

(No Model.)

R. W. HALE.
AUTOMATIC BRIDGE GATE.

No. 323,034.

Patented July 28, 1885.

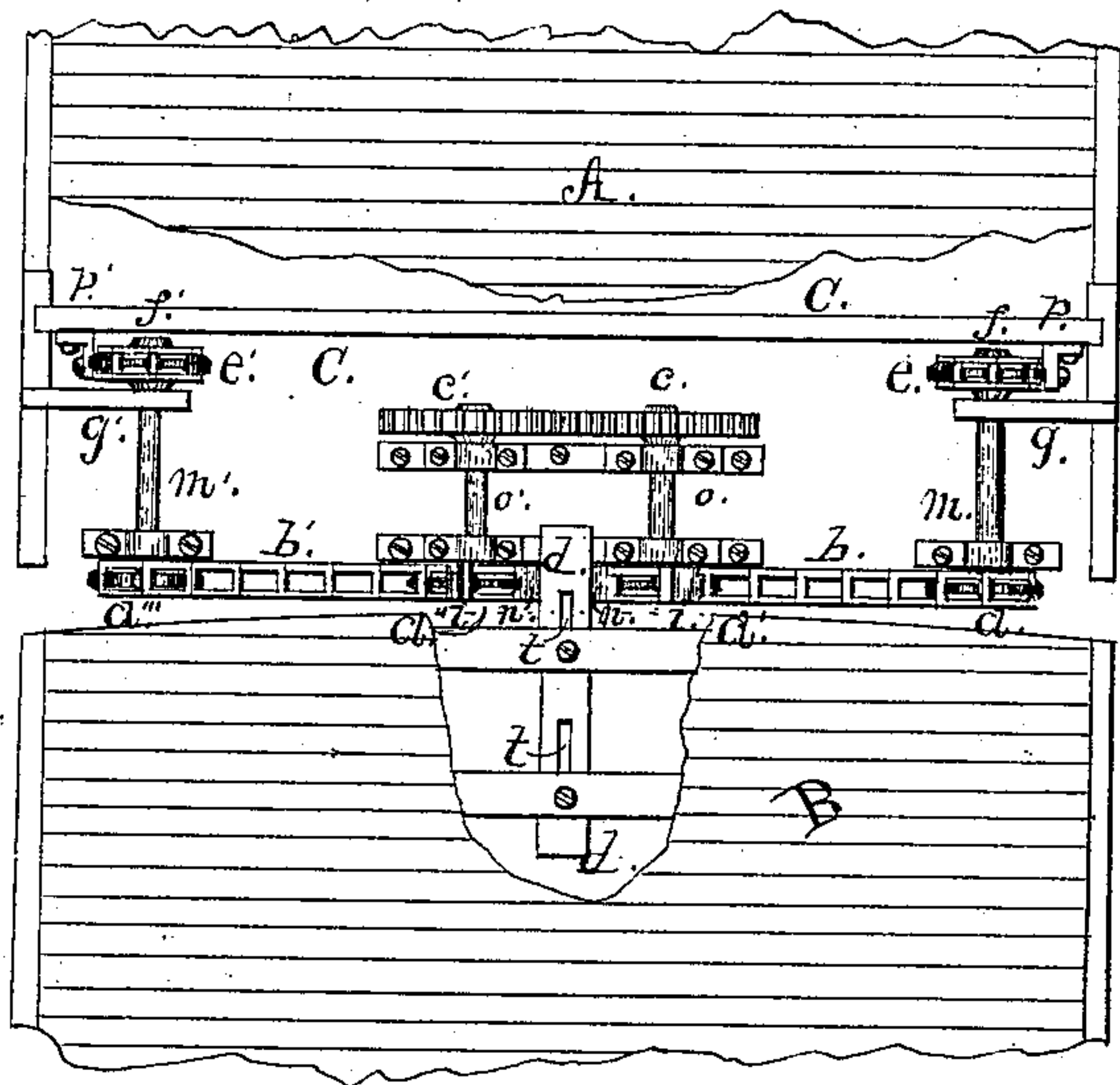


Fig. 1.

