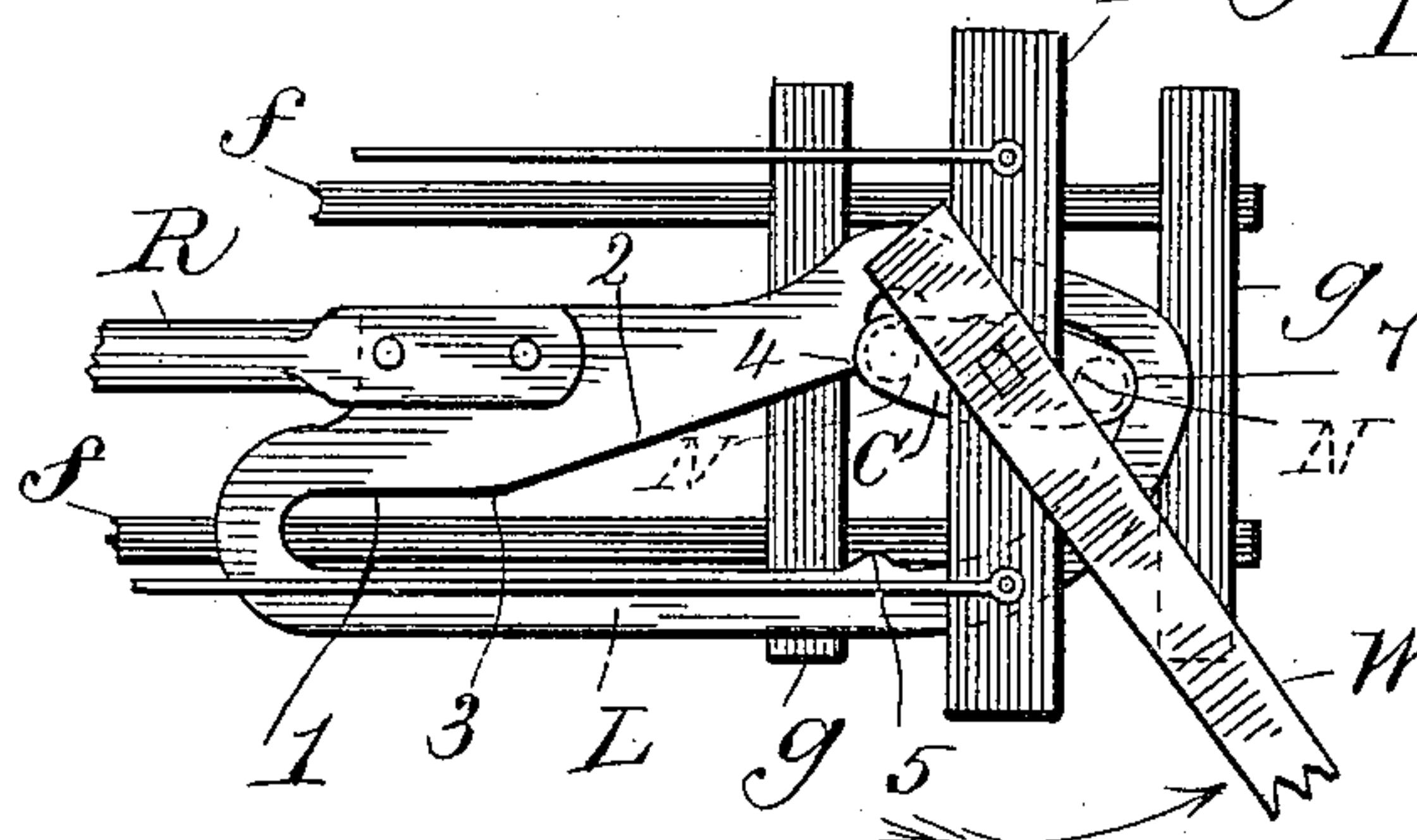
