

(No Model.)

2 Sheets—Sheet 1.

C. WIDMER.

POSITIVE SHUTTLE MOTION FOR LOOMS.

No. 364,741.

Patented June 14, 1887.

fig. 1.

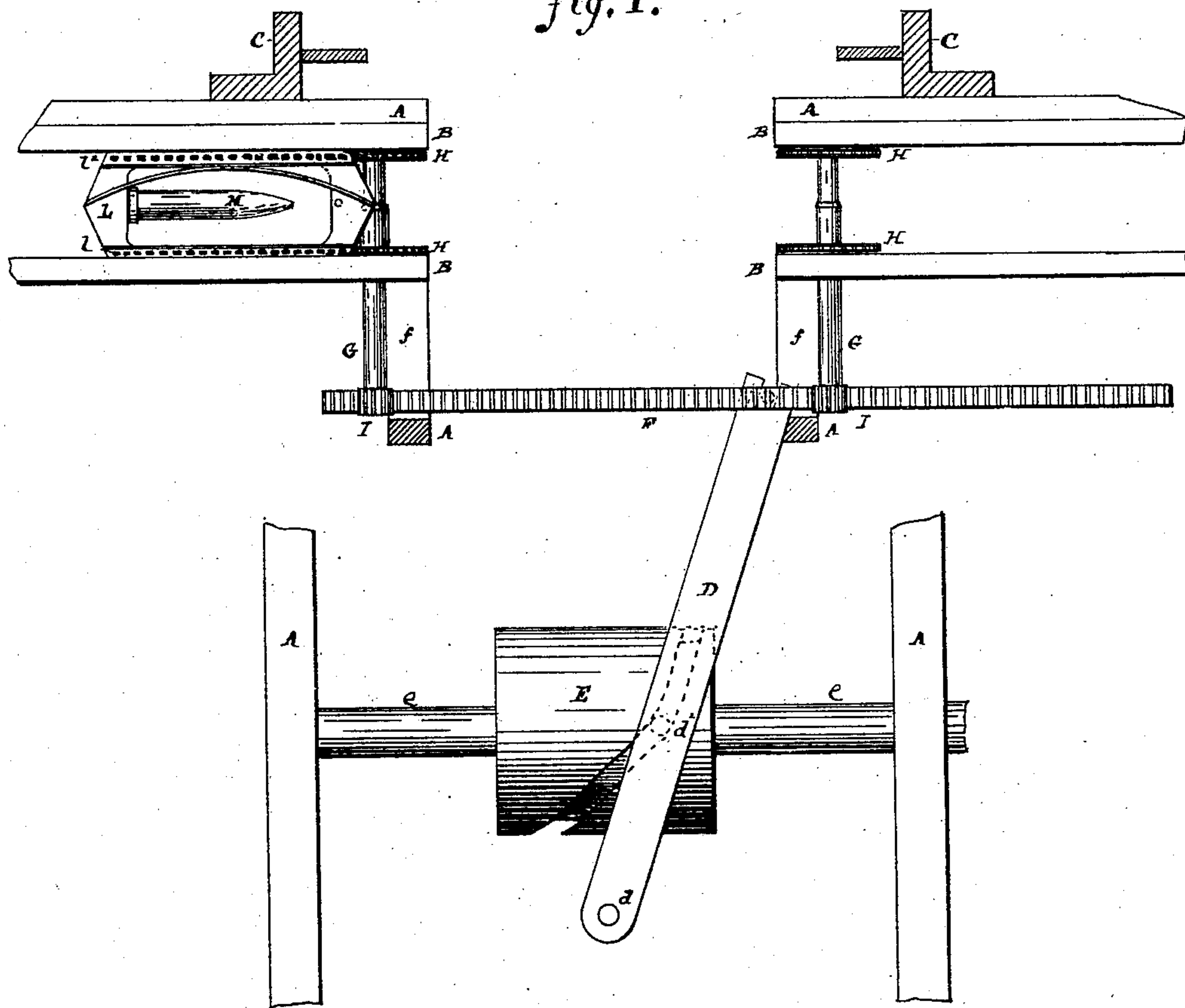
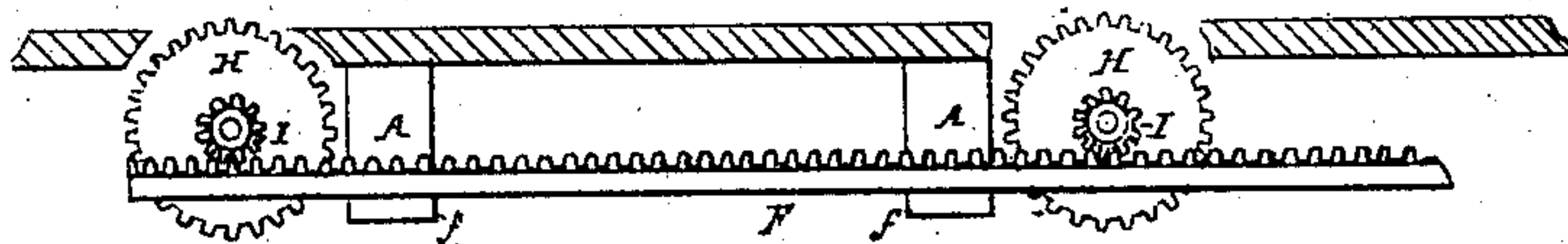