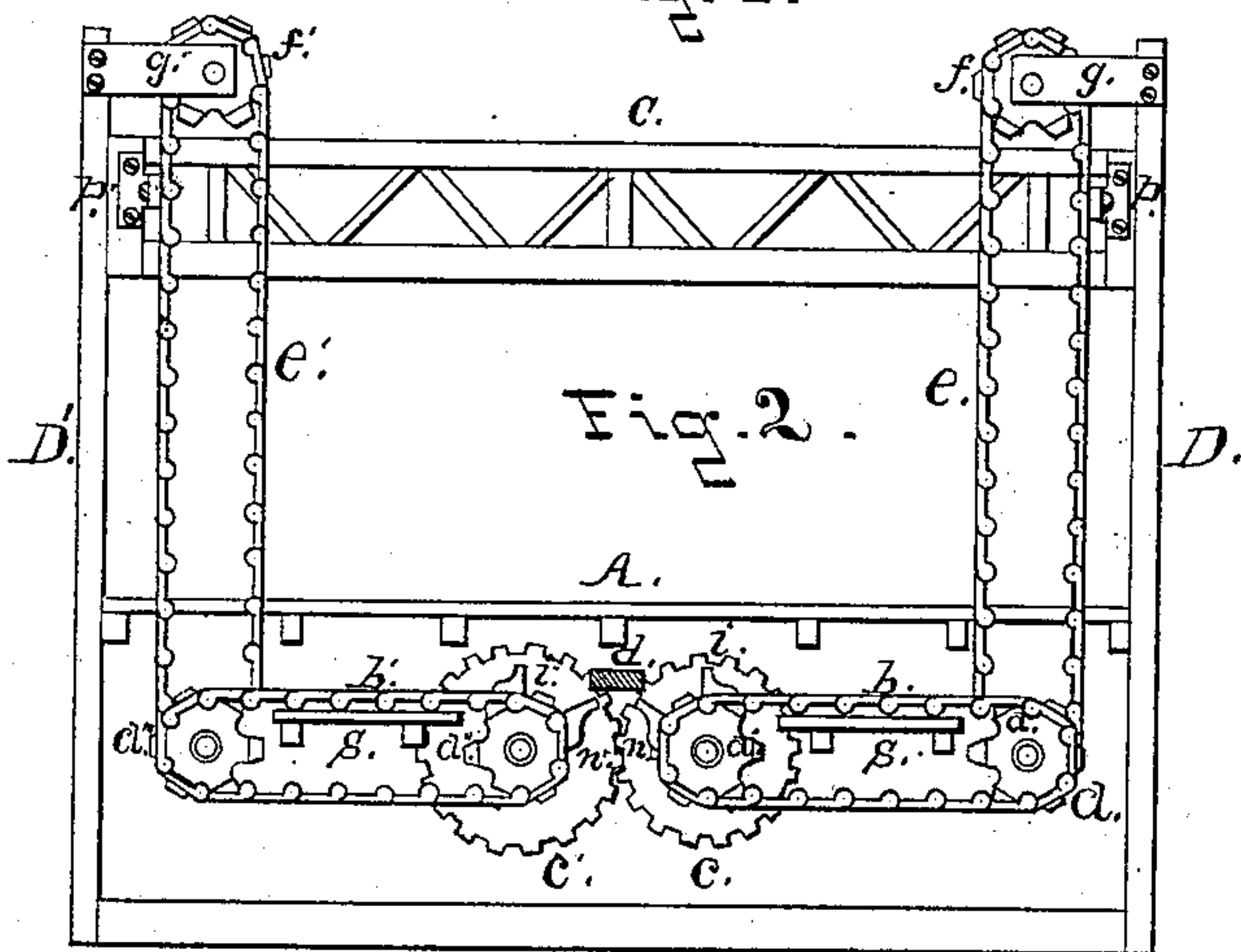


Fig. 2.