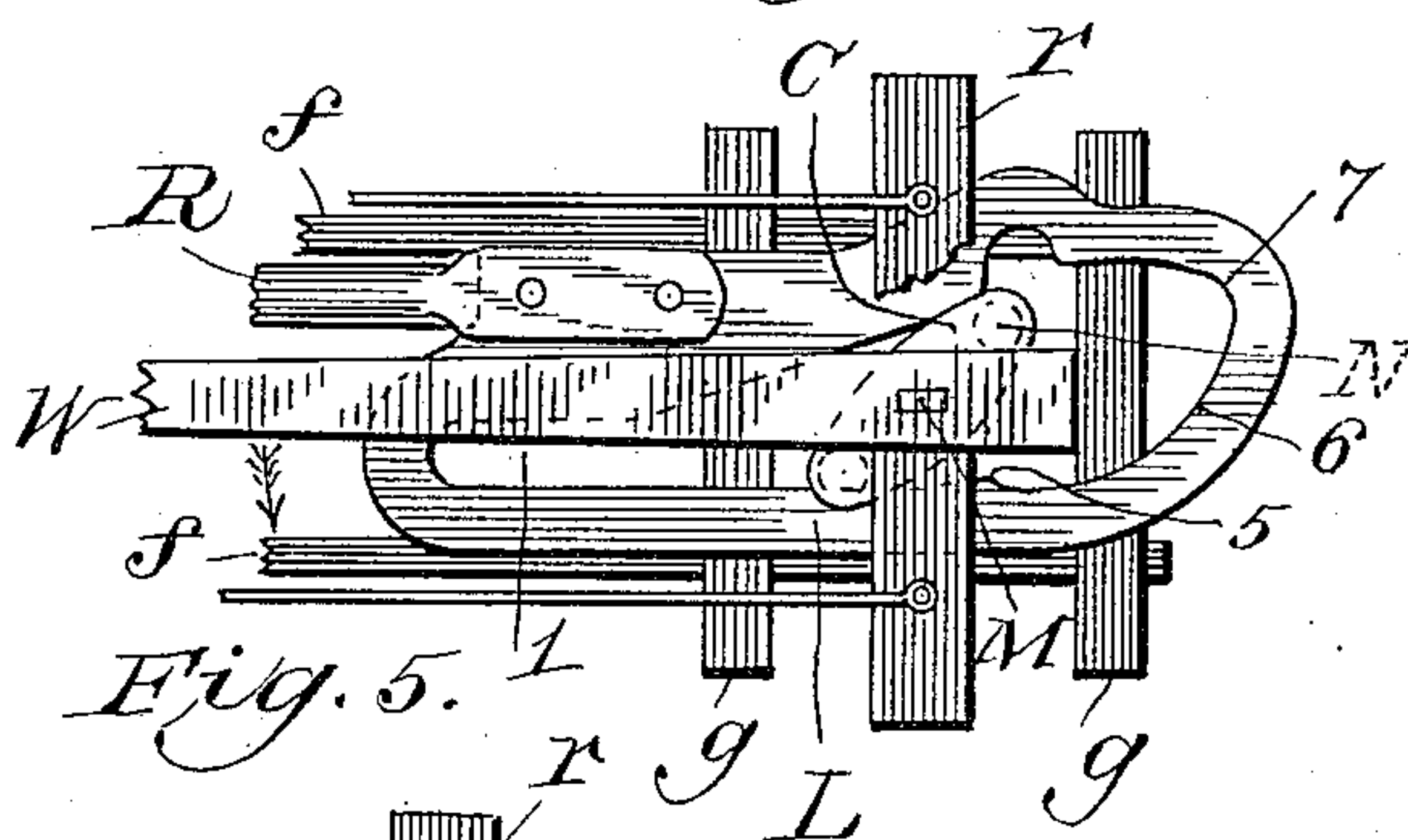
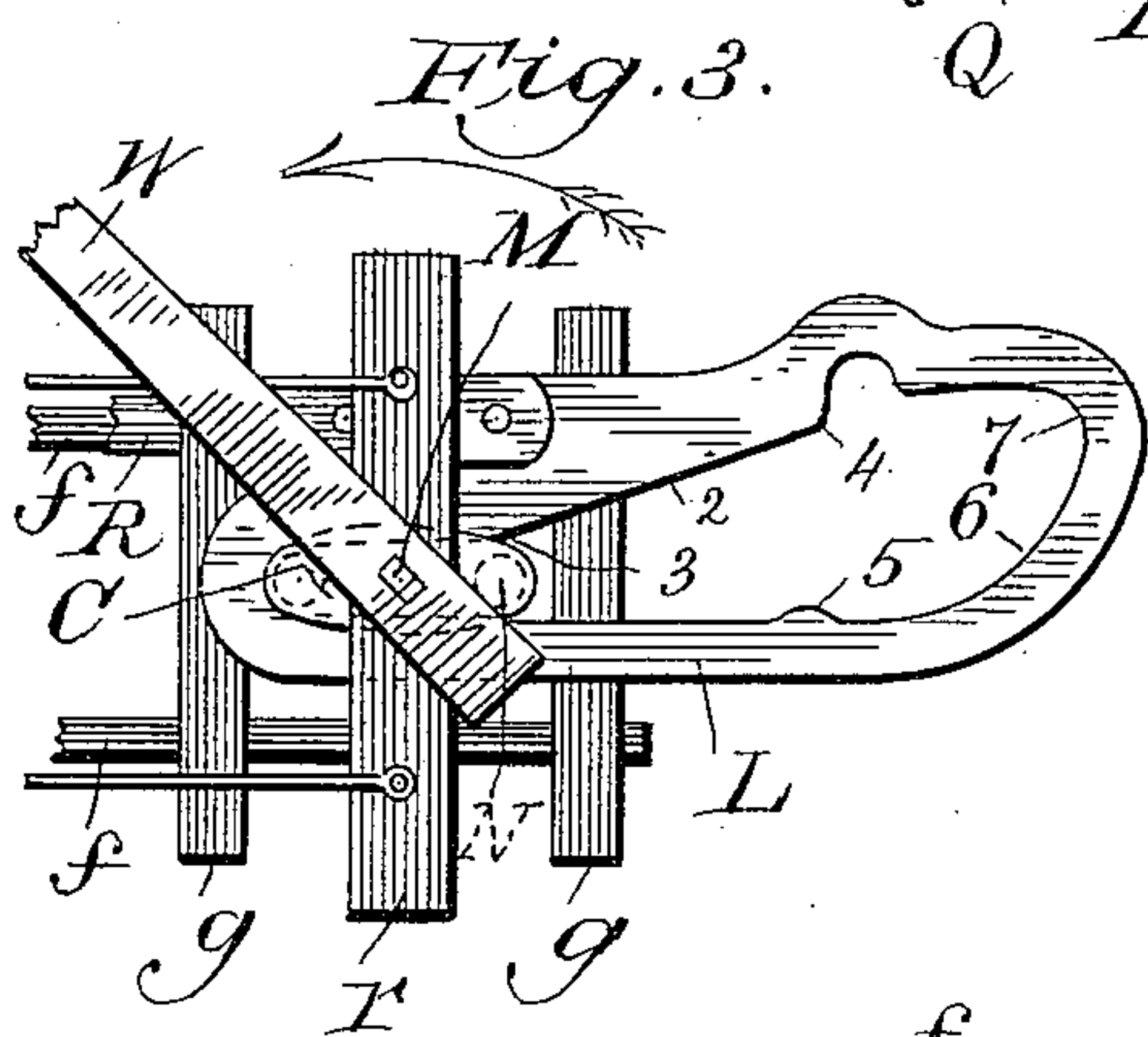
