

No. 677,563.

Patented July 2, 1901.

F. B. COMINS.
PICKER STAFF CONTROLLER.

(Application filed Jan. 14, 1901.)

(No Model.)

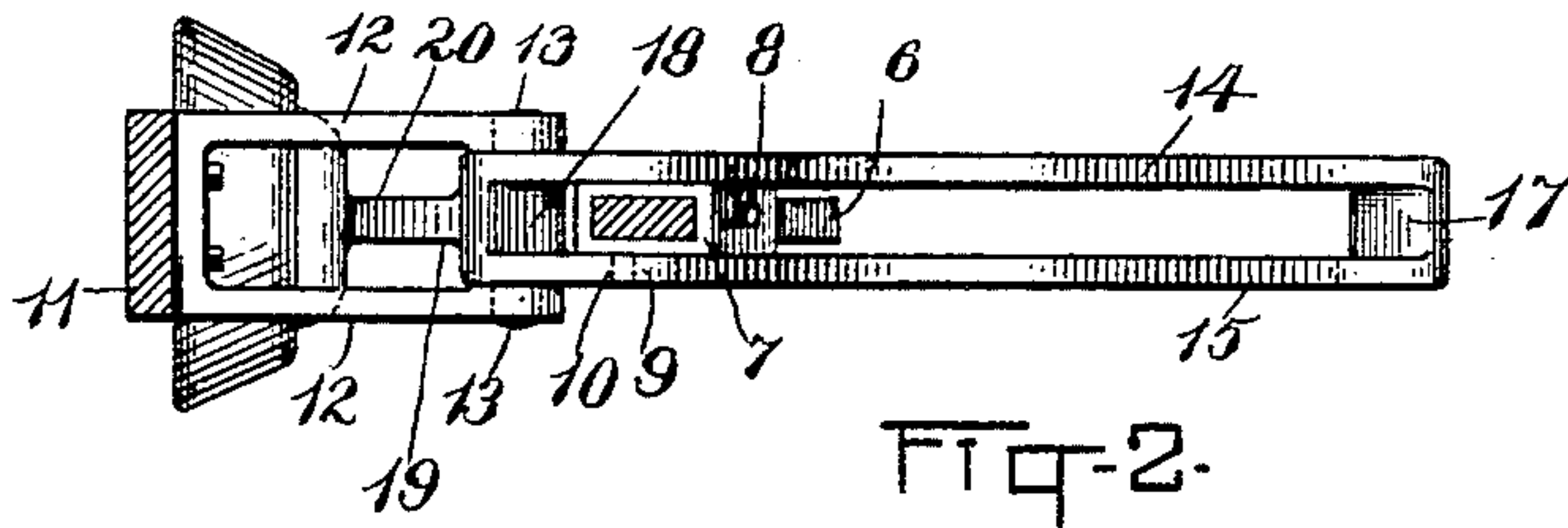


FIG-2.