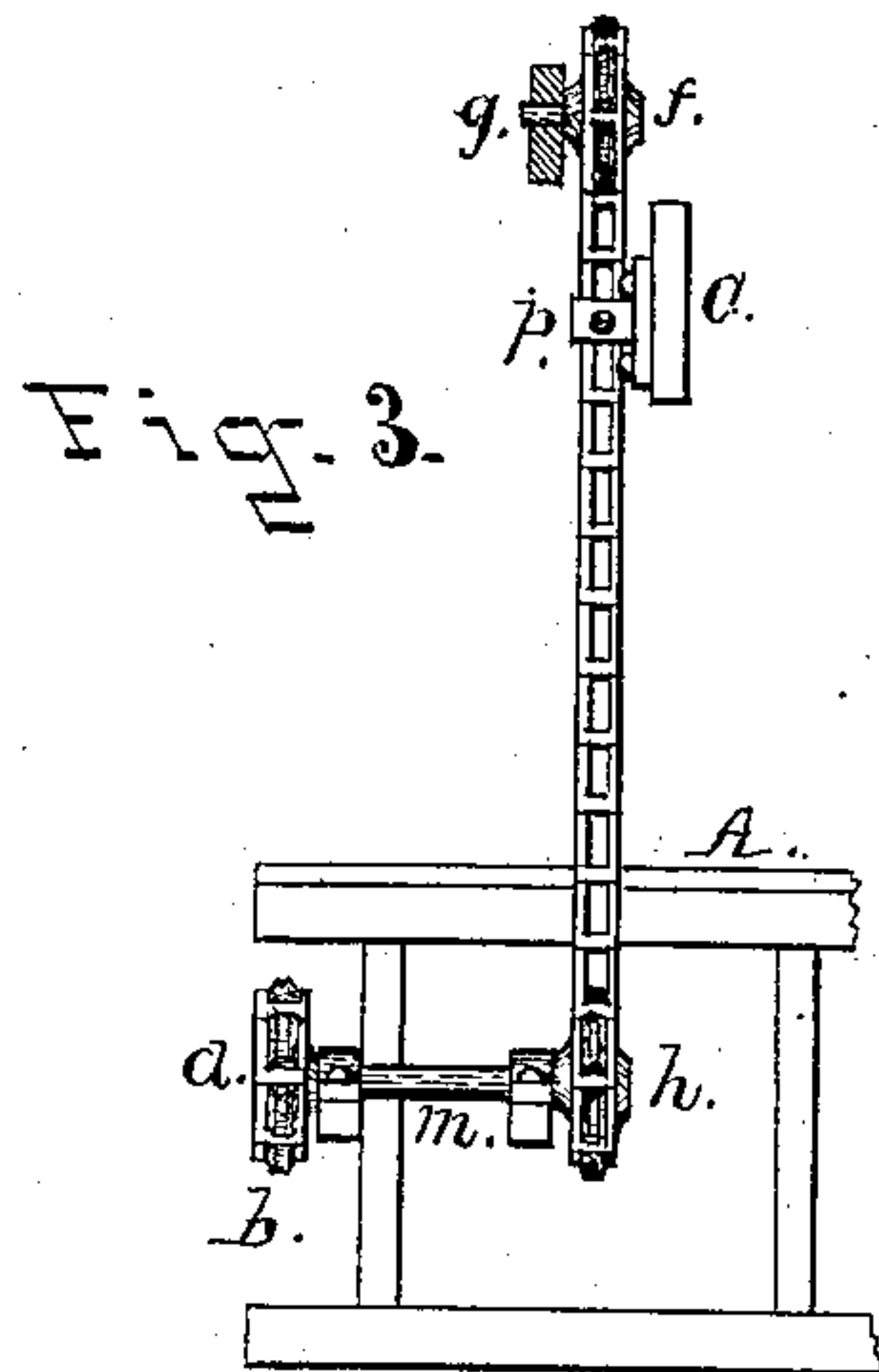


Fig. 3.