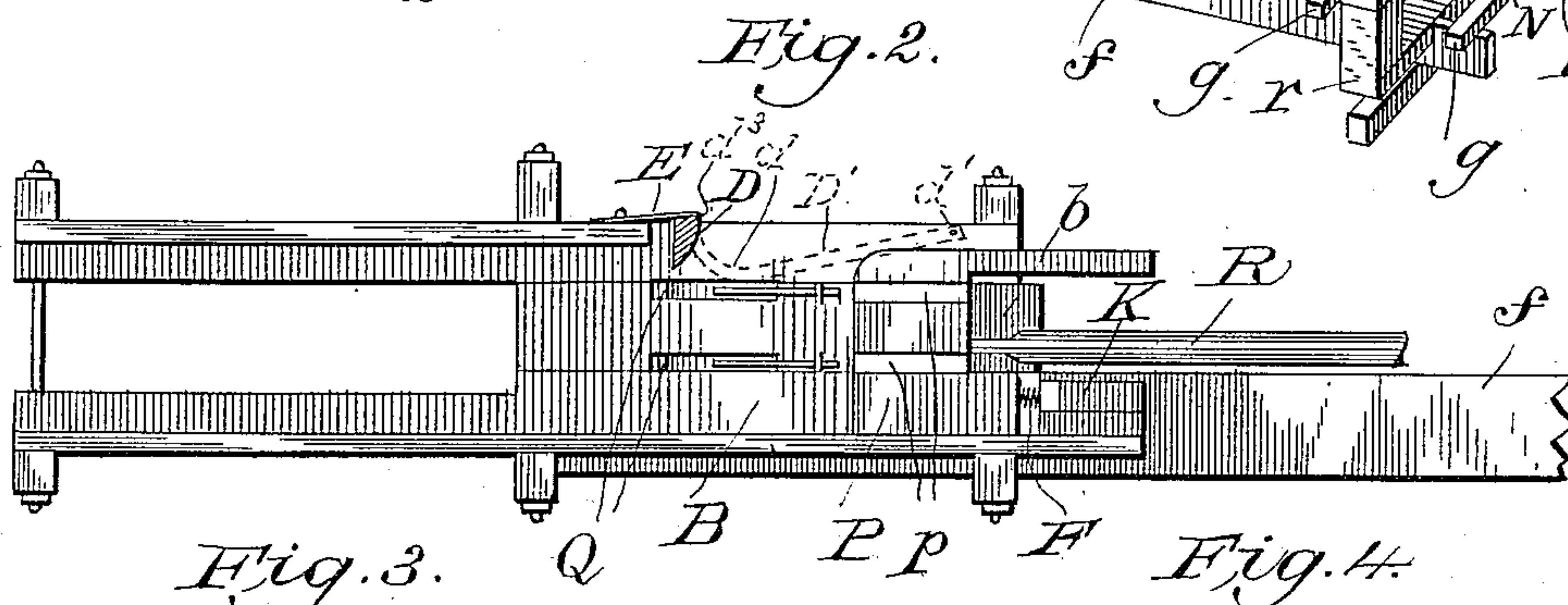
