

No. 815,939.

PATENTED MAR. 27, 1906.

D. J. CAREY.
SHUTTLE BOX.

APPLICATION FILED FEB. 6, 1904. RENEWED AUG. 29, 1905.

FIG. 1.

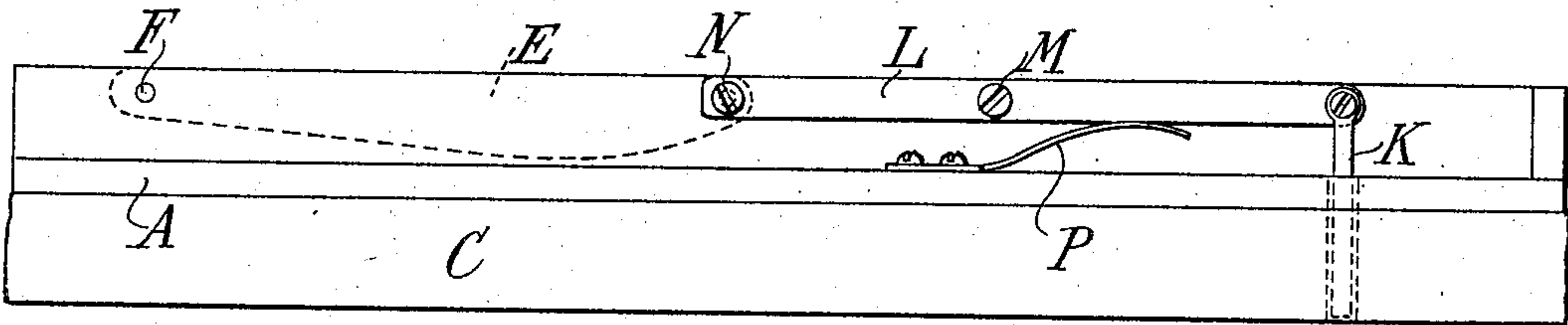


FIG. 2.

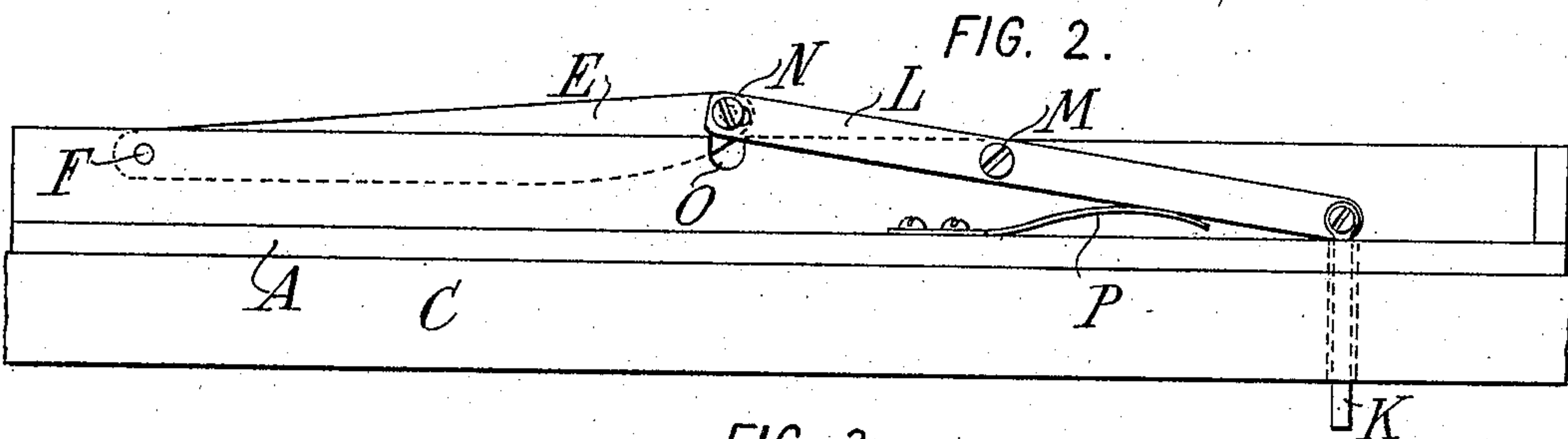


FIG. 3.