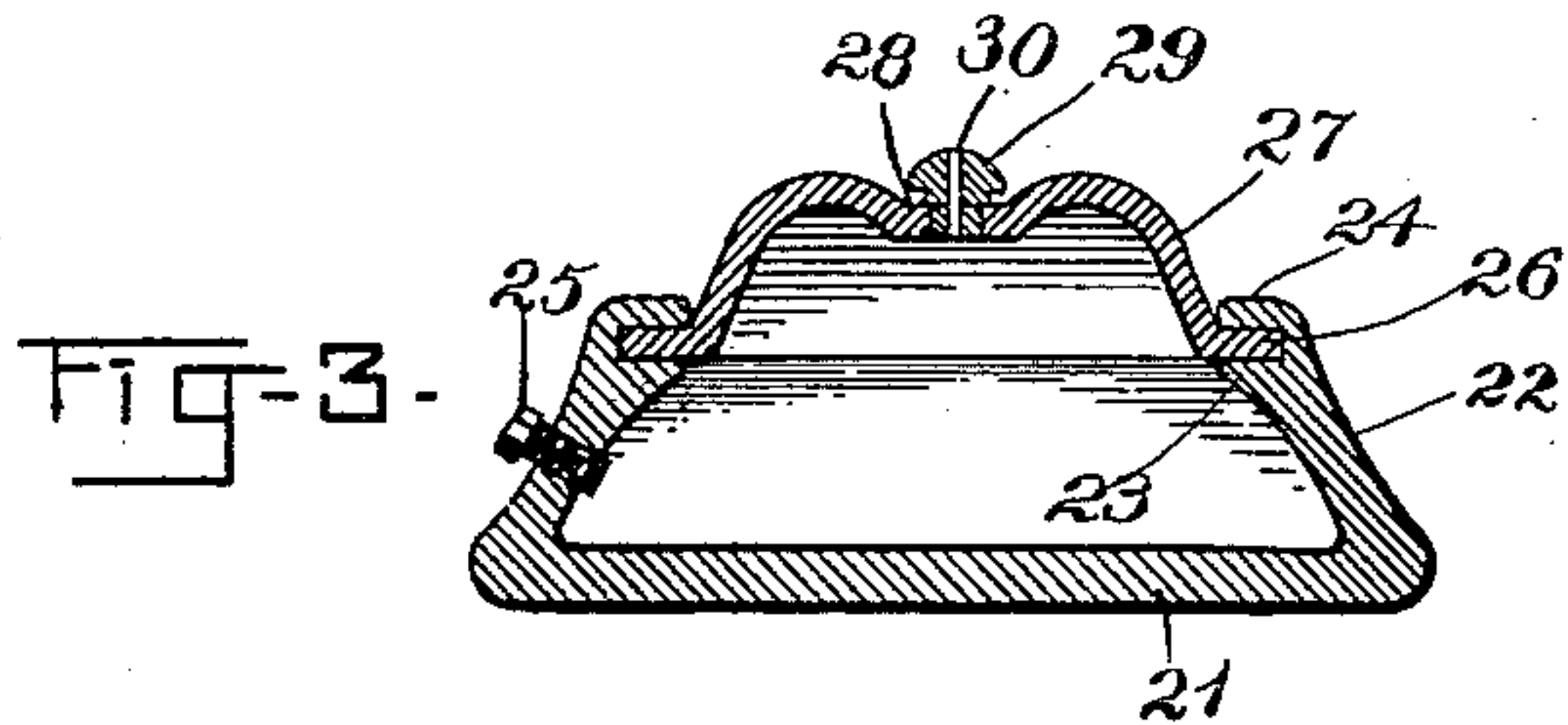
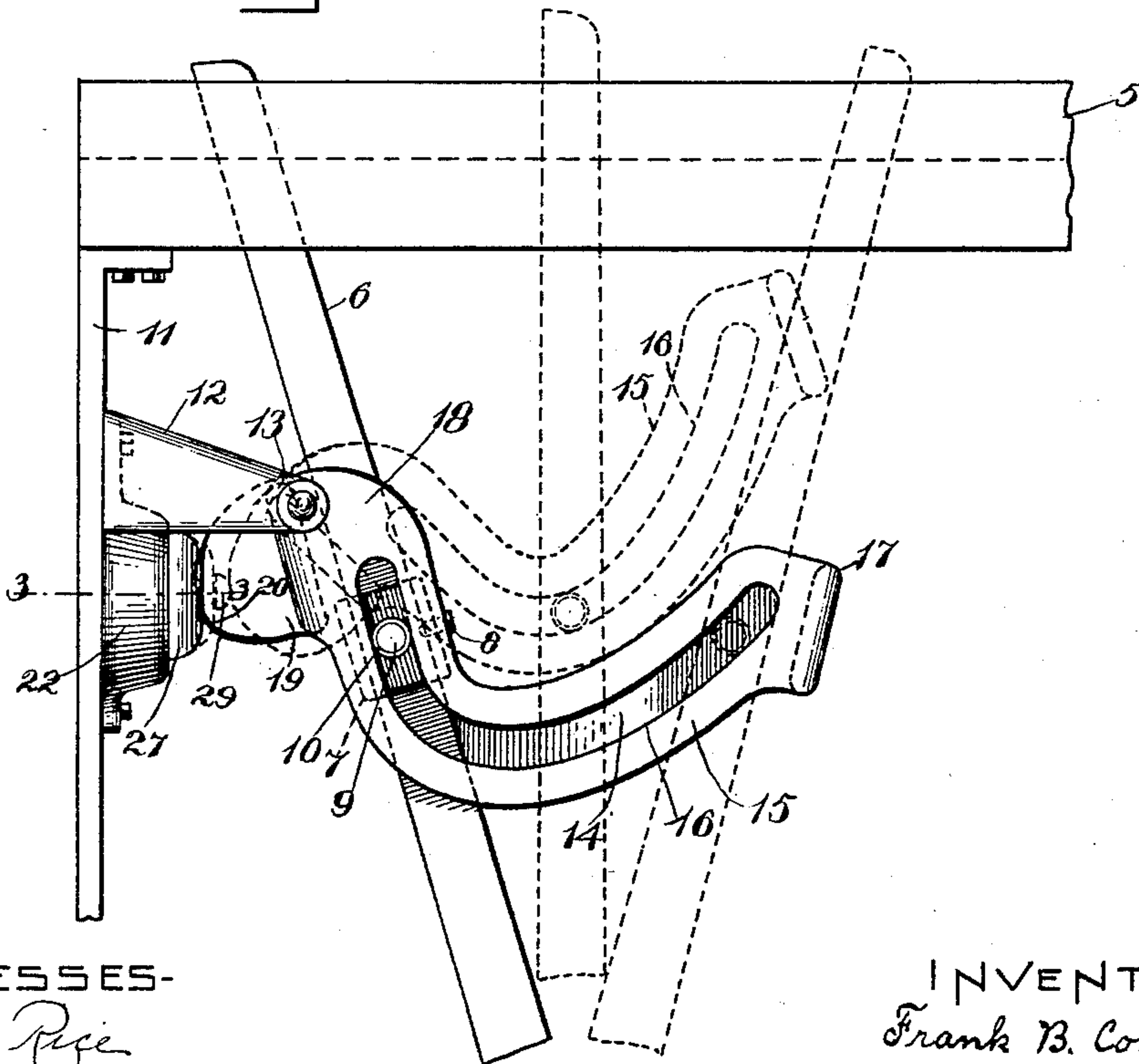