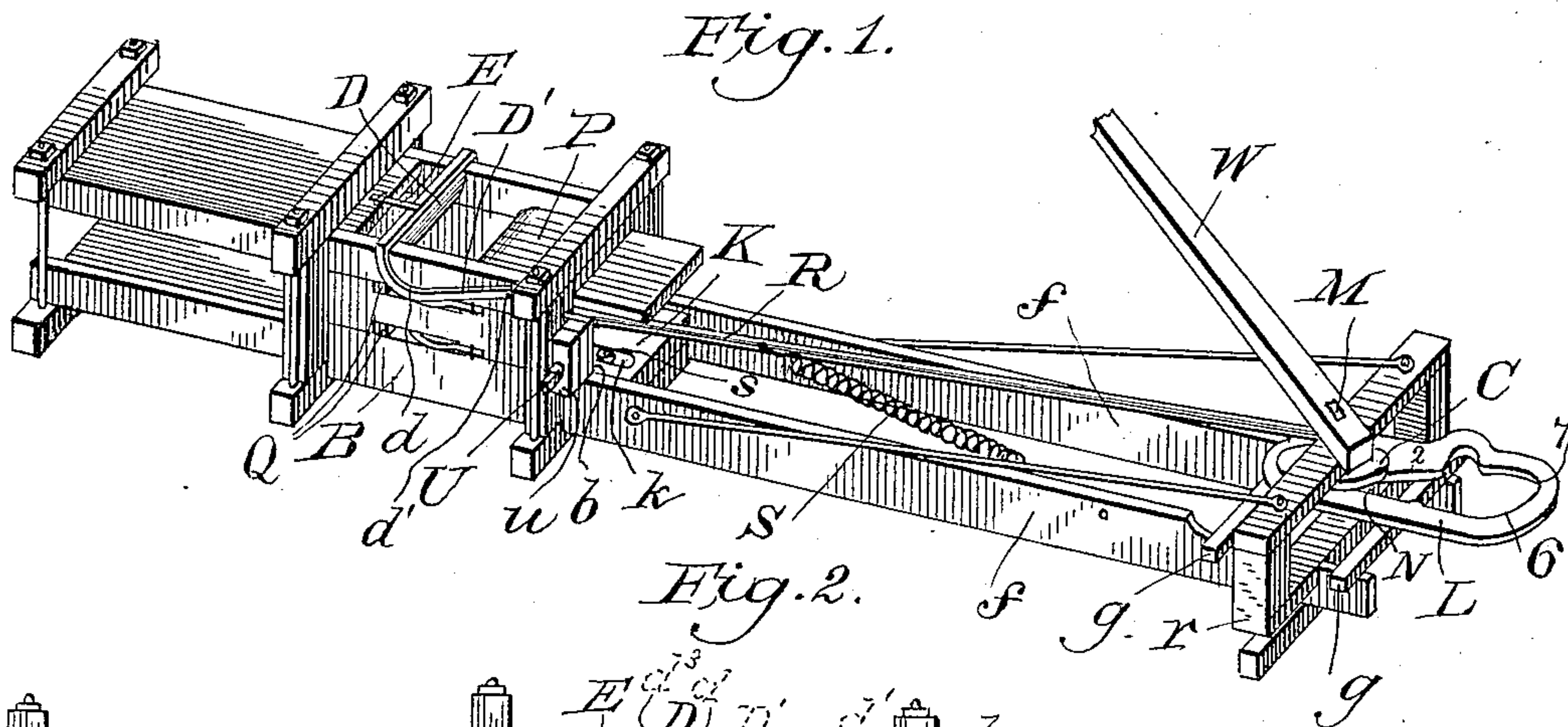