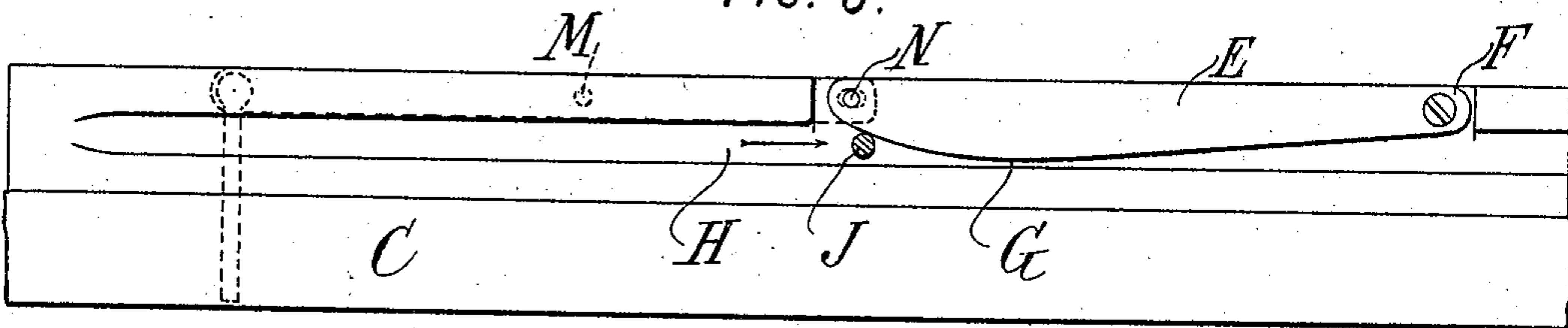


FIG. 4.

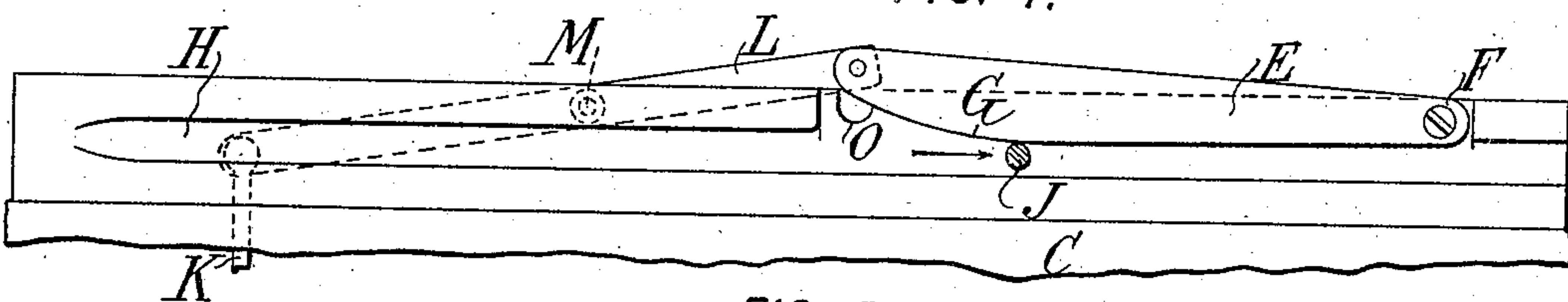


FIG. 5.