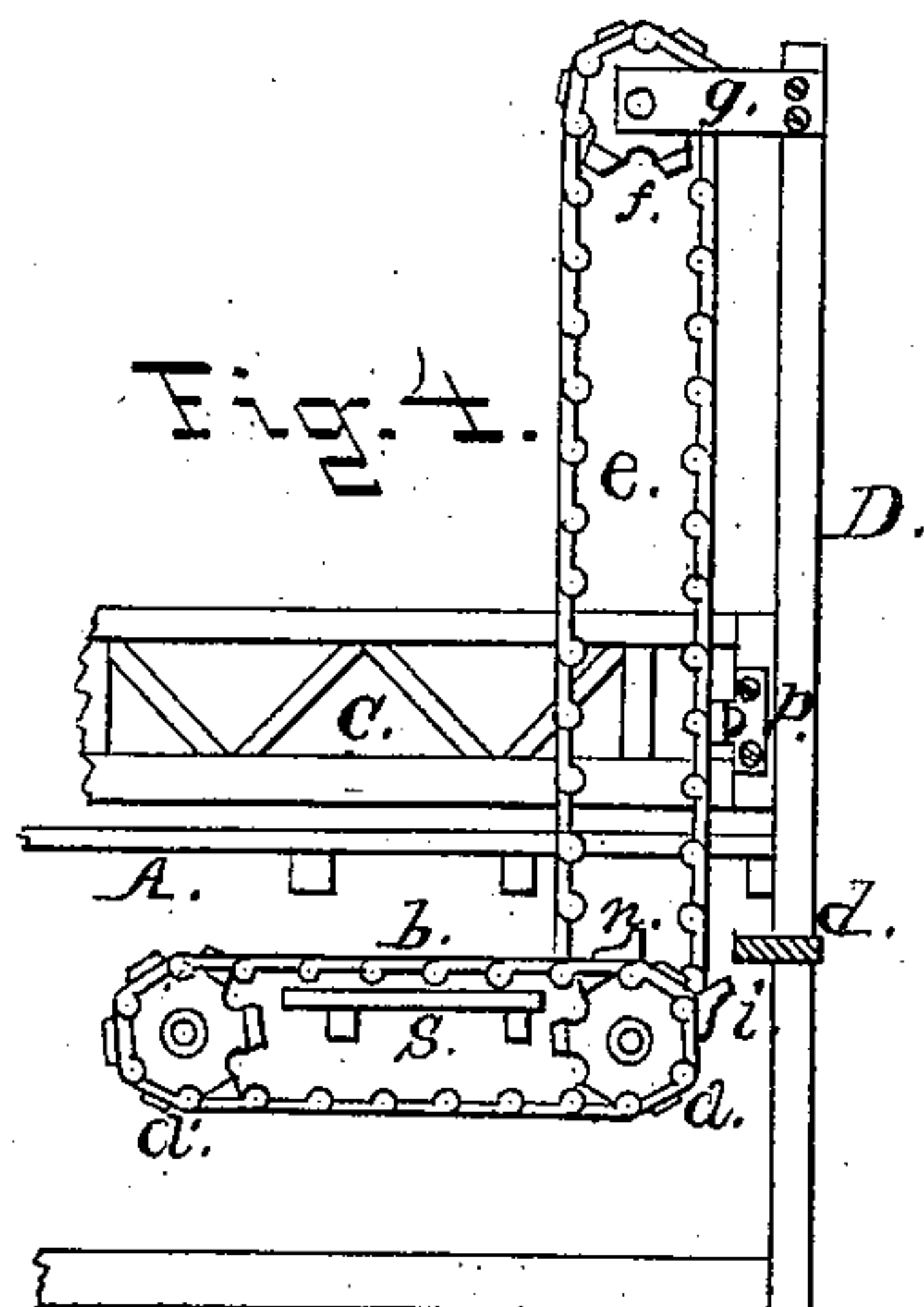


Fig. 4.

ATTEST:

M. R. Thomas
C. P. Thomas

INVENTOR:

Roswell W. Hale.
By James E. Thomas
Attorney.

UNITED STATES PATENT OFFICE.

ROSSWELL W. HALE, OF WEST BAY CITY, MICHIGAN, ASSIGNOR TO ALLSON TRUDO AND JOHN K. SAUNDERS, OF SAME PLACE.

AUTOMATIC BRIDGE-GATE.

SPECIFICATION forming part of Letters Patent No. 323,034, dated July 28, 1885.

Application filed April 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROSSWELL W. HALE, a citizen of the United States, residing at West Bay City, in Bay county, and State of Michigan, have invented a new and useful Automatic Bridge-Gate, of which the following is a specification.

Bridges which span navigable streams are usually provided with a portion which may be drawn or swung around, in order that vessels and boats may pass through, and while this portion or draw remains open or away from the stationary parts of the bridge accidents are liable to occur, as the roadway of the bridge is open to the stream where it would be closed by the draw were it in its usual position; and the object of my invention is to provide a means of closing the open end of the roadway at such times as the draw may be opened; and it consists, chiefly, of a gate placed in a position across the stationary part of the bridge and near the end of the draw, and arranged to be raised or lowered out of the way of passing teams, &c., while the draw remains closed, and lowered or raised automatically to the roadway when the draw is being opened, the said operations being performed by means of the mechanism hereinafter more fully described and claimed.

Figure 1 is a plan view of a portion of a bridge to which my invention is attached. Fig. 2 is a transverse elevation of the same, showing position of the machinery when the draw is closed. Fig. 3 is a detached view showing the same when the draw is open. Fig. 4 is a side elevation of Fig. 2.

Similar letters refer to similar parts throughout the several views.

