

No. 687,971.

Patented Dec. 3, 1901.

W. M. AMMERMAN.
FEEDING MECHANISM FOR SEWING MACHINES.

(Application filed Mar. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

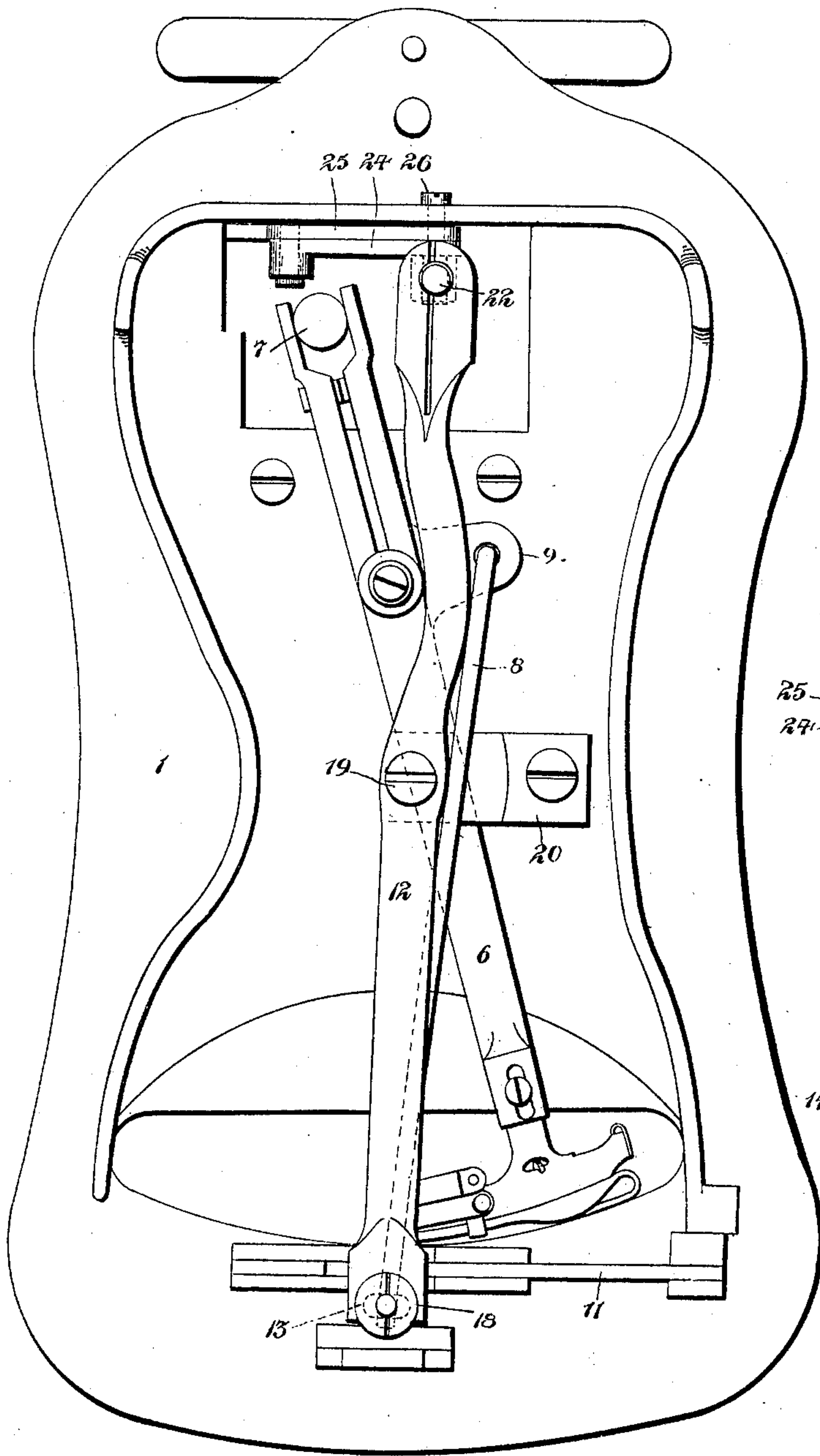


Fig. 5

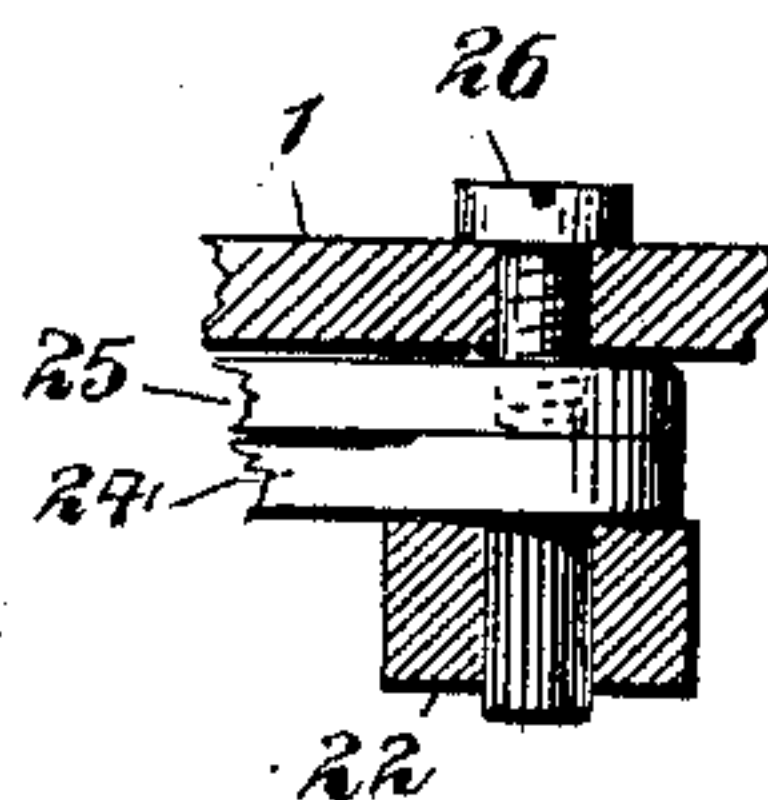
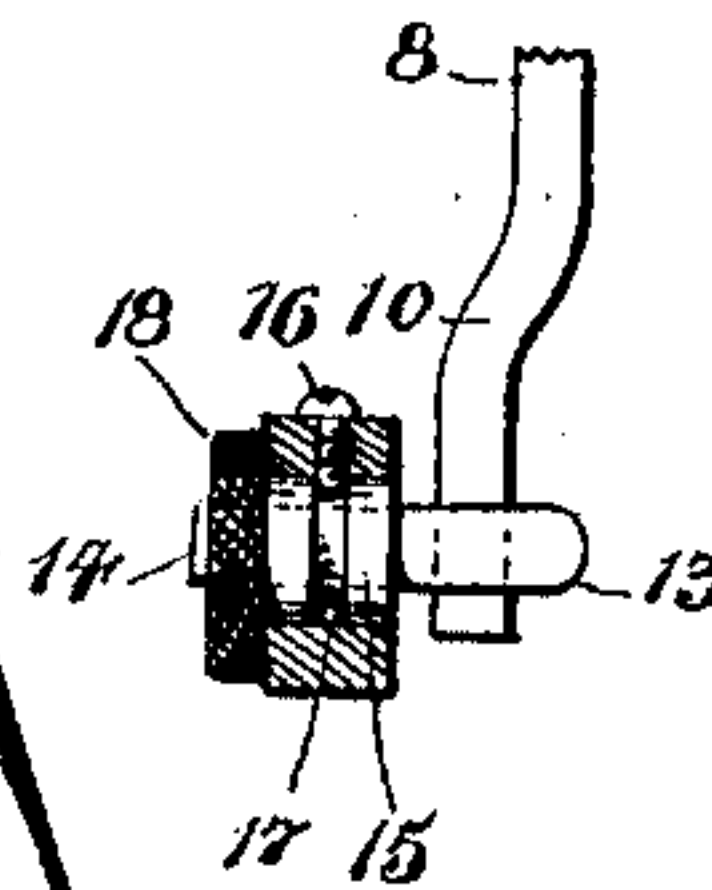


