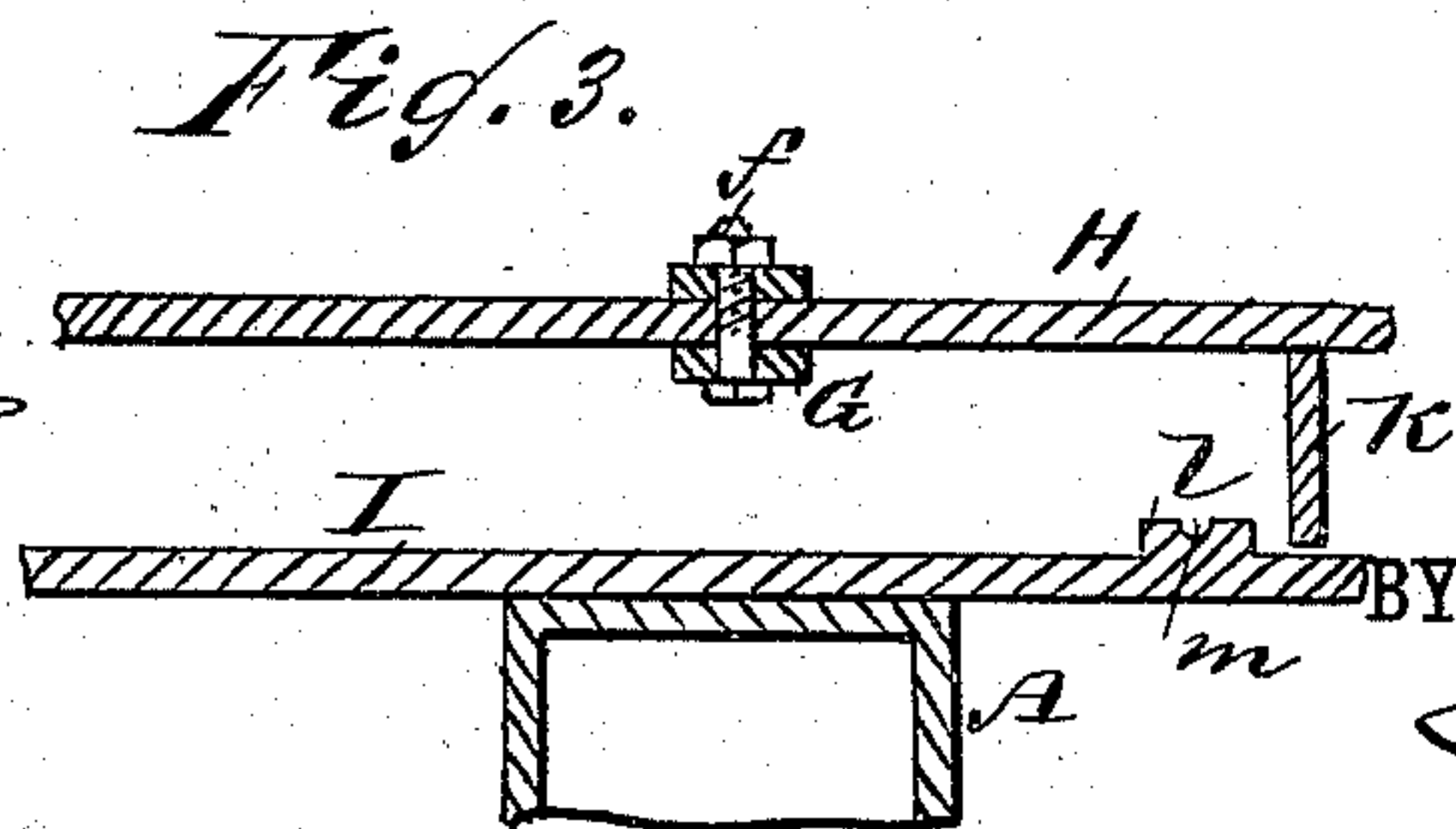