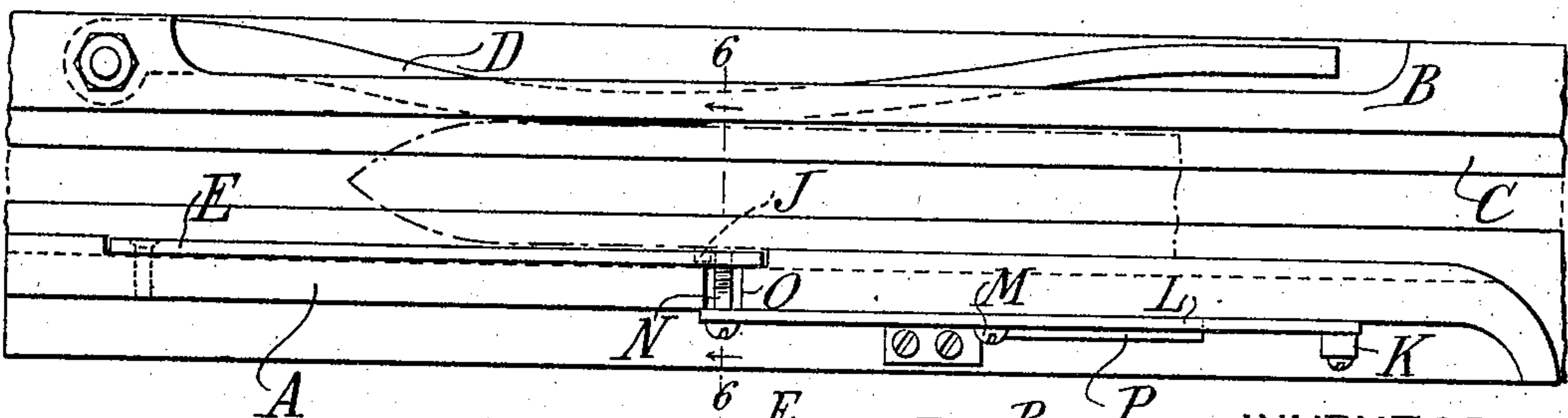
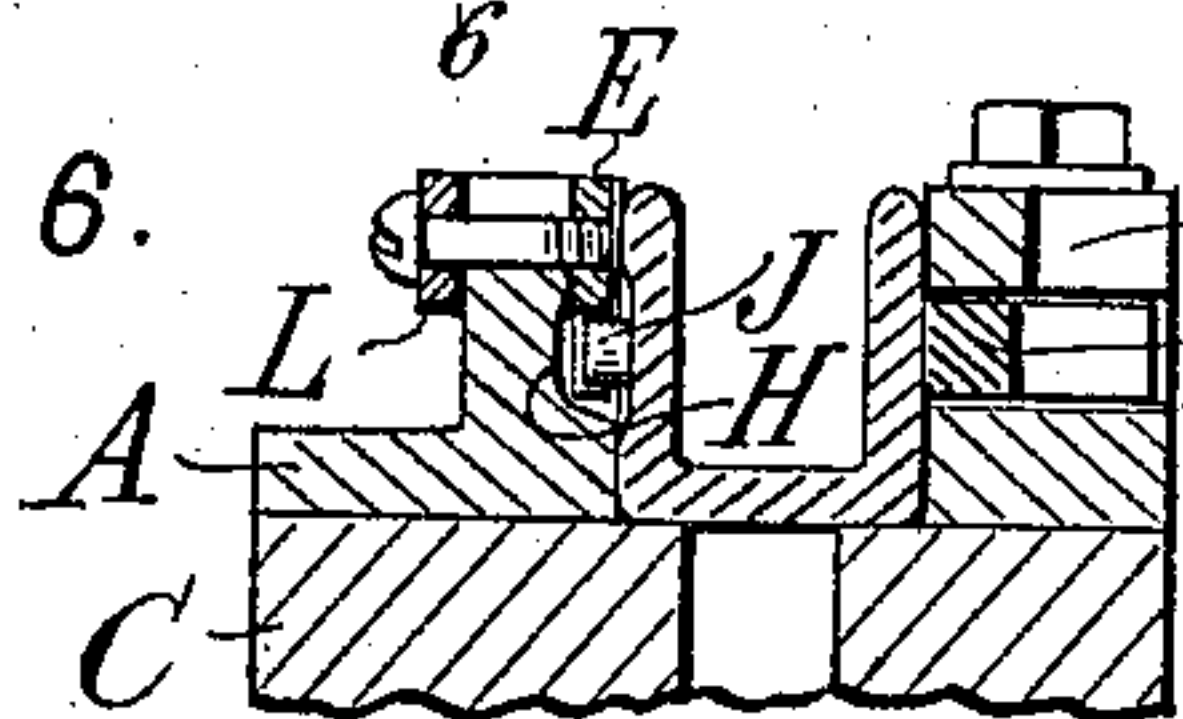


FIG. 6.



