

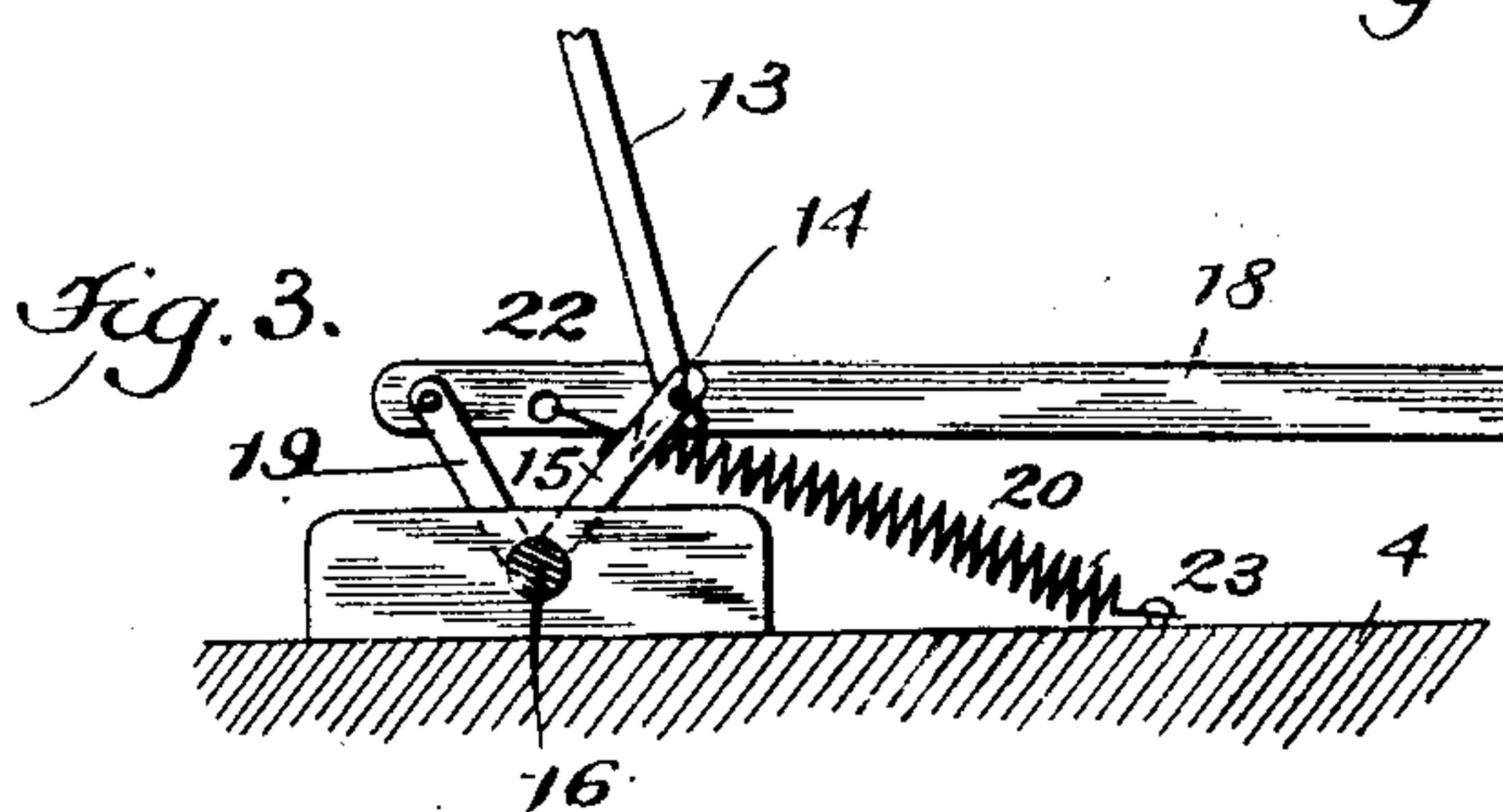
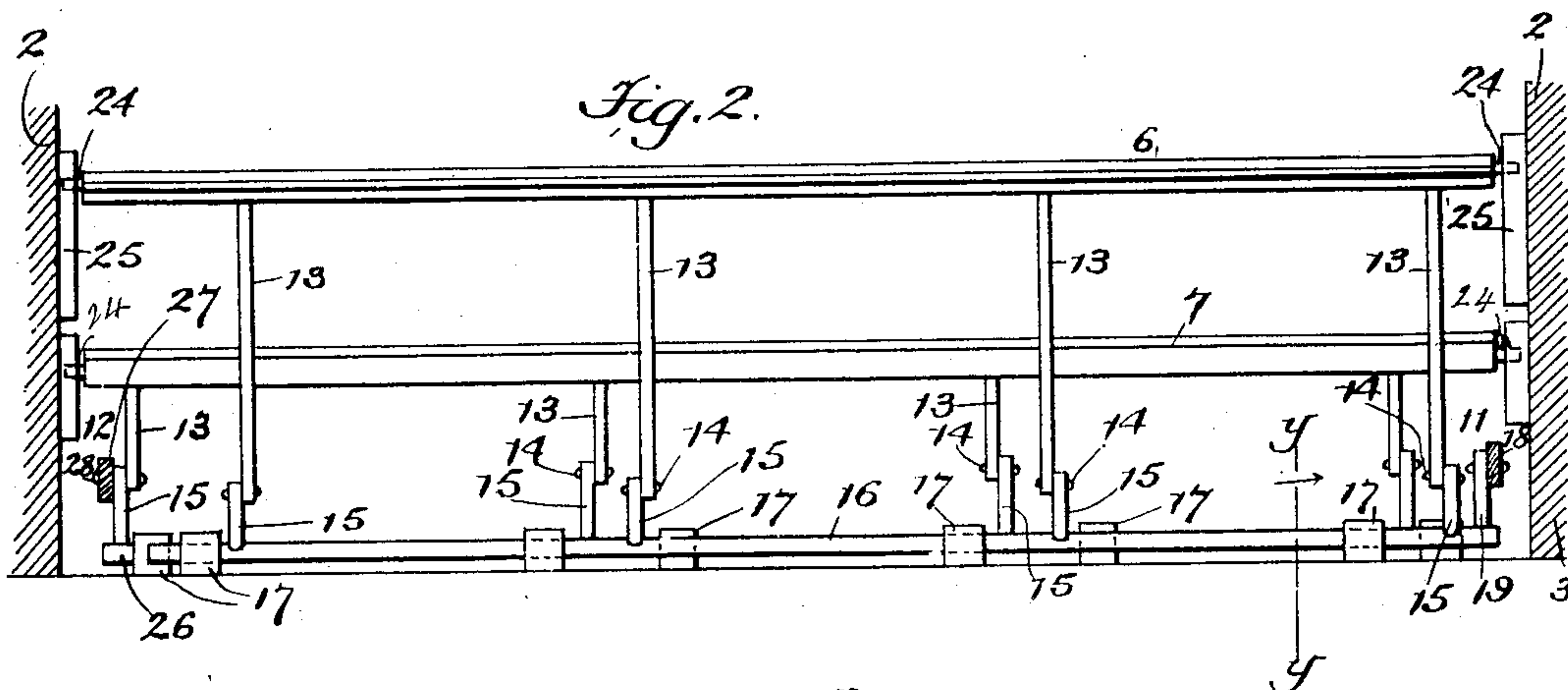