Fig. 7



Witnesses:

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Fig. 4-

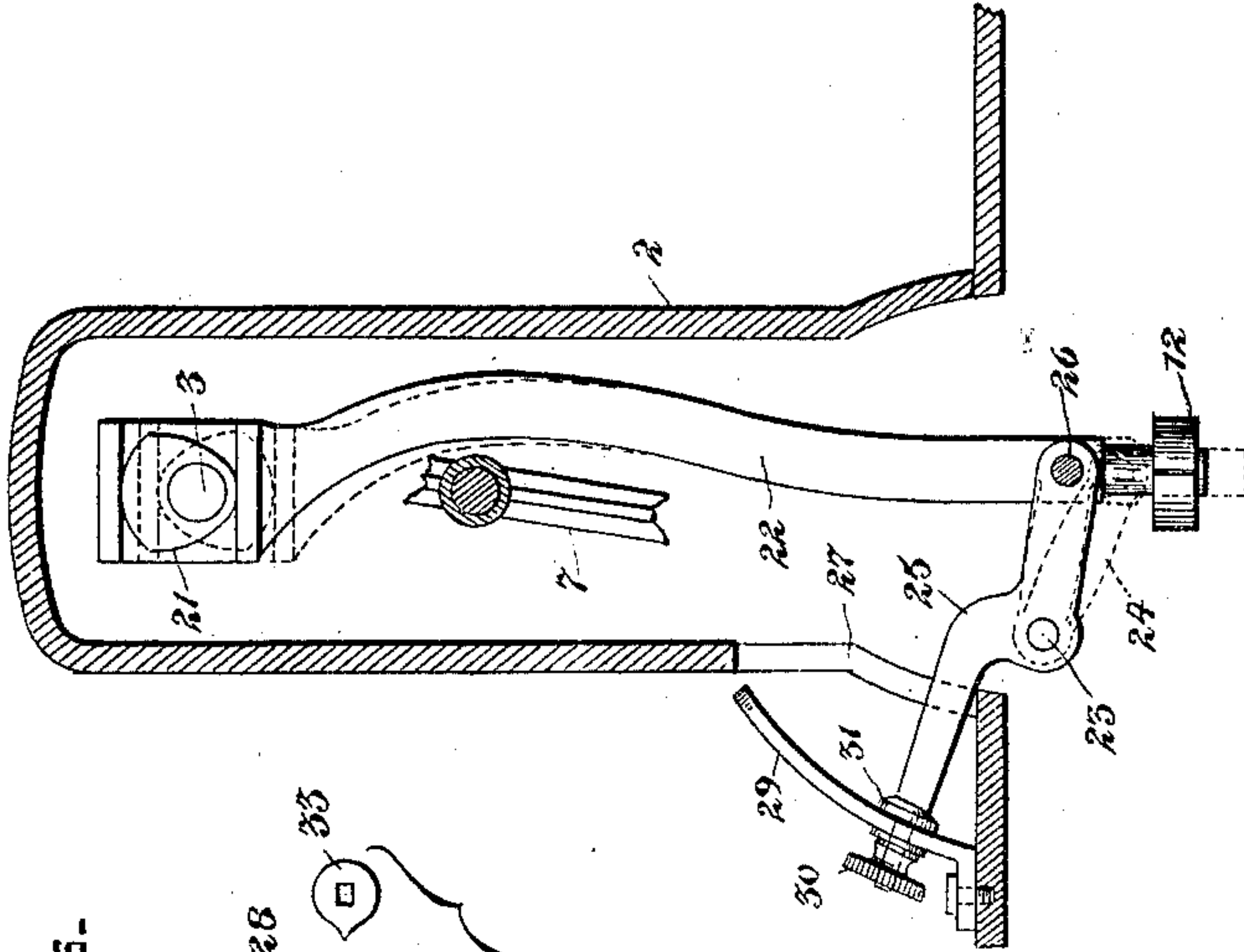


Fig. 5-

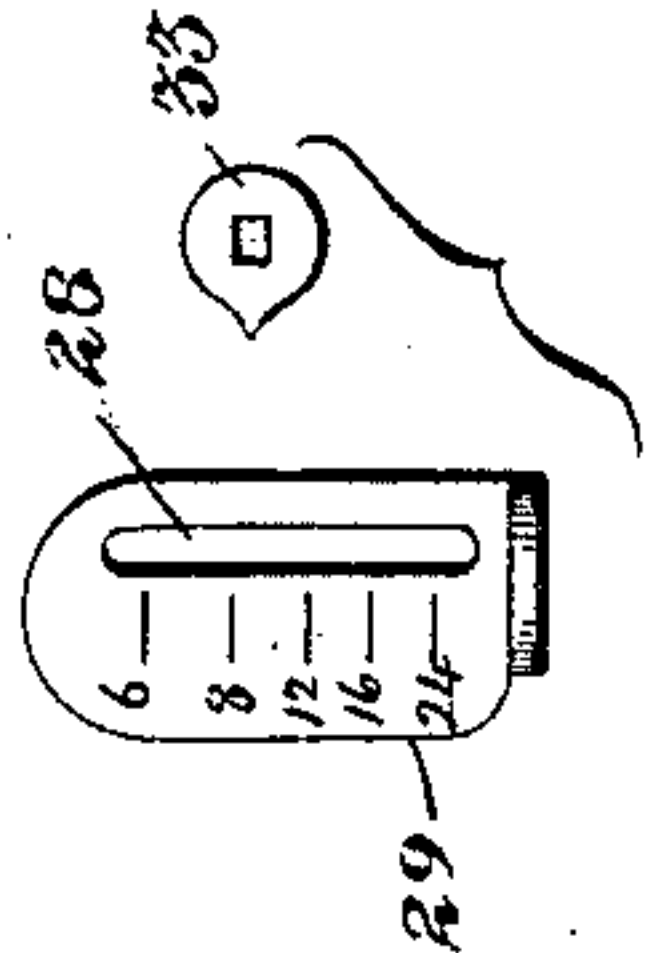


