

No. 628,851.

Patented July 11, 1899.

W. S. REED.

DEVICE FOR STRINGED MUSICAL INSTRUMENTS.

(Application filed Feb. 4, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

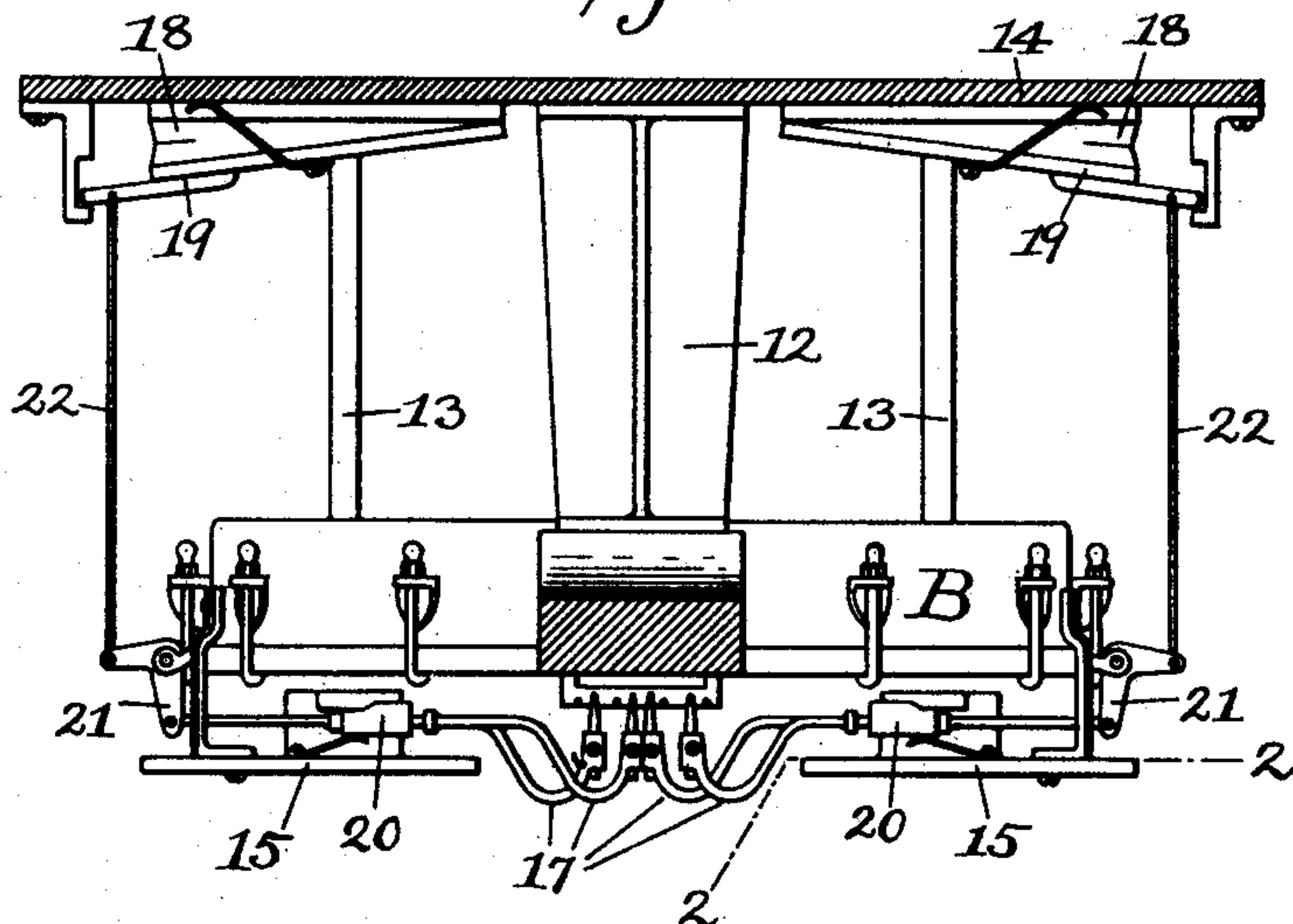
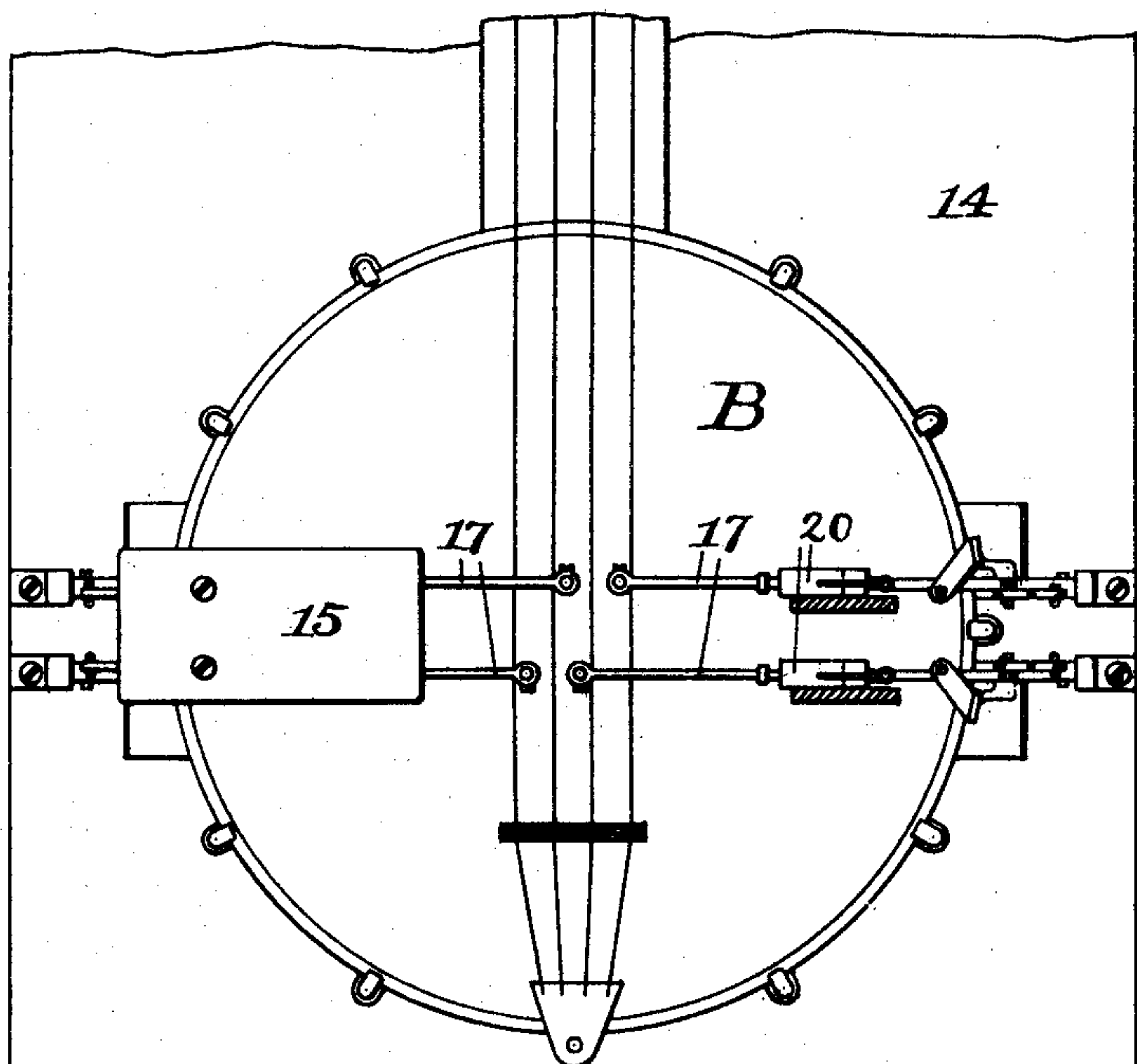