fig. 2.



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fig. 3.

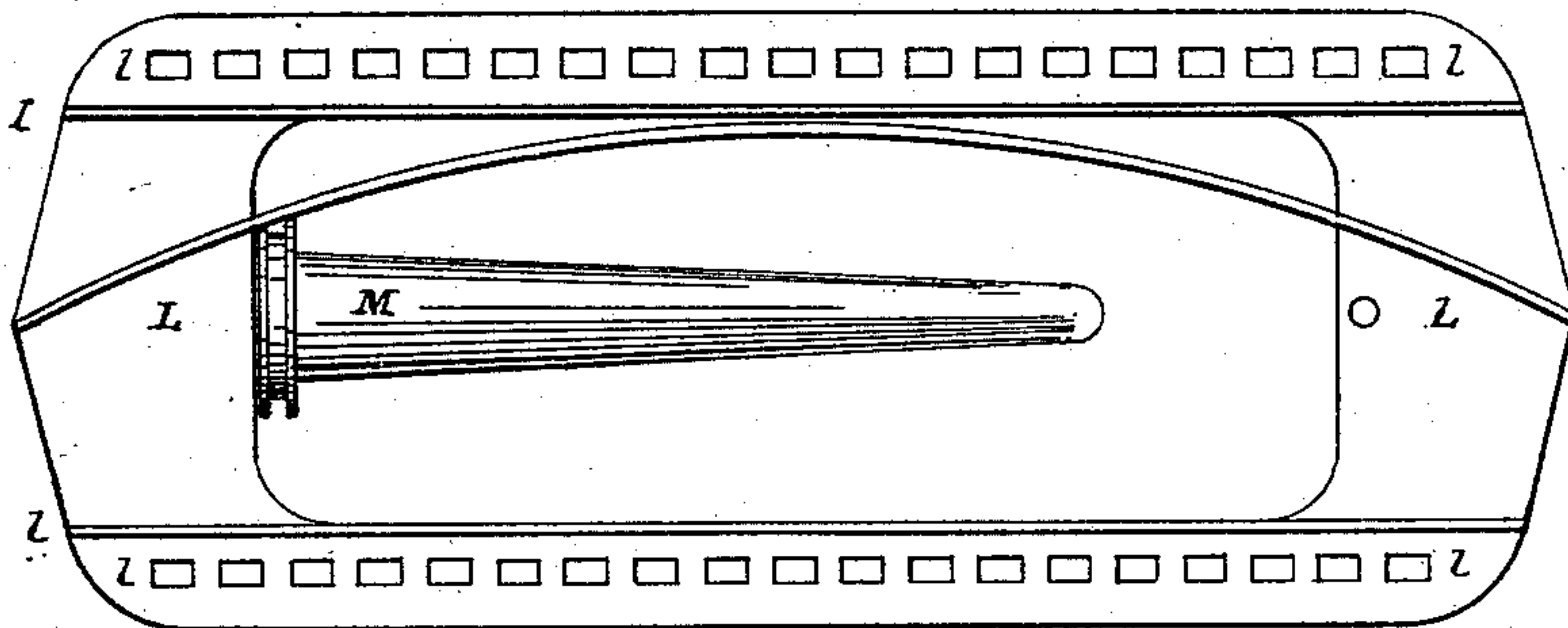
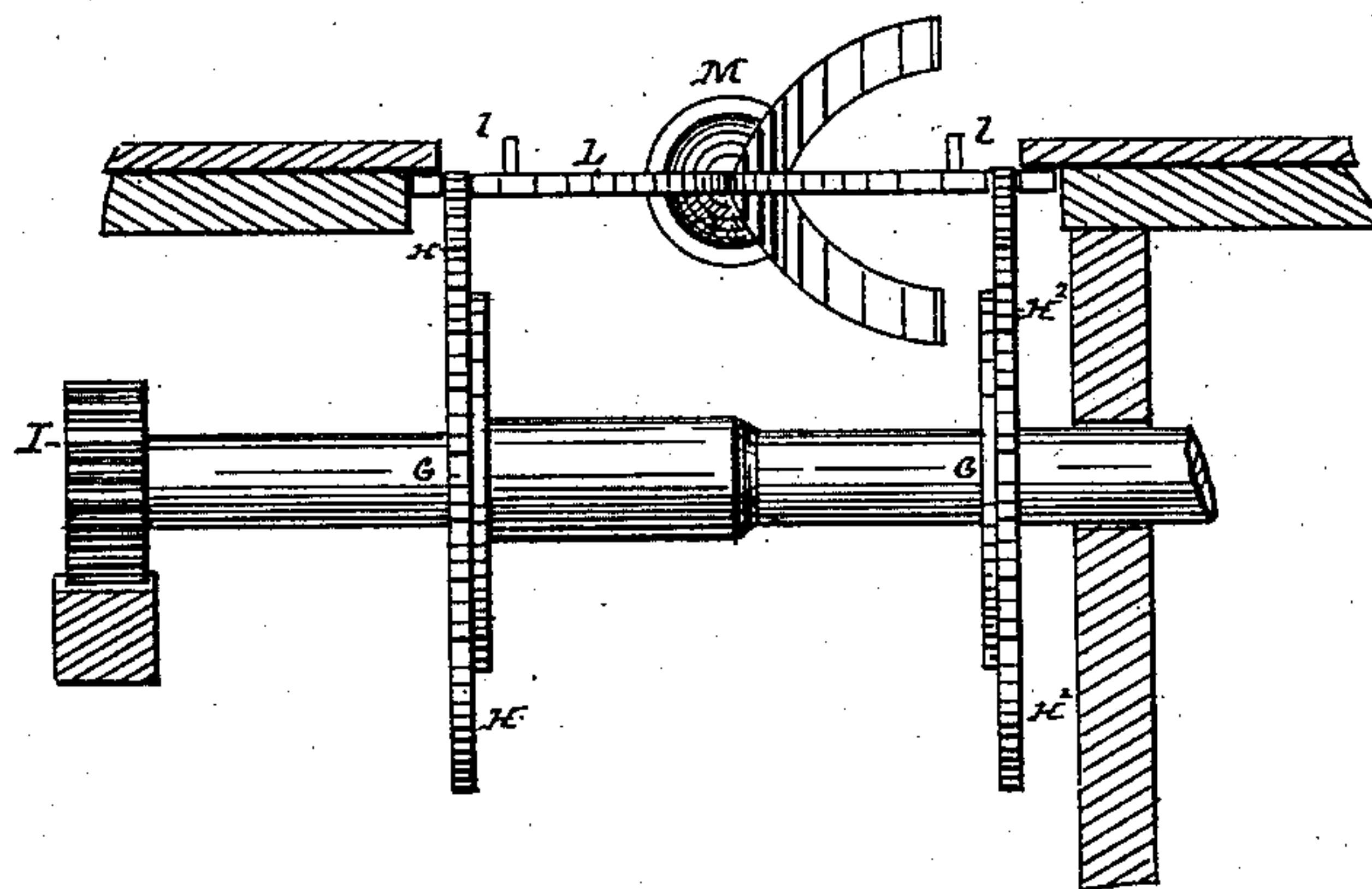


fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES WIDMER, OF NEW YORK, N. Y., ASSIGNOR TO THE LOOM MANUFACTURING COMPANY, OF SAME PLACE.

POSITIVE SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 364,741, dated June 14, 1887.

Application filed August 6, 1886. Serial No. 210,163. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WIDMER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in Positive Shuttle-Motions for Looms, of which the following is a full and complete specification, reference being had to the accompanying drawings, forming a part thereof.

The object of my invention is to provide a positive shuttle-motion that will run smoothly and evenly.

My invention consists in constructing the shuttle of a rack-and-pinion loom with a double row of holes and providing the loom with two pairs of pinions to gear with the two sets of holes in the shuttle, which act as racks. The pinions I preferably drive, as shown in the drawings, by a rack operated by a forked lever and cam.

In the drawings, Figure 1 is a plan view of a portion of a rack-and-pinion loom with the top plate removed and only such of the operating parts and frame shown as are essential to the proper understanding of the invention. Fig. 2 is a side elevation of pinions and driving-rack, the shuttle being omitted, but a portion of the frame shown in section. Fig. 3 is a plan view of the shuttle, showing the holes which form the rack by which the pinions drive it. Fig. 4 is an end view and partial section of the shuttle, pinions, and rack, and a portion of the frame.

A A, &c., are portions of the frame; B, guides in which the shuttle slides; C, heddle-guides; D, lever which operates the rack for driving the pinions, pivoted at d to the top plate and having a pin, d^2 , entering the cam-groove of cam E, which is secured to a shaft, e , and turns with it. The outer end of the lever D is forked and embraces a pin, d^3 , upon the under side of the rack F.

F is a rack-bar sliding upon guide-plates f and gearing with the pinions I I, secured to the shafts G, each of which carries at its other end two spur-wheels, H H², which in their turn gear with the racks formed by the holes $l l^2$ in the shuttle L. l^3 is the back guard; l^4 , the front guard. M is the bobbin.

The operation of the mechanism, which is very simple, is as follows: The shuttle being inserted in the guides B B the loom is started. The shaft e , driven by the main gearing of the loom, rotates the cam E and causes the lever D to vibrate about its pivot d by means of a small roller running in the acting groove of the cam E. This lever D, forked at the end, embraces a pin, d^3 , fixed to the under side of the rack F, and causes the rack to reciprocate, rotating both the pinions I I, first in one direction and then in the opposite direction. To the same shafts to which these pinions are secured are also keyed the larger pinions or wheels H H², the teeth of which gear with the holes $l l^2$ formed in the shuttle L, driving it back and forth through the shed of the warp. These holes $l l^2$ are preferably made square, and of course correspond in pitch with the teeth of the wheels H H².

The effect of the double parallel rows of holes is to make the reciprocating motion of the shuttle perfectly even, with no tendency to bind or become jammed in the guides.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a shuttle provided with holes or indentations upon both sides of its principal axis, of spur-wheels placed beneath in pairs to engage the shuttle upon both sides of its principal axis, and means for actuating the said spur-wheels, substantially as described.

2. The combination of the shuttle B, provided with the series of holes $l l^2$, &c., upon both sides of its principal axis and parallel with it, the spur-wheels H H², fast in pairs upon the same shaft, the rack F, pinions I, lever D, and cam E, all constructed and arranged substantially as described.

In witness whereof I have hereunto set my hand this 19th day of July, 1886.

CHARLES WIDMER.

Witnesses:

GEO. H. SONNEBORN,
JOHN M. O'BRIEN.