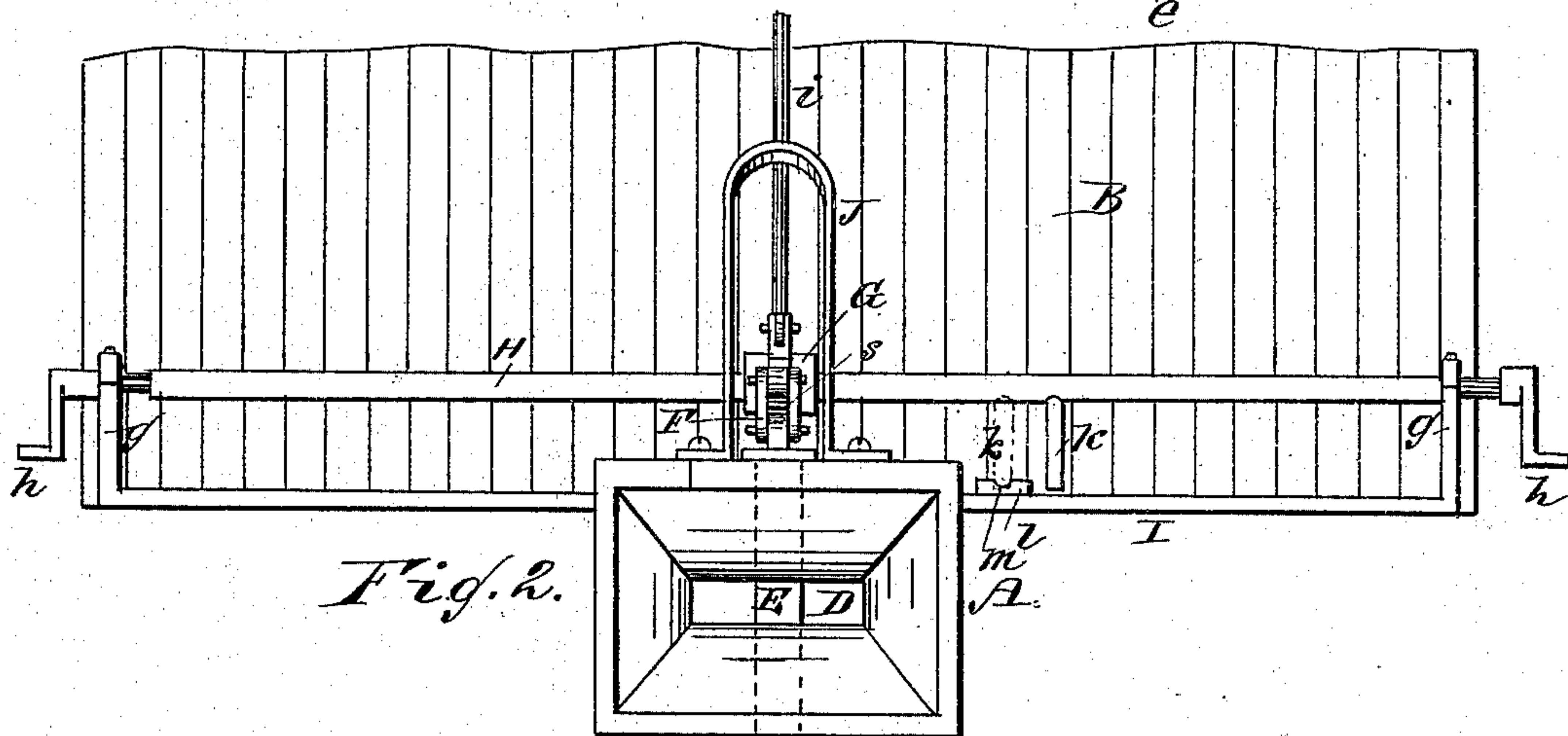
