passing between the upper ends of each strut. This may be attached to each strut, and thus afford both vertical support and resistance to lateral strain
60 caused by the wind. On the upper part of each post, and on the inner sides, I place a sheave, *e*, over which runs a rope or chain, *f*, one end being connected to the upper end of the block and the other to the weight F. These
65 weights are sufficient to raise the gates when they are released from downward strain. The weights F also preferably run in tubes, which are covered at the top to exclude rain or snow. At the point 1 on one post I attach the work-
70 ing rope or chain H. This rope or chain runs around a sheave, 2, in the block of that post through a horizontal hole in that block, and through a like hole in the block in the next post on the same side of the railway, passing,
75 preferably, through suitable guides between the bars of the truss, and over a pulley, 6, in this block. Thence it passes down around a pulley, 7, on the lower part of the post and up over a pulley, 8, on the top of the post,
80 and thence across overhead to a similar pulley on the top of the opposite post of the other side of the railway, and down to a drum, K, on which it is wound for working. Another rope or chain, H', is fastened at a point, 7, on
85 the post opposite the post last specified, on the same side of the railway therewith. This rope runs up over a sheave, 18, in the block of that post, thence through a hole in the block of the sheave 18, and across through a hole in the
90 block 19 at the other end of the truss, and over a pulley, 10, and thence down to the drum K. By turning this drum the two ropes H H' are wound up and the gates pulled down, both ends of both trusses moving uniformly at the
95 same time.

I prefer to cut away the edges of the posts, as shown at *l*, leaving recesses for the outer pulleys to run in, and I box up the posts by casings *m* and cover the tops with plates or
100

hoods *n*, to exclude snow or rain. I have also provided small friction-rollers on the upper and lower edges of the blocks, that bear against the walls of the slot, and take up the friction caused by the lateral pressure of the wind. Sheaves 13 at the joints of the bars *d* may be employed to lessen the friction on the rope or chain.

I may vary the construction of the trusses; but that shown is light and strong, and easily sustains the weight of lanterns or signal-flags.

There is no lateral strain upon the posts, and they require no bracing.

I prefer to separate the struts of the trusses by blocks *o o*, as shown in Fig. 4, interposed between their points of crossing, which leaves a space for the wire and rope. The drum is worked by an ordinary crank, and the gate is brought down by very few revolutions. The weights also quickly raise the gates upon release of the force which holds them down.

The arrangement described, by which the operating-rope of one side is carried over to the other side on the tops of the posts, saves the expense of an underground tube for the rope, and prevents any obstruction from ice. It also renders the rope or chain more accessible for repairs.

I claim as my invention—

1. In combination, the posts *A*, the vertically-sliding gates, and the rope *H*, secured to the post *A* at the point 1, passing through the gate upon one side of the railroad over pulley

7 at the base of the post, up over pulleys 8 8 on the upper ends of the posts *A*, and from thence to a winding-drum, substantially as described.

2. In combination, the slotted posts *A*, the blocks provided with anti-friction rollers sliding therein, the trusses extending across the road, secured to said blocks at either end and moving therewith, a winding-drum, and ropes *H H'*, the rope *H* being secured to one post, passing through the truss to the post opposite, and from thence overhead to the winding-drum, and the rope *H'* being secured to its post and passing through the truss to the drum, substantially as described.

3. In combination, slotted posts, blocks sliding therein, having suitable anti-friction pulleys, and pulleys for supporting the operating cords or chains, trusses secured to said blocks and moving therewith, and ropes or chains *H H'*, connected to posts upon opposite sides of the railroad, passing over pulleys carried on said sliding blocks and on the posts to a winding-drum, and the weights connected to each of said sliding blocks, substantially as described.

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

DAVID W. COPELAND.

Witnesses:

W. C. DUVALL,
WALTER DONALDSON.