Fig. 3-

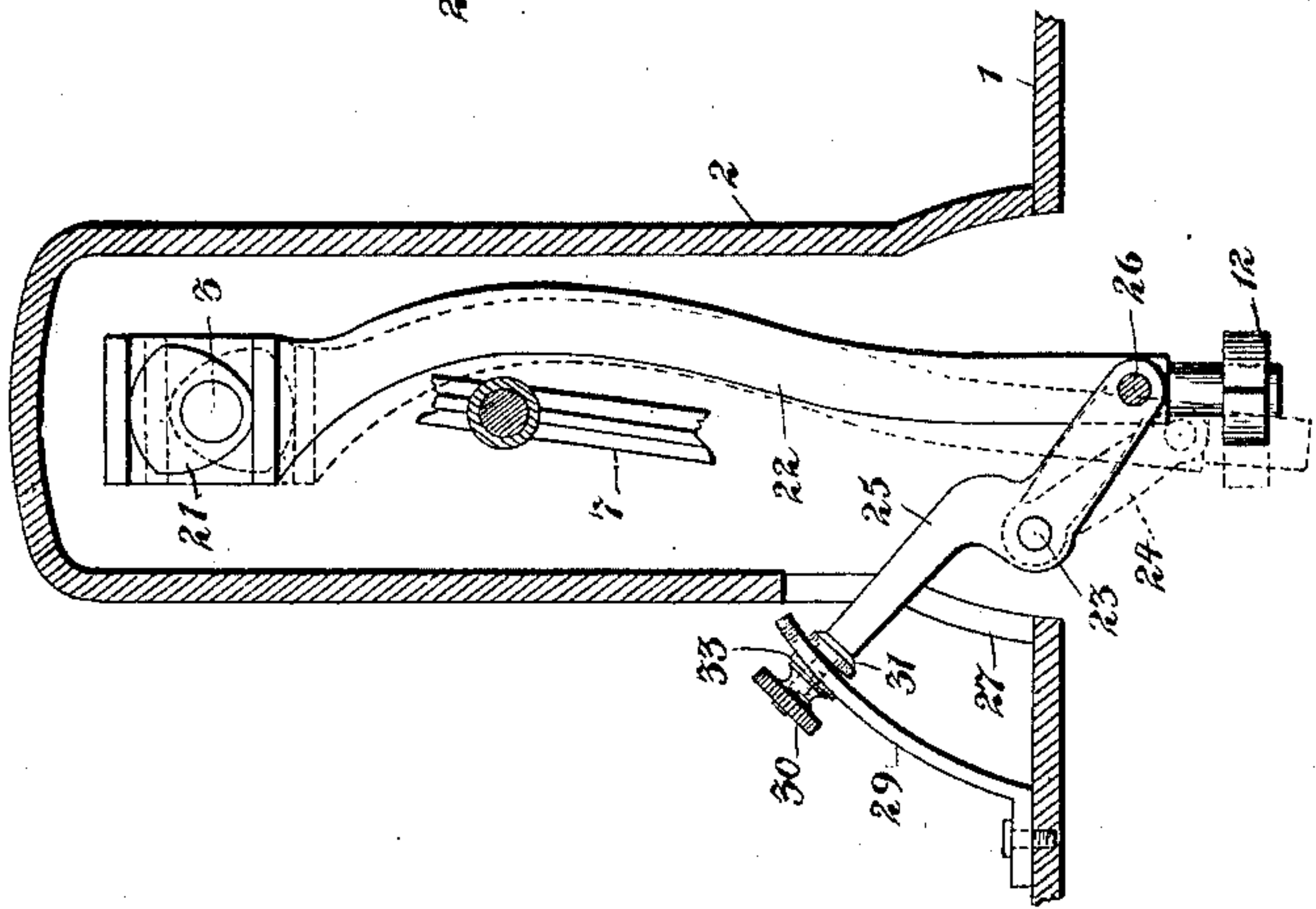
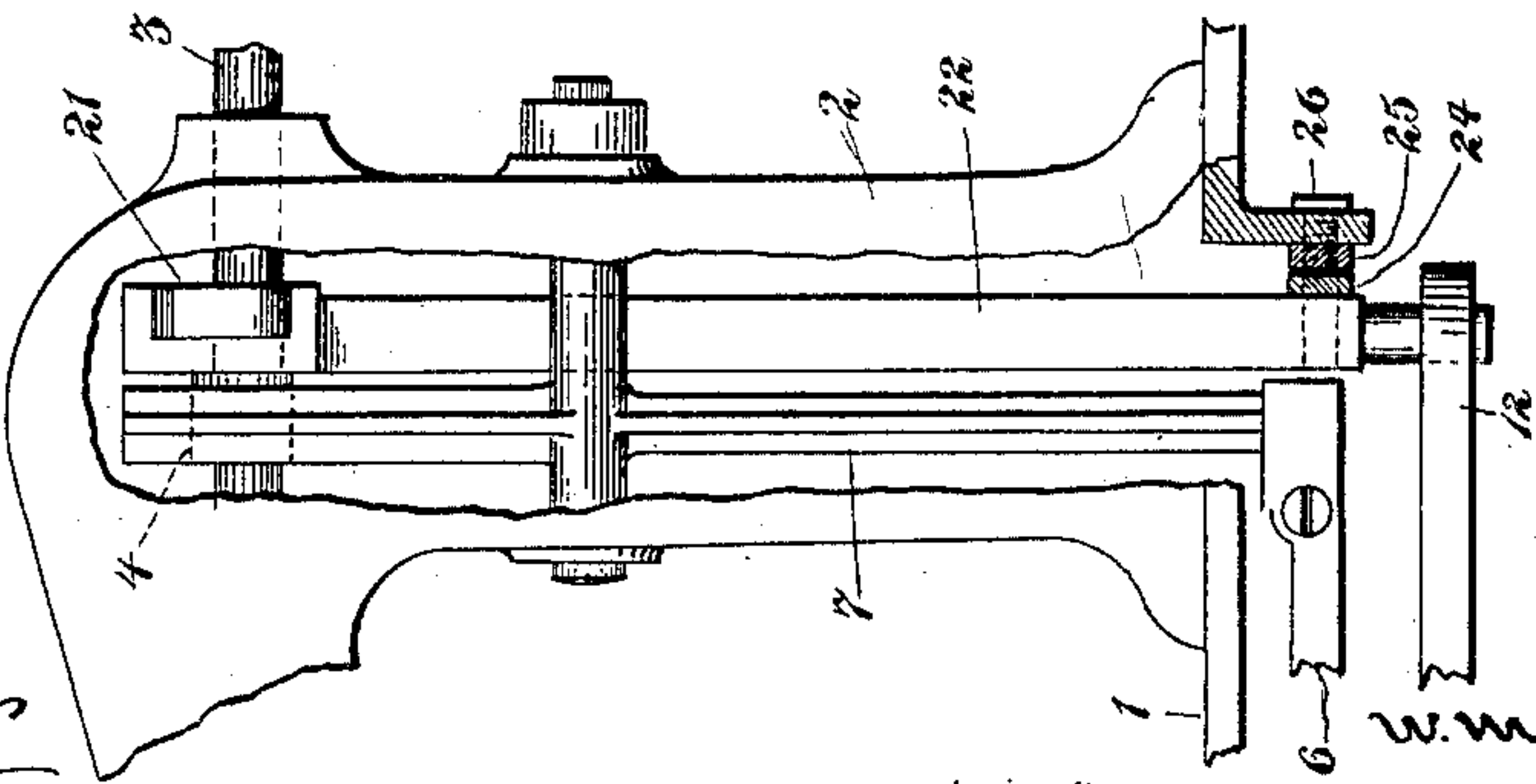