Fig. 2



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Fig. 3

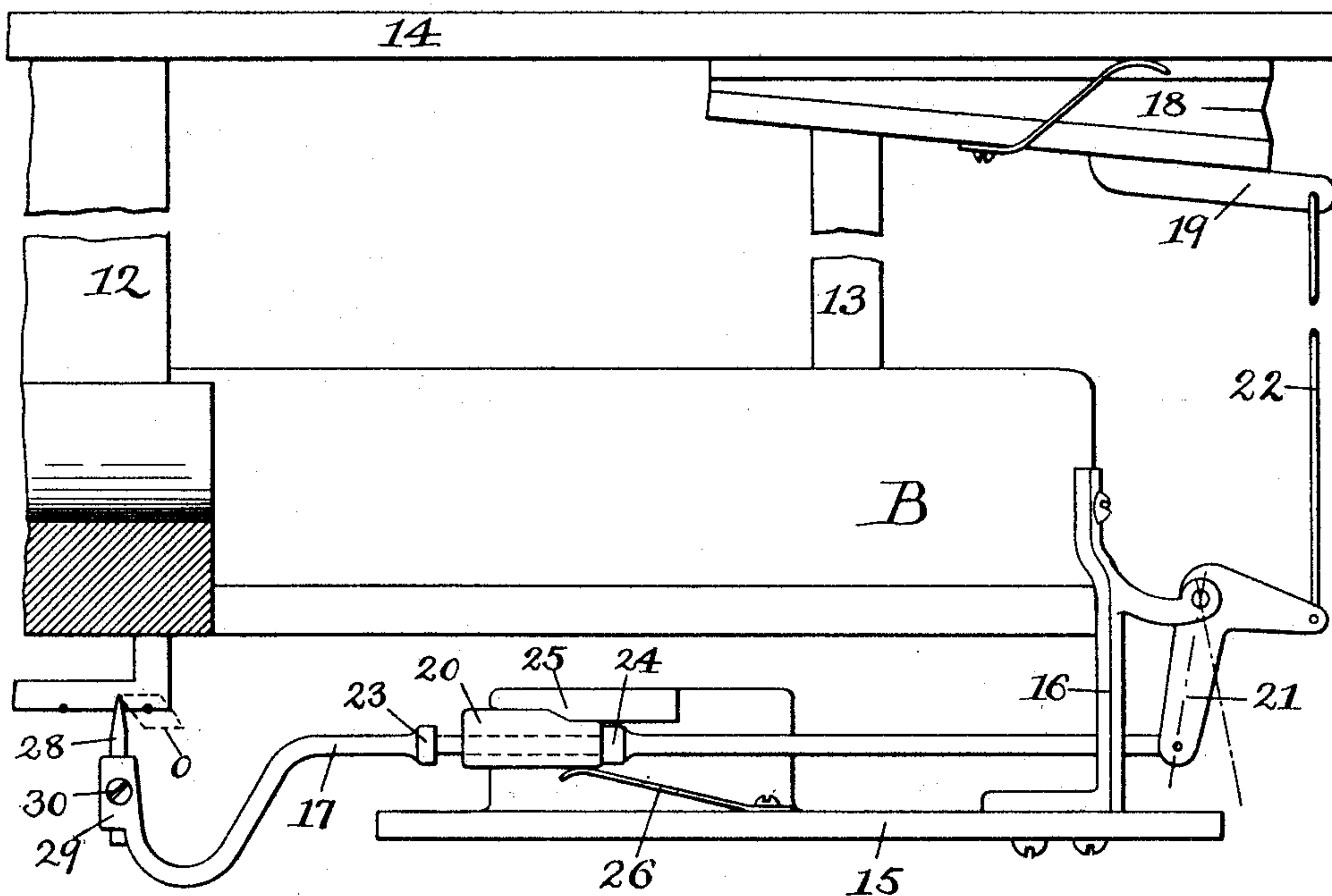
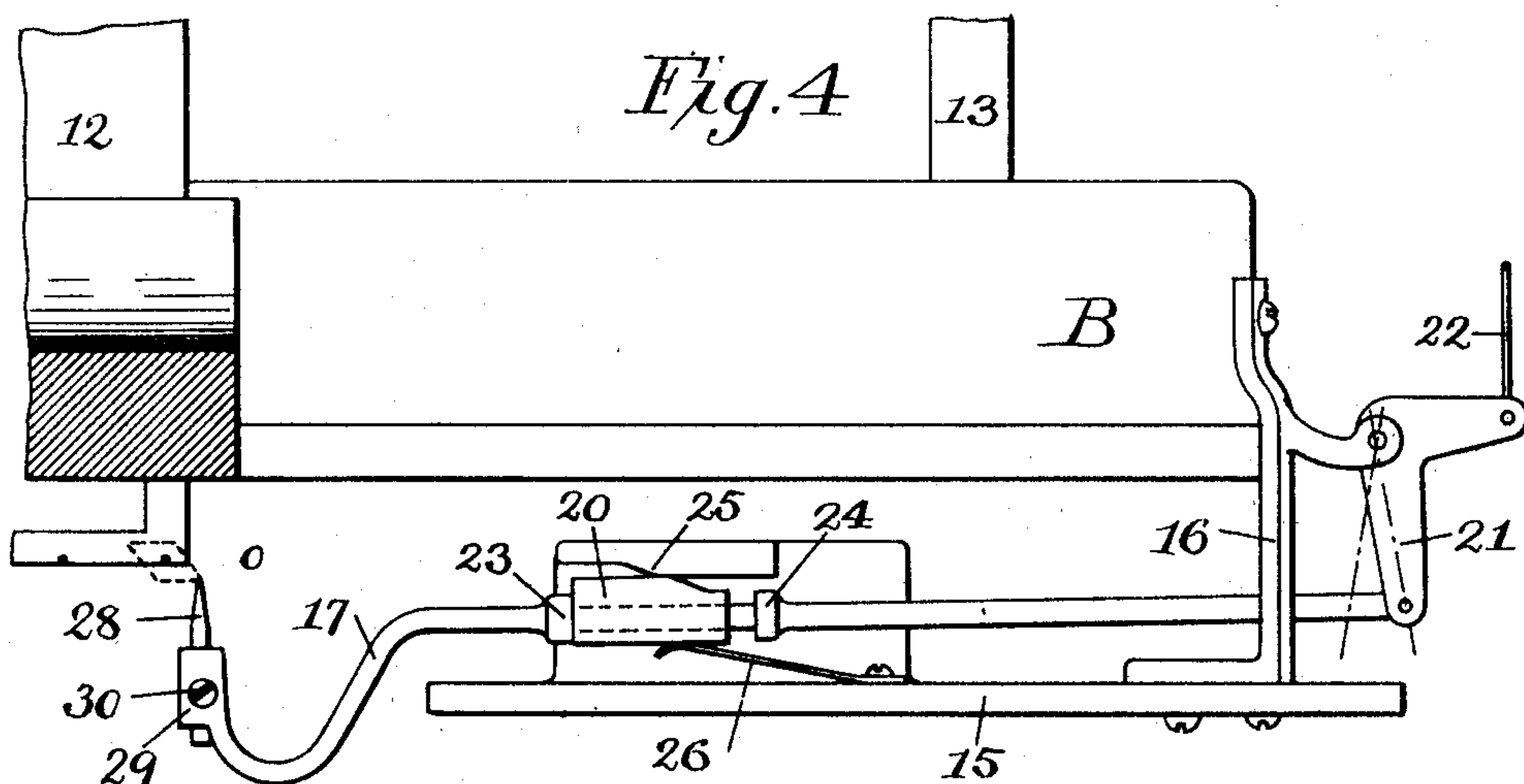