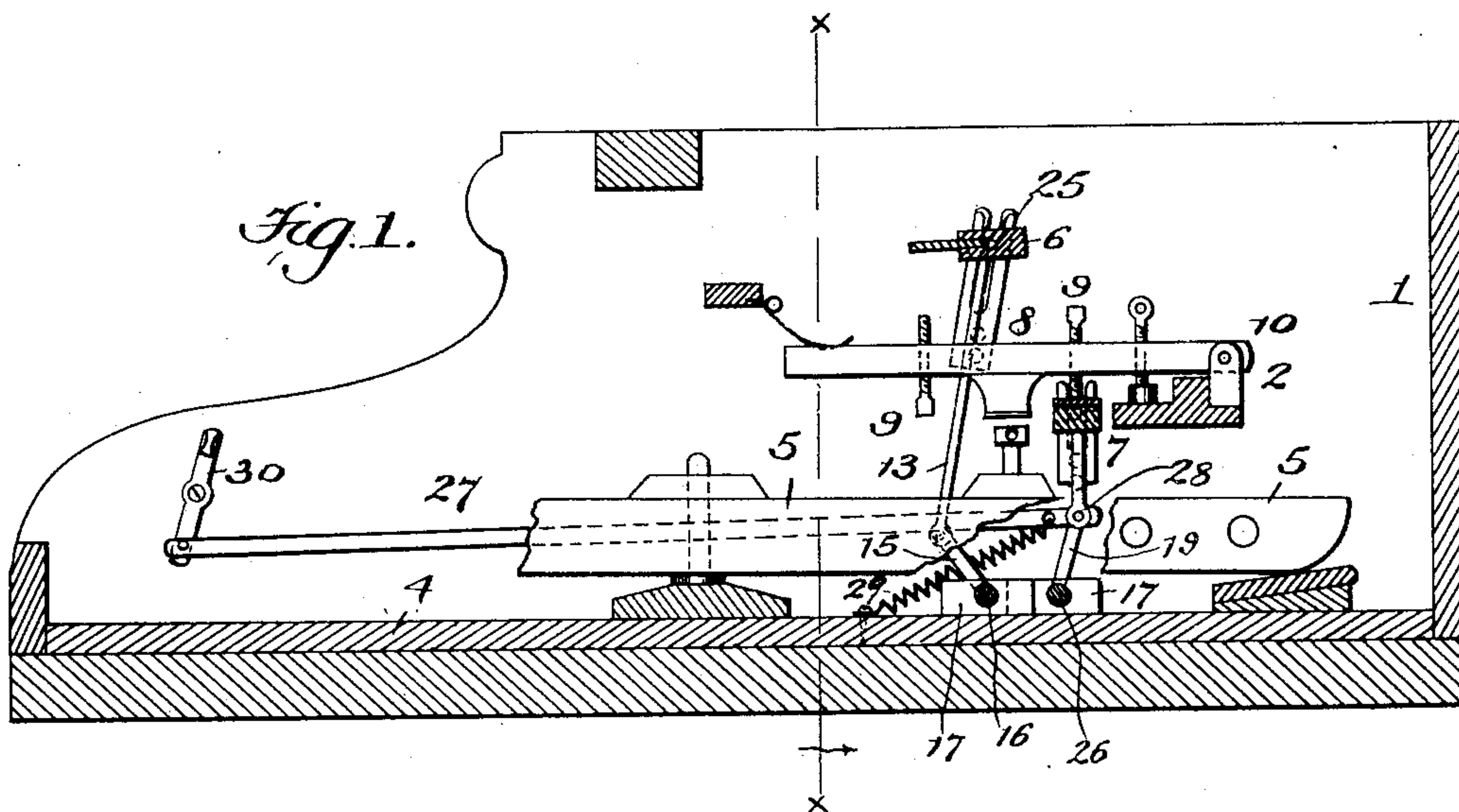
No. 687,972