Fig. 2-



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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 687,971, dated December 3, 1901.

Application filed March 28, 1900. Serial No. 10,483. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. AMMERMAN, a citizen of the United States, and a resident of the city and county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to certain new and useful improvements in feeding mechanism for sewing-machines, and has for its object to provide a mechanism of this class which will be simple in construction, easily regulated, and positive in all its movements.

With these ends in view my invention consists in the novel construction and combination of parts, as will hereinafter be set forth in detail and pointed out in the claim.

In the drawings, Figure 1 is a bottom view of a sewing-machine embodying my invention. Fig. 2 is a front elevation of the rear end of the machine with the frame and certain of the parts broken away and in section. Figs. 3 and 4 are vertical transverse sections through the rear end of the frame, showing different positions of the feed or stitch regulating mechanism. Figs. 5, 6, and 7 are detail views of certain of the parts to be hereinafter referred to.

To explain in detail, the frame of the machine, comprising the bed-plate 1 and its attached bracket-arm 2, the main or driving shaft 3, journaled in the upper horizontal portion of said bracket-arm and provided with a cam or eccentric 4 thereon, the horizontally-arranged vibrating shuttle-lever 6, pivotally supported on the under side of the bed-plate, the lever 7, pivotally supported in the bracket-arm and provided with a fork at its upper end which embraces the said cam or eccentric 4 on the driving-shaft to receive motion therefrom and with a ball at its lower end working in a fork at the rear end of the shuttle-lever to operate the latter, and the push-rod 8, loosely connected at one end with a lateral arm or extension 9 of the shuttle-lever to be operated thereby and at its opposite end provided with a bend or angle 10, formed therein to reciprocate back and forth

through an opening in the feed-bar 11 and communicate a vertical movement to the latter, are all, so far as described, of usual construction as found in the "Domestic" sewing-machine.

The free end of the push-rod 8 is connected with one end of a horizontally-vibrating feed-lever 12, so as to be moved therewith, whereby the feed-bar through which said push-rod extends will be caused to have a positive horizontal movement in both directions, the vertical movement of the feed-bar being made positive by the action of the push-rod through the opening therein, as described.