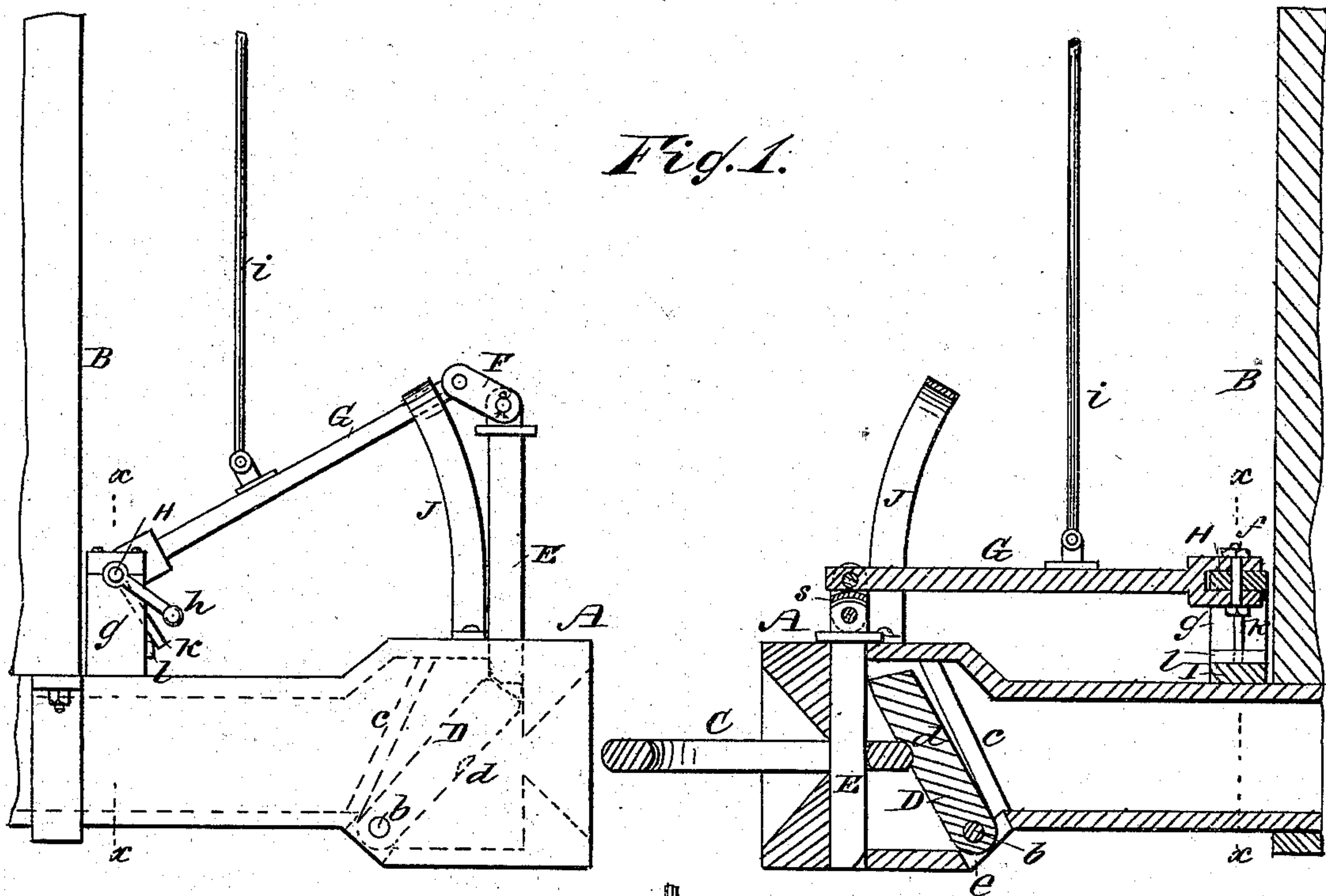