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SHUTTLE-BOX.

No. 815,939.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed February 6, 1904. Renewed August 29, 1905. Serial No. 276,328.

To all whom it may concern:

Be it known that I, DANIEL J. CAREY, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Shuttle-Boxes, of which the following is a specification.

In many looms mechanism is provided for controlling the operation of the loom, as by supplying new weft to the shuttle or supplying a new shuttle or operating a stop-motion, which controlling mechanism is actuated automatically from the shuttle at the desired moment. This invention provides a shuttle-box or a mechanism to be used in proximity to a shuttle-box whereby the movement of the shuttle or of a suitable device carried thereby is transmitted to the loom-controlling mechanism. In the form shown the invention is applied to a shuttle-exchanging loom of the class shown in the patent to Brun, Brun, and Bicking, No. 714,665, dated December 2, 1902; but the invention in its broadest aspect is applicable as an improvement to various other types and specific constructions of loom-machines.

The present invention provides several valuable points of improvement over prior looms and shuttle-boxes designed for this operation whereby the actuator in the shuttle does not receive a hard blow and cannot become jammed in the shuttle-box and whereby the entire construction is made strong and at the same time very cheap and other points of advantage mentioned hereinafter are obtained.

The accompanying drawings illustrate an embodiment of the invention.

Figures 1 and 2 are front elevations of the box in the normal and in the operated positions, respectively. Figs. 3 and 4 are corresponding inside elevations of the front wall of the box. Fig. 5 is a plan of the box, and Fig. 6 is a cross-section on the line 6-6 of Fig. 5.

I will assume that the shuttle is such as is described in the aforesaid patent of Brun, Brun, and Bicking and from the side of which a pin is projected downward when the

thread in the shuttle is nearly exhausted. The invention, however, may be used in connection with shuttles carrying any other suitable actuator than the pin described.

The complete shuttle-box as herein illustrated comprises a front A and a rear wall B and a race-board or bottom C, which is slotted to permit the passage therethrough of the picker-stick. The rear wall B carries the usual swell D, which is pressed inward by a suitable spring and serves to frictionally hold the shuttle between itself and the front wall of the shuttle-box, so as to prevent it from rebounding, and which serves other purposes not pertinent to the present invention.

In the embodiment of the invention illustrated the front A carries on its inner face a member E, which partakes of the nature of both a cam and a lever, being pivoted at its outer end F and being provided near its inner end with a bulging or projecting lower edge G. As shown in the plan view, the inner face of the member E is approximately flush with the inner face of the front A of the box, and its lower edge G overhangs a groove H, formed on the inner face of the box-front. When the shuttle-thread is exhausted and the pin or other actuator J projects therefrom, Fig. 6, the pin is carried along in the slot H, moving in the direction of the arrow. When it strikes the cam-shaped lower edge G of the member E, the latter is lifted from the position of Fig. 3 to that of Fig. 4, and this lifting action moves to its operative position a striker or other device for operating or causing the operation of the mechanism for supplying new weft or for stopping the loom or the like.

The use of such a member as E has several advantages as compared with prior constructions. The member E bears down on the shuttle, so as to overcome any tendency of the shuttle to jump up out of the box. It engages the pin on only one side, so that the pin cannot become jammed, as was the case with previous constructions, in which the pin ran between two similarly-placed members. It is pivoted at a point above the level of the pin J, so that the pin may shoot entirely past

the projecting portion G of the lower edge and is not brought to a stop with a hard or sudden blow. It likewise permits the passage of the pin J backward in case the pin should not be projected out of the shuttle until it had passed the projecting portion G of the lower edge of the member E. It is operable by a comparatively slight movement of the pin (from the position of Fig. 3 to that of Fig. 4) and requires very little force, as the pin bears on the lever near the free end of the latter.