(No Model.)

J. H. GARDNER.
HAY PRESS.

No. 463,662.

Patented Nov. 24, 1891.



Witnesses

Wm. A. Schoenborn,

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Inventor:

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UNITED STATES PATENT OFFICE.

JOHN H. GARDNER, OF DALTON, GEORGIA.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 463,662, dated November 24, 1891.

Application filed May 29, 1891. Serial No. 394,526. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GARDNER, a citizen of the United States, residing at Dalton, in the county of Whitfield and State of Georgia, have invented a new and useful Hay-Press, of which the following is a specification.

This invention relates to hay-presses; and the object of the same is to produce certain improvements in devices of this character.

To this end the invention consists of the details of construction hereinafter more fully described and claimed, and as illustrated on the sheet of drawings, wherein—

Figure 1 is a general perspective view of this device. Fig. 2 is a side elevation of the presser-box with one side removed. Fig. 3 is a plan view of the cam and link in their initial position. Fig. 4 is a similar view showing the cam as just engaging the shoulder on the link. Fig. 5 is a similar view showing the cam as just disengaging the shoulder.

Referring to the said drawings, the letter B designates the presser-box having the rear end of its top open, as is usual, and P is the plunger, which reciprocates within this box. This plunger is pivoted to a long rod R, which may be and preferably is of gas-pipe, and which carries at its other end a loop or link L, adapted to be operated by a rotating cam C in a manner hereinafter more fully described.

The plunger P is provided with grooves *p*, in which fit the tips of retainer-catches Q, whose function is to hold the hay after it has been compressed by the plunger, their operation being substantially the same as that set forth in Letters Patent No. 410,237, granted to me September 3, 1889.

At the rear end of the box B, on its inner sides, are strips *b*, free at their rear ends, and set-screws U pass through blocks *u*, secured to the box, and bear inwardly against these free ends, by this means regulating the adjustment of said strips so as to brake or retard the return movement of the plunger.

K designates a block having longitudinal slots *k*, through which are passed screws *s* into the base of the box B, and in the front of this block is a buffer-spring F, against which the plunger strikes as it rebounds. By loosening the screws *s* the block K can be adjusted so as to increase or diminish the force

of the spring F by causing it to engage the plunger earlier or later. The expansive force of the hay after it has been pressed will usually throw the plunger back; but in case it does not I provide a long spring S, which connects the rod R with one of the frame-pieces *f*, as seen in Fig. 1.