(No Model.)

E. D. CAIN.
CAR COUPLING.

No. 273,949.

Patented Mar. 13, 1883.



WITNESSES:

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EPHRAIM D. CAIN, OF WINIGAN, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 273,949, dated March 13, 1883.

Application filed December 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM D. CAIN, of Winigan, in the county of Sullivan and State of Missouri, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full, clear, and exact description.

This invention, although applicable as a coupling for railroad-cars generally, will be found particularly adapted to freight-cars, and, taken as a whole, forms a strong, reliable pin-and-link coupling, which may either be operated automatically or by hand from opposite sides of the car, or from the top of it, and avoids all risk of accident to train-men. Furthermore, it may be readily applied to the draw-heads in common use with the ordinary form of coupling-link, and provides for uncoupling standing cars which are not required to be immediately separated, and holds the link in position in one draw-head and the coupling-pin raised in an adjacent draw-head, ready for coupling at any time that may be required by merely dropping the raised pin.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a side view of the improved coupling applied to one end of a car, and a longitudinal vertical section of a like coupling on the adjacent end of another car, separated one from the other, but ready for making connection by running the cars together. Fig. 2 is an outside face view of the end of a car-body with the coupling applied, and Fig. 3 a vertical section on the lines $x x$ in Fig. 1.

A in the drawings indicates the draw-head, and B the end of a car to which it is applied. The mouth and throat of each draw-head is made flaring in various directions, and admits of a straight coupling-link, C, being used when the height of the contiguous draw-heads is only slightly different, and whereby, also, facility is afforded for coupling on grades or curves. When the cars to be coupled, however, are of a materially different height, then a curved coupling-link may be used.

Arranged within either draw-head, back of its flaring mouth, is a "trap" or leaf, D, piv-

oted below, as at b , and set inclining forwardly in an upward direction, subject to a range of motion which is restricted by a back strip or stop, c , on either side and the back of the flaring mouth. This leaf is notched, as at d , to receive one end of the coupling-link within it, and, in connection with the throat of the flaring mouth of the one draw-head, serves to hold the link straight, with the coupling-pin E through it, as shown to the right hand of Fig. 1, while a similar trap or leaf D in the adjacent draw-head of a contiguous car serves to support upon it the raised coupling-pin E of said draw-head, as shown to the left hand of Fig. 1. This double use of either leaf D provides for a sure but quick automatic coupling of the cars by simply running the one car toward the other, so that the forward end of the link forces back the pivoted leaf of the one draw-head and allows its raised coupling-pin E to drop.

Each draw-head has an opening, e , in its bottom, to facilitate the placing of the trap or leaf D in position, and for removing it when required.

The coupling may be operated by the ordinary hand appliances or automatically, as desired.

Either coupling-pin E is jointed at its upper end, by a link, F, to an arm, G, having a curved bearing strip or block, s , connecting the opposite sides of said link, between the under side of said lever and upper end of the pin, to relieve the joint-pins of the link of shock or strain. This arm G is attached in its rear, by a bolt, f , to a rock-shaft, H, extending across the end of the car, and having its bearings in uprights g on the opposite ends of a cross-frame, I, mounted on the draw-head. Said rock-shaft H has cranks or handles h on its opposite ends, to provide for operating the coupling from either side of the car; or it may be operated by a rod, i , extending up to the top of the car, and secured to the end thereof by suitable fastenings, so that the coupling may be worked without risk of accident to the train-men. The arm G is free to turn on the bolt f , which connects it with the rock-shaft H, that is made capable of sliding longitudinally in its bearings g , for a purpose about to be explained; but the coupling-pin E is kept perpendicular, and

has its upward motion limited by an upright stirrup or guide, J, up and down within which the forward portion of the arm G moves.

Attached to the rock-shaft H is a pin or prop, *k*, that, when said shaft is slid longitudinally in one direction and turned, so as to raise the coupling-pin attached to it, rests against or enters a notch, *m*, in the front end of a fixed stop, *l*, as shown at the left hand of Fig. 1 and by dotted lines in Fig. 2; but when the shaft H is slid in the reverse direction the pin or prop *k* is clear of the fixed stop *l*, as shown at the right-hand sides of Figs. 1, 2, and 3, and said shaft H is free to turn and drop the arm G and its attached coupling-pin E. This arrangement of the sliding rock-shaft and its attached prop will be found very convenient under the following circumstances:

It is sometimes necessary to uncouple cars which are standing together, but which do not require to be immediately separated. In such case the operator will raise the coupling-pin of the one draw-head to its highest point, and move the rock-shaft H longitudinally till its prop *k* rests against or engages with the notch *m* in the front end of the stop *l*, when the coupling-pin will remain suspended.

When the coupling is set to couple automatically, the coupling-pin is not suspended, but rests upon the trap or leaf D inside the draw-head.

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

1. The stirrup J, curved backwardly toward the top, in combination with the pin E, link F, and lift-bar G, whereby the pin may be raised and lowered in a perpendicular line, as shown and described.

2. In a car-coupling, the combination of the pivoted link F, the arm G, and the stirrup J, whereby the pin may be raised by reason of the link F without sticking or changing its perpendicular direction.

3. The combination, with the arm G, of the pivot-pin *j*, the sliding rock-shaft H, and the fixed stop *l*, having a notch, *m*, whereby said arm may be locked, as described.

4. The curved block S, combined with the link F and bar G, to relieve the strain on the joint-pins of said link, as described.

5. The combination of the stirrup J, the coupling-pin E, the lifting-arm G, the longitudinally-sliding rock-shaft H, and the pivot or bolt *f*, by which said arm is connected with and free to turn on said shaft, substantially as described.

EPHRAIM D. CAIN.

Witnesses:

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