The means as herein shown for securing connection between the push-rod 8 and the feed-lever 12 are the same as shown and described in another application of mine now pending, filed December 31, 1891, Serial No. 416,647; and it consists of a collar 13, in which the end of the push-rod is supported to slide, (see Fig. 7,) provided with a threaded stem 14, which is engaged and supported by an adjusting-nut 15, carried by the feed-lever 12. This nut 15 is seated within an opening in said lever 12, so as to be capable of turning therein, and is held vertically stationary relative thereto by means of a screw 16, which is located in the lever with one end projecting into an annular groove 17 in said nut, as shown. A milled head 18 at the lower end of the nut 15 serves as a means whereby the latter may be turned or rotated so as to raise or lower the collar 13 and connected push-rod 8, and thereby adjust the vertical movement of the feed above the throat-plate, as will be readily understood.

The vibrating feed-lever 12 is pivotally connected at 19 with a bracket-arm 20 on the under side of the bed-plate, and is operated from a cam 21 on the driving-shaft 3 through the medium of a pitman-lever 22. This lever 22 is yoked at its upper end over the said cam to be reciprocated vertically thereby, and at its lower end is rounded and passed through an opening in the rear end of the feed-lever 12. As a means for causing a lateral or vibrating movement to the lower end of the pitman-lever 22, so as to actuate the feed-lever, I have connected the same with a fulcrum-pin 23, through the medium of a link

24, which latter is pivotally connected at its opposite ends with said fulcrum-pin and the lever 22, respectively. By this construction, the fulcrum-pin being in proper position relative to the point of connection between the link and the lever 22, the lever-connecting end of said link is caused to move in an arc at an angle to the direction of reciprocation of the lever 22, and so cause a lateral or vibratory movement of the latter, as indicated by dotted lines in Fig. 3.

In order that the lateral or vibratory movement of the lever 22 may be varied, so as to vary the horizontal or feeding movement of the feed-bar through the medium of the lever 12 and so change the length of stitch, I have supported said fulcrum-pin 23 upon a movable lever 25. This lever 25, which I term the "stitch-regulator," is pivotally connected at one end with the bed-plate of the machine by means of a pivot pin or screw 26, and at its opposite end projects through a slot 27 in the arm 2 and through a second slot 28 in a plate 29, which latter is secured in a fixed position on the bed-plate in front of the vertical portion of the arm 2, as shown. The plate 29 is formed in the arc of a circle struck from the pivot of the regulating-lever 25, so that the free end of the latter, which is screw-threaded, may be engaged by a thumb-screw 30 and clamped thereby in any desired adjusted position, the said lever being provided with a fixed collar 31 at the under side of the plate 29, which coacts with the thumb-screw in clamping the opposite sides of said plate.

By moving the free end of the regulator-lever 25 to the lower end of the slot 28 in the plate 29, and thereby bringing the link 24 to a position substantially at right angles to the lever 22, as shown in Fig. 4, the arc described by the lever-connecting end of said link will be substantially parallel with the lever, and so communicate no lateral movement thereto,

in which event there will of course be no horizontal movement of the feed. By raising the end of the regulator-lever toward the upper end of the slot 28, however, the position of the fulcrum 23 is so changed as to cause the lever-connecting end of the link to swing at a greater angle to the lever 22, as shown in Fig. 3, and so increase the vibratory throw of the latter, and thereby the length of stitch.

The plate 29 is preferably provided with an index on its face side, as shown in Fig. 5, and an index-pointer 33 is carried by the regulator-lever 25 on the face of said plate as a convenient means for accurately regulating the length of the stitch.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

In a sewing-machine, the combination, with the feed device, and means for communicating a vertical movement thereto, of the driving-shaft having a cam or eccentric thereon, a horizontally-vibrating feed-lever operatively connected at its forward end with said feed device and at its rear end provided with an opening therein, a vertically-reciprocating pitman-lever actuated by said cam or eccentric and provided at its lower end with a rounded portion which extends loosely through said opening in the feed-lever, a regulating-lever carrying a fulcrum, said lever being pivoted at one end upon a stationary support and at its opposite end extending adjacent to an arc-shaped plate, a clamping device cooperating with said lever and arc-shaped plate for holding the lever in a stationary adjusted position, and a link connecting said fulcrum with said pitman-lever, for the purpose set forth.

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Witnesses:

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