The link L is preferably of the construction best seen in Figs. 3, 4, and 5—that is to say, its front end 1 is plain, one side 2 is beveled from the point 3 to the shoulder 4, and the other side has a projection 5 a little in advance of the shoulder and is rounded, as at 6, in rear thereof, said rounded portion terminating at 7 and being approximately straight from that point to the shoulder. A rectangular frame *r* is mounted upon the rear ends of the frame-pieces *f*, and the latter also carry horizontal guide-pieces *g*, upon which the link L slides during its several motions. Journaled vertically through the rectangular frame *r* is the main shaft M, connected to whose upper end is a sweep W, adapted to be rotated by horse-power in the usual manner. Keyed upon the main shaft M within the rectangular frame *r* is the cam C, which, as shown, comprises top and bottom plates connected by pins at their ends, and on these pins are mounted friction-rollers N, the vertical and relative location of the cam and link being such that the friction-rollers stand in the same plane as the link and the top and bottom plates of the cam above and below it, as shown.

D is the folder, and D' are the folder-arms secured to the top of the folder and provided with the downwardly-bent guide portions *d*. The front ends of the folder-arms are pivoted by the pins *d'* to the top of the outside of the press-chamber sides in line with the folder and at a considerable distance from it, so that the folder has practically a vertical motion.

E is a flat steel spring secured to the top of the press, which bears downwardly upon the ends *d*³ of the folder-arms in the middle of the folder. This flat spring can be made as strong as desired, and it presents no obstruction to feeding the press. The bottom front edge of the folder is rounded off where the plunger-top strikes against it.

With the above construction of parts the hay is fed into the open portion of the top of

the box B until it has been filled, and the folder then folds into the bale the loose ends of the hay that may project above the top of the plunger, thus making the top of the bale smooth and even. The horses are then started to move the sweep W in the direction of the arrow. The cam C, which then stands in its initial position, Fig. 3, is caused to turn in the direction indicated, whereby one roller N is pressed against the beveled face 2 of the link and the latter is caused to move rapidly inwardly to drive the plunger forward. This rapid movement continues until the same roller reaches a point just in advance of the shoulder 4, and at this time the other roller N engages the projection 5, Fig. 4, whereby the first roller is forced into engagement with the shoulder, the result being that the forward movement of the link and plunger is caused to be positive and is considerably lessened, thereby greatly increasing the power. The sweep is now carried around so that the second roller travels around the rounded portion 6, while the first roller presses the shoulder 4 forward, and finally the second roller reaches the point 7, Fig. 5, at which time the continued movement of the sweep causes the first roller to disengage the shoulder 4, as shown. As soon as this occurs the expansive force of the hay or the contractile force of the spring S draws the link to its initial position. (Shown in Fig. 3.) During all this time the main shaft M has been moved through only half a revolution, and it is therefore obvious that the device will press two charges of hay each time the sweep is revolved.

Much difficulty has been experienced heretofore in devices of this character owing to the fact that when the plunger returned to its initial position by the force of the hay or the re-

turning-spring a great shock was given to the entire mechanism, and to overcome this certain buffers have been used. In the present case the plunger P strikes the buffer-spring F, as is obvious, and the force of its rebound is nicely cushioned; but by the use of the screws s, engaging the slots k in the block K, I am enabled to adjust the force of the spring S by causing it to be struck by the plunger earlier or later, thus adapting the machine for use with different kinds of hay, wet or dry, various sizes of bales, and returning-springs S of different strengths.

What is claimed as new is—

In a hay-press, the combination, with the presser-box, the plunger therein, a rod leading therefrom, and a link connected to said rod, said link having a plain front end, in rear of which one side is beveled to a shoulder and is then straight to the rear end of the link, while the other side has a projection opposite a point just in front of the shoulder and is then curved to said rear end, of frame-pieces extending from said box, a rectangular frame mounted thereon, a main vertical shaft journaled in said frame, a sweep connected thereto, and a cam keyed upon said shaft within the frame and comprising top and bottom plates connected by end pins with friction-rollers thereon, said rollers being spaced the distance between the shoulder and the rear end of the cam, and the whole operating substantially as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN H. GARDNER.

Witnesses:

W. E. GARDNER,

JOHN R. TARVER.