Fig. 4



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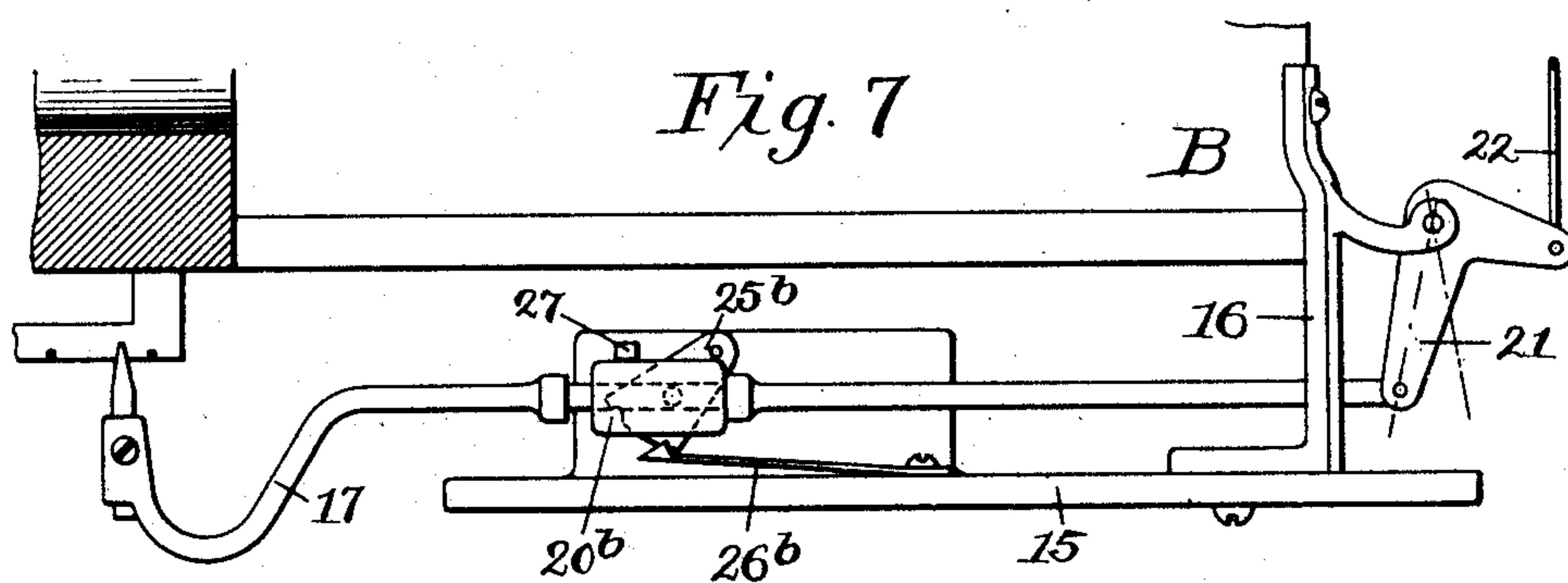
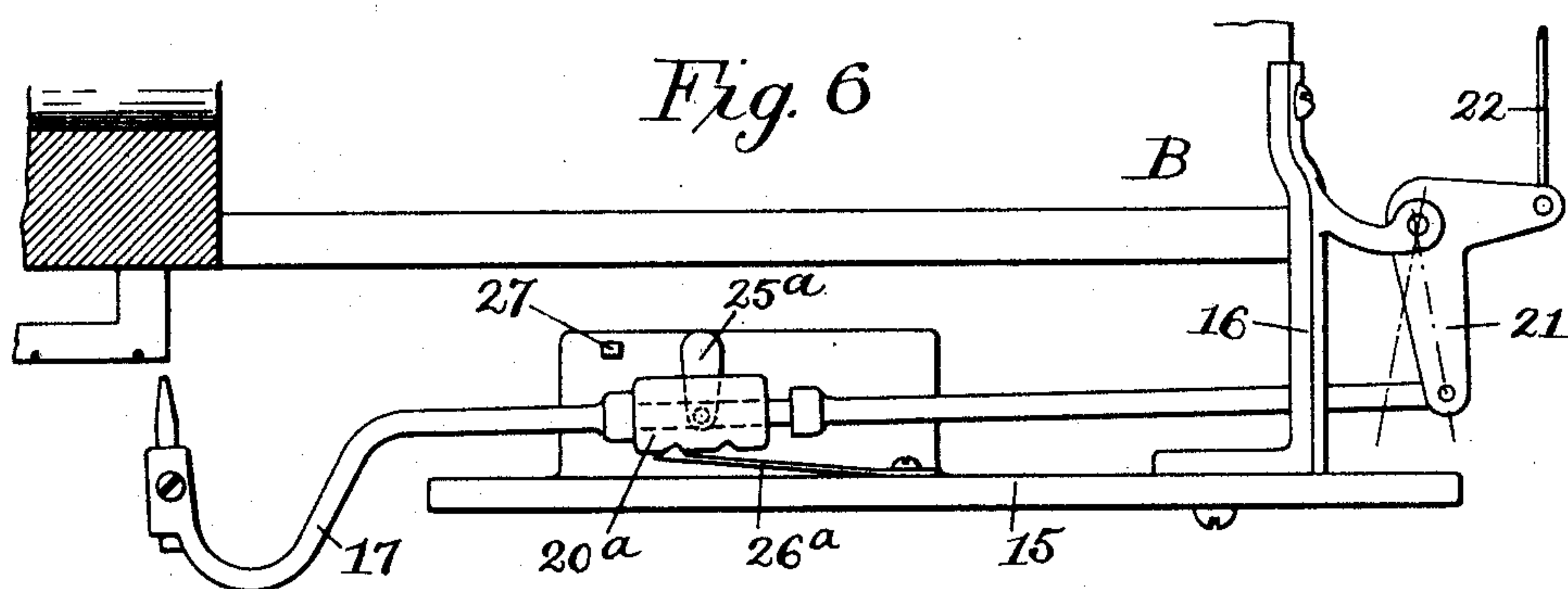