The striker or equivalent device may be of various styles, as may also be the connection between the striker and the member E. In the form illustrated the striker is a pin or rod K, arranged to move up and down through the base of the box. It is connected to the member E by means of an interposed lever L, pivoted to the box at M, and connected at the end opposite the striker to the member E by means of a pin N, passing through a slot in the end of the lever L or the member E. Preferably in the normal position of the parts the member E and the lever L have their upper edges not higher than the upper edge of the box-front A, and in order to secure this result the pin N, connecting the two members, lies normally in a slot O, formed in the box-front and open at its upper end. A spring P on the outer side of the box-front bears against the lever L and holds the striker K up. This construction may, however, be omitted, the member E being so arranged that its weight tends to hold the parts in the normal position of Figs. 1 and 3, or the parts may be otherwise so weighted and arranged that their weight tends to hold them in the normal position.

The construction described transmits the movement of the actuator from the inside to the outside of the box with the least weakening of the box-front, and thus avoids the objection occurring in some previous constructions in which the box-front has been slotted lengthwise, and thus weakened, so that it warped considerably under the continual shocks to which it is subjected. The depth of the slot O limits the downward movement of the pin N, and this stops and holds the member E in the most suitable position for engagement by the pin J. The connection between the members E and L might be made by a pin normally lying above the edge of the box-front, thus avoiding the necessity of making a slot O. The construction as a whole is very simple and cheap and may be readily applied to existing boxes, the only alteration in the box-front being the cutting of a recess for the member E and a groove H and the

provision of a vertical aperture for the striker K and where desired the cutting of a groove O in the upper edge of the box-front.

What I claim is—

1. The combination in a shuttle-box front of a cam on the inner face thereof in position to be moved by an actuator on the shuttle, an operating device, and means on the outer face of said front adapted to be engaged by said cam and to move said operating device.

2. In a shuttle-box front, a member adapted to be lifted by an actuator on the shuttle, and adapted to bear down upon the shuttle, in combination with an operating device connected with said member, and adapted to be moved thereby.

3. In a shuttle-box, a striker-operating pivoted cam mounted in position to be engaged by an actuator on the shuttle and adapted to permit such actuator to pass beyond it after such engagement, in combination with a striking mechanism, and a connection between such mechanism and said cam.

4. In a shuttle-box, a striker-operating pivoted cam E having a portion G projecting into the path of an actuator on the shuttle, the pivotal point of the cam being sufficiently off the line of movement of the actuator to permit the latter to pass beyond the projecting portion G in combination with an operating device, and a connection between said cam and said operating device, whereby the latter is moved.

5. In a shuttle-box, a striker-operating pivoted cam E having a projecting portion G near its free end in combination with an operating device, and a connection between said cam and said operating device, whereby the latter is moved.

6. In a shuttle-box, a member pivoted at one end and in position to be engaged by an actuator on the shuttle to move its free end, a striker, and a lever transmitting the movement of the free end of said member to said striker.

7. A shuttle-box front having on its inner face a member in position to be moved by an actuator on the shuttle, and having on its outer face a motion-transmitting means, said motion-transmitting means and said member being connected together over the upper edge of the box-front in combination with an operating device, and a connection between such device and said motion-transmitting means.

8. In a shuttle-box, a member E on the inner face of the box-front, pivoted at one end and having a portion G projecting into the path of an actuator on the shuttle, a lever on the outer face of the box-front, and a

pin connecting said lever with the free end of said member and extending over the upper edge of the box-front in combination with an operating device connected with said lever
5 and adapted to be moved thereby.

9. In a shuttle-box, an operating device, a member adapted to operate said device mounted in position to be engaged by an actuator on the shuttle when the latter is moving in either direction, and a connection be-
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tween said device and said member adapted to transmit motion to the former.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DANIEL J. CAREY.

Witnesses:

H. W. HANKEE,
L. C. HANKEE.