FIG-3.

FIG-1.



WITNESSES-

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PICKER-STAFF CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 677,563, dated July 2, 1901.

Application filed January 14, 1901. Serial No. 43,119. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COMINS, a citizen of the United States, residing at Sharon, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Picker-Staff Controllers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in mechanism for controlling the movement of picker-staffs.

One object of the invention is to control the action of the picker-staff at the ends of its throw.

Another object of the invention is to so construct a pneumatic check or buffer and mechanism related thereto that the buffer will be acted upon as the picker-staff approaches the ends of its throw.

Another object of the invention is to so construct a pneumatic cushion and mechanism related thereto that the picker-staff can be controlled thereby throughout its driven movement.

Another object of the invention is to provide a new and useful pneumatic buffer.

30 The invention consists in a controller-arm adapted to be moved by the picker-staff and means for resisting the movement of this arm at both ends of its throw.

The invention also consists in a fixed resilient buffer, a cam mounted in compressible relation to the buffer, and connections between the cam and the picker-staff.

35 The invention also consists in the pneumatic buffer or cushion, a cam mounted to ride on a portion of the buffer, and means connected with the picker-staff for rocking the cam.

The invention also consists in the construction of the cam and its actuating means operatively connected with the picker-staff.

45 The invention also consists in the construction of the buffer or cushion.

The invention still further consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described, and pointed out in the claims.

50 Figure 1 represents an elevation of the picker-staff controller mounted in relation to parts of a loom. Fig. 2 represents a plan

view of the same. Fig. 3 represents a sectional view of the pneumatic cushion.

Similar numbers of reference designate corresponding parts throughout.

In carrying this invention into practice it has been my object to control the action of the picker-staff of a loom throughout its course of movement, and particularly at the ends of such course, whereby the shuttle-throwing blow of the staff becomes more positive and accurate, the tendency of the staff to rise on its bearing at the end of its driven motion is overcome, the limit of its movement under momentum is reduced, and its recovery accelerated without an undue and sudden retractive action on the staff, while its seating in its normal position is cushioned by reactive means designed to assist in any initial shuttle-throwing impulse.

In the drawings, 5 represents a portion of a loom-slay, and 6 a picker-staff constructed and operated in any usual manner. Secured to the picker-staff for adjustment thereon is the box 7, provided with screw 8 and the pin 9, on which is rotatable the antifriction-sleeve 10.

From the slay 5 or from any other convenient portion of the loom extends the bracket 11, having the arms 12 12 or other supporting extensions, and in bearings in these arms are journaled the pivots 13 13 of the controller member. This controller member comprises the curved side plates 14 and 15, either or both of which—in this case plate 15—is furnished with a slot 16 of approximately the radius shown in the drawings and designed to act as a path or guide in which the sleeve 10 works. The outer ends of the plates are connected by the cross-piece 17 and their inner ends by the pivot base or block 18, and from this base 18 extends the cam 19, so shaped that its working face 20 may throw rearwardly and having a gradual approach to that face, so that a yielding mechanism bearing on the face 20 may be in permanent contact with the face 20 and the approach thereto during any vertical swinging of the controller member on its pivots.