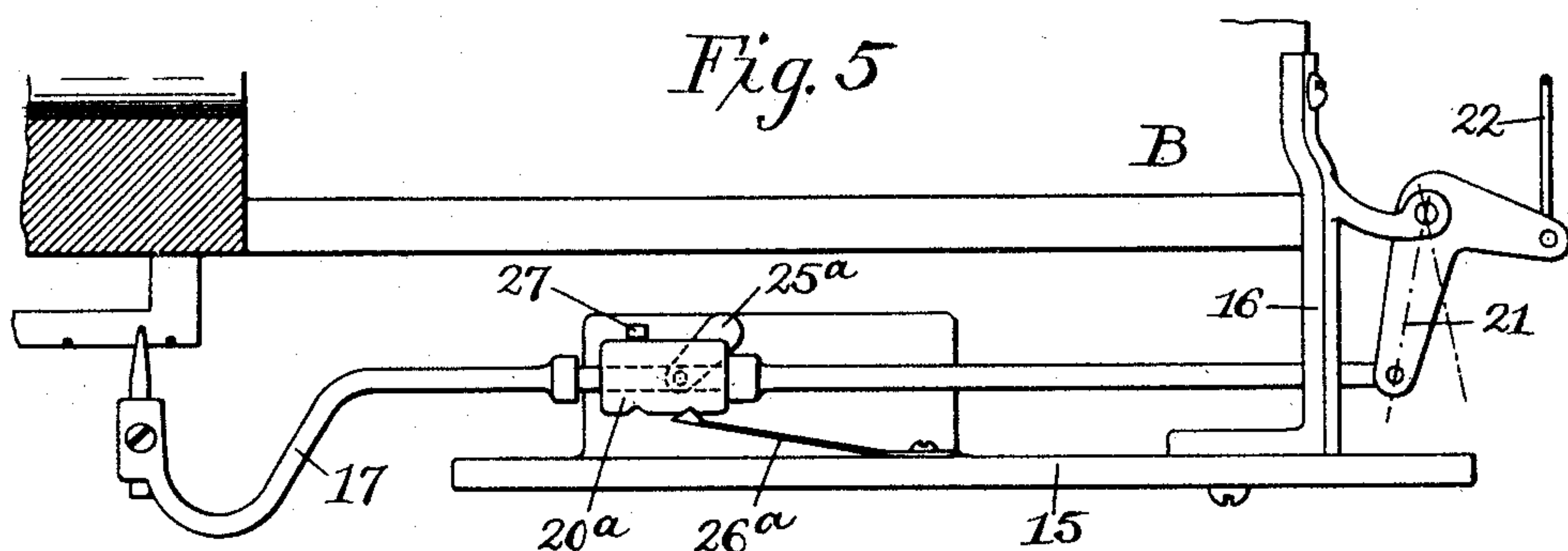
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## DEVICE FOR STRINGED MUSICAL INSTRUMENTS.