A represents a portion of the stationary part of the bridge, and B is the end of the draw which joins on the part A when closed, and may be swung to the left or right to open the way for the passage of a craft in the stream.

Across the stationary portion A, and near the edge of the draw B, is placed the gate C, the ends of which slide in grooves provided in the upright standards D and D', which are attached to the sides of the part A of the bridge for the purpose of carrying and guiding the gate.

At the top or upper end of the upright pieces D, and firmly secured thereto, are the

brackets g and g' , to which are secured in a suitable manner the sprocket-wheels f and f' . Over these sprocket-wheels are passed the drive-chains e and e' , which also pass below the floor of the bridge and around the sprocket-wheels h and h' , located in a line with and below the sprocket-wheels f and f' . The wheels h and h' are attached to the ends of the shafts m and m' , which extend to the edge of the stationary part A of the bridge, and are provided at their opposite or outer ends with sprocket-wheels a and a'' . The outer ends of the gate C are provided with the lugs p and p' , which are also attached to the drive-chains e and e' .

In a line with and midway between the wheels a and a'' , and attached to the outer ends of the shafting o and o' , are placed the sprocket-wheels a' and a''' , the wheel a' being connected by the drive-chain b to the wheel a , and the wheel a''' connected to the wheel a'' by the drive-chain b' . The inner ends of the shafts o and o' are provided with the gear-wheels c and c' , which are arranged to engage with each other, so that power applied to either of the drive-chains b or b' will move all the parts at the same time.

Attached to the middle part of the draw B, and having one end extending over and between the drive-chains b and b' , is located the bar d , and to the drive-chains b and b' are secured the lugs i and i' and n and n' in such a position that when the gate C is raised to its highest position and the draw B is closed the lugs i and i' will be on opposite sides of the bar d , as shown in Fig. 2, and as the draw B is swung around for opening the draw the bar d engages with the lug i and moves it, with the upper portion of the chain b , to the side of the bridge, and the lug i , passing over the sprocket-wheel a , is carried below the bar d , which leaves it and passes on, leaving the lug n above the sprocket a , as shown in Fig. 4, to be caught by the bar d on its return, when the draw is again closed and carried back to its former position.

By the motion imparted to the chain b the chains b' and e and e' are actuated, and the gate C is lowered across the roadway when the draw is swung open, as illustrated in Fig. 4, and raised above the roadway when the draw is again closed, as shown in Fig. 2.

The bar *d* is provided with the slots *t*, through which pass the fastening-bolts which secure it to the draw B, in order that it may be moved back beneath and allowed to pass without engaging with the lugs *i*, should it be desirable so to do.

Beneath the upper portion of the drive-chains *b* and *b'*, as shown in Figs. 3 and 4, is placed a slide, S, for guiding and holding the chain in a true and level position while being acted upon by the bar *d*. The gate C may also be located below the roadway, a suitable passage being left in the roadway for the same, and the hereinbefore-described mechanism will raise the gate C above the roadway by attaching the lug *p* to the opposite side of the chain *e*, and it will again be lowered to its former position when the draw is closed. It will also produce the same result should the draw B be swung in either direction or swung entirely around, the opposite end being provided with a second bar, *d*, which will actuate either chain *b* or *b'*, as when the draw is open the lugs *n* and *n'* stand at either side ready to engage with the bar *d* when the draw is swung into position.

Having fully described my improvement,

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

1. In an automatic bridge-gate, the stationary part A and the draw B, provided with the bar *d*, in combination with the drive-chains *b* and *b'*, provided with the lugs *i* and *i'* and *n* and *n'*, as described, the sprocket-wheels *a*, *a'*, *a''*, and *a'''*, shafts *o* and *o'*, gear-wheels *c* and *c'*, shafts *m* and *m'*, sprocket-wheels *h* and *h'*, drive-chains *e* and *e'*, lugs *p* and *p'*, and gate C, located and arranged to operate substantially as hereinbefore set forth and described.

2. In mechanism for operating a bridge-gate, the combination of the horizontal drive-chains *b* *b'*, provided with the lugs *i* and *n*, and the slides S, located beneath the upper part of the said chains, with the bar *d*, attached to the draw B, and adapted to engage with the said lugs *i* and *n*, or to be withdrawn from contact with the said lugs, substantially as described, and for the purpose set forth.

ROSSWELL W. HALE.

Witnesses:

G. H. FRANCIS,
J. E. THOMAS.