Formed in part with or secured to the bracket 11 is the chamber 21, having the inwardly-inclined wall 22, furnished with the internal annular supporting-face 23 and the

annular locking-lip 24. This wall 22 has a perforation in which is secured the vent-pin 25 or other device for controlling the escape of air from said chamber under some conditions. Between the annular face 23 and the lip 24 is seated and held the circumferential flange 26 of the convex elastic diaphragm 27, having the depressed center 28, through which is secured the metallic riding button 29, having a convex outer surface and an axially-disposed vent 30. The pneumatic cushion thus described is disposed on the bracket 11, so that its riding button 29 will bear against the working face 20 of the cam 19 and under pressure will follow and bear against those portions of the cam called "approaches," whereby during the swinging of the controller member the cam working or compressing face 20 and the approaches thereto continually ride over the button 29, which, through the pressure within the chamber 21, tends to resist the thrust of the cam.

With the mechanism in the positions shown in Fig. 1 of the drawings, the picker-staff being in position to be actuated to drive the shuttle, the riding button 29 is forced by the pressure within the chamber 21 against the cam-face 20 and exerts a pressure thereon. When the picker-staff 6 is actuated, this pressure of the chamber or cushion on the leverage furnished by the radius of the cam from its pivots assists the primal lifting of the controller member to facilitate the passage of the antifriction-sleeve 10 and its pivot through the cam-slot 16, the actual lifting of this controller member being due to the riding of this sleeve in said cam-slot. As the picker-staff approaches midway of its throw the antifriction pivot-bearing rides through the lower curve of the slot 16, the cam-face 20 being so shaped that at this time no resistance is offered to the complete expansion of the diaphragm to exert on said cam-face or its approach merely a controlling contact of the riding button. Approaching the end of the picker-staff throw the bearing-sleeve 10 rides into the upward extension of the cam-slot 16 at the free end of the controller member, thus depressing this end of the member and bringing a corresponding compression by the cam-face 20 on the pneumatic-cushion diaphragm, the resistance to which tends to limit the movement of the controller member, and thus effects a resistance to the movement of the bearing 10 through the slot 16. On the recovery of the staff to its normal position the initial impulse of the staff is assisted while its seating is cushioned from sudden impact, the staff being at all points of its movement under control, the degree of control depending largely on the pressure maintained on the cam-face 20 by the pneumatic cushion or other resistance device.

It is obvious that the cam-slot 16 should be so shaped that it will not unduly retard the picker-staff in its throw or recovery, the resistance to the forward movement of the

picker-staff being offered only as it reaches the point at which the shuttle leaves the picker.

I do not confine myself to the use of the pneumatic cushion herein described, for it is evident that many other forms of resistance, such as springs, may be substituted therefor, and any other form of leverage may be substituted for the cam 19.

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

1. A picker-staff, a controller-arm therefor, means for movably supporting the arm in a loom, connections between the arm and the staff whereby the arm may be moved, and resistance means for resisting the movement of the arm at both ends of its throw.

2. A picker-staff, a controller-arm therefor, means for movably mounting the arm in a loom, connections between the arm and the staff whereby the arm may be moved, and a resistance disconnected from said arm and adapted to resist the movement thereof at times.

3. A picker-staff, a controller-lever pivotally mounted and having a cam, connections therebetween whereby the lever may be swung and a resistance bearing on the cam.

4. A picker-staff, a bearing-pin secured thereto, a lever pivotally mounted and having a path or guide in which the bearing-pin works, and means for resisting the movement of the lever at times.

5. A picker-staff, a bearing projection secured thereto, a lever pivotally mounted and having a cam at one end and a curved guide in which the projection may work, and a resistance device against which the cam permanently bears.

6. A picker-staff furnished with a lateral projection, a lever having a curved guide in which the bearing may work, and a pneumatic cushion in permanent operative relation with the lever.

7. A picker-staff furnished with a lateral projection, a lever pivotally mounted and having a curved guide-slot in which the projection works and a cam, and a pneumatic cushion against which the cam bears with increased pressure at times.

8. In a picker-staff controller, the pneumatic cushion comprising the chamber having the inwardly-contracted wall furnished with the annular supporting-face and the annular securing-lip, and the convex diaphragm having the circumferential flange, secured between said support and lip, the depressed central portion and the perforated riding button secured in said depression.

9. In a picker-staff controller, the pneumatic cushion or resistance, a cam mounted in bearing relation thereto and adapted to compress the same at times, and connections between the cam and the picker-staff whereby the cam is brought into such compressive relation at both ends of the picker-staff throw.

10. The combination with a bracket adapted to be secured in a loom and having a pneumatic cushion, and the controller-lever having the plates 14 and 15, the plate 15 having
5 the slot 16, the end 17, the base 18 and the cam 19 pivotally supported by such bracket, of the box 7, provided with means whereby it may be secured to a picker-staff, and having the pin 9 with its sleeve 10 adapted to travel

in the slot 16, as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK B. COMINS.

Witnesses:

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HENRY J. MILLER.