(Application filed Feb. 4, 1899.)

(No Model.)

3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR STRINGED MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 628,851, dated July 11, 1899.

Application filed February 4, 1899. Serial No. 704,519. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. REED, a citizen of the United States of America, and a resident of Leominster, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Devices for Stringed Musical Instruments, of which the following is a specification.

10 This invention relates to apparatus for mechanically picking the strings of automatic or self-playing stringed musical instruments, the object being to provide means for controlling the movements of the respective picker-fingers, so as to guide the string-engaging point of each picker in an orbital path which is best adapted to pick the string in the most effective way. This path brings the point of the picker into engagement with the string upon its forward stroke, releases it therefrom when a suitable lateral movement has been imparted to the string, and returns it to its first position of rest ready for the succeeding pick by a path which carries it clear of the string, so as not to interfere with the vibrations thereof. This object is herein attained by means of a controller which is supported upon the instrument with a capacity for movement in a direction substantially corresponding to that of the desired lateral movement of the picker, the latter being mounted for longitudinal movement relative to the controller to an extent required for the desired contour of the aforesaid orbital path.

35 Figure 1 of the drawings is a plan view, and Fig. 2 is a front view, partly in section, taken on the line 2 2 of Fig. 1, showing the devices of my present invention applied to the head of a banjo of the ordinary and well-known type. Figs. 3 and 4 are enlarged plan views of the picker and its operating and controlling devices, showing the picker in two phases of its operation when the picker-point is at opposite ends of its orbital path. Figs. 45 5 and 6 are enlarged plan views showing a modified form and arrangement of the controlling devices for the picker, these views, like those of Figs. 3 and 4, representing the parts in two phases of their movement. Fig. 50 7 is a plan view, on enlarged scale, showing

still another modified construction and arrangement of the controlling devices for the picker.

This invention, although applicable to stringed musical instruments of varied kinds, is illustrated herein as applied to a banjo of ordinary construction. The banjo B is supported by means of the bracket 12 and the posts 13, extending from the base 14. The devices of the present invention are attached to the harps 15 on either side of the instrument, and these in turn are supported by the brackets 16, attached to the rim of the banjo.

The pickers 17 are each connected, by means of a bell-crank 21 and rod 22, with a movable side 19 of a bellows-motor 18, herein represented as being attached to the base 14. The series of bellows-motors for the pickers communicates with a corresponding series of pneumatic actions and with a tracker-bar, over which is drawn a note-sheet for initiating and controlling the operation of the respective parts. These operating devices for the bellows-motors are not herein shown, inasmuch as they form no part of the present invention and may be of any one of several forms already well known in this art.

At a point conveniently adjacent to its string-engaging end the picker 17 engages with its controller, which is preferably a block 20, fitted to slide upon the picker between the shoulders 23 and 24 thereof. The orbital path *o*, followed by the string-engaging point of the pickers, is indicated in Figs. 3 and 4 by dotted lines adjacent to the picker-point. The movements of the picker-point along the straight portions of the orbital path parallel with the plane of the strings are imparted by the longitudinal sliding movement of the picker with relation to its controller, the extent of that longitudinal movement being determined by the shoulders 23 and 24 and being substantially equal to the length of the aforesaid straight portions of the orbital path.

The inclined lateral movements of the picker-point at the ends of its orbit are produced by corresponding movements of the controller, which in the construction shown in Figs. 3 and 4 are effected by the contour of the engaging faces of the controller and its



guide 25, the latter being integral with or attached to the harp 15. The controller is yieldingly held into engagement with its guide by means of the spring 26, which also serves as a detent for holding the block in the positions shown in Figs. 3 and 4 while the picker-point is traversing the straight portion of its orbital path, through which it moves from each of the positions shown in those figures.

In machines of this class it is highly desirable to provide ready means for adjusting the orbit of movement of the picker-point with relation to its string, and particularly with reference to the depth of its engagement therewith. As a ready means for effecting such an adjustment the end of the picker is provided with a transversely-arranged socket 29, in which is fitted a removable picker-point 28. This picker-point may readily be adjusted lengthwise in its socket, so as to enable it to have a suitable depth of engagement with its string, and when adjusted to place may be clamped by means of the screw 30.

During the intervals between the notes to be sounded the picker devices rest in the position shown in Fig. 3. At the commencement of its operation the picker-point is drawn by its motor into engagement with the string, the picker sliding in its controller until the shoulder 23 is brought against the controller, carrying the latter to the position shown in Fig. 4, and thereby moving the picker-point along the inclined portion of its orbit, causing it to release its string. Upon the return stroke of the picker it first slides through the block until the picker-point is carried past the string. Then the shoulder 24 moves the controller and the picker back to the position of Fig. 3, where they rest until the succeeding actuation.

In the modification shown in Figs. 5 and 6 the inclined lateral movements of the picker are due to the manner of its suspension upon the guide-piece 25<sup>a</sup>, which is pivotally mounted upon an extension of the harp 15 and oscillates between the two positions shown in these figures. The lateral movement of the controller 20<sup>a</sup> is limited in its inward direction by the stop 27 and in its outward direction, as shown in Fig. 6, by its guide-piece 25<sup>a</sup>, which in this position arrives at its "dead-center," so far as the lateral movement of the controller is concerned. In this modification the controller is held at the conclusion of its respective lateral movements and during the succeeding longitudinal movement of the picker relative thereto by the detent 26<sup>a</sup> entering suitably-disposed notches in the side of the controller.

In the modification of this invention shown in Fig. 7 the pivotally-mounted guide-piece 25<sup>b</sup> differs from that of Figs. 5 and 6 in the respect that it is extended beyond the point

of its pivotal connection with its controller 20<sup>b</sup>, forming a sector having upon its outer arc-surface two notches with which the detent 26<sup>b</sup> engages and which are so located as to hold the controller at suitable positions during the longitudinal movements of the picker.

The notches in the controllers and the correspondingly-toothed detents 26<sup>a</sup> 26<sup>b</sup> are not essential features of the modifications, inasmuch as smooth-faced detents would serve equally well, it being only necessary to hold the controller yieldingly in its two positions.

The mode of operation of the modifications of this invention is substantially like that of the devices of Figs. 3 and 4 above described.

I claim as my invention—

1. In a stringed musical instrument, in combination with the picker thereof, a controller supported for movement in the direction of desired lateral movement of the picker, the picker being mounted for longitudinal movement relative to the controller to an extent permitting of the desired longitudinal separation between the opposite lateral movements of the picker-point.

2. In a stringed musical instrument, a controlling device for the picker thereof, consisting of a controller supported for movement in a direction substantially corresponding to that of the desired lateral movement of the picker, and means for connecting the controller with the picker which permit of a relative longitudinal movement of the picker to the desired extent.

3. In combination with the picker of a stringed musical instrument, a controlling device for the movements thereof, to guide the string-engaging picker in the described orbital path, consisting of a controller engaging with the picker and having a longitudinal movement relative thereto of a length substantially equaling that of the straight longitudinal portion of the orbit of the picker-point, the controller being supported for movement in a direction substantially corresponding to that of the lateral or string-releasing portion of the orbit, with means for yieldingly detaining the controller during the said longitudinal movement of the picker.

4. In combination with the picker of a stringed musical instrument, a controller supported for movement in a direction substantially corresponding to that of the desired lateral movement of the picker, and mounted for longitudinal movement upon the picker to the desired extent, and a detent for yieldingly detaining the controller at each end of its lateral movement.

Signed by me, at Boston, Massachusetts, this 27th day of January, 1899.

WILLIAM S. REED.

Witnesses:

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P. W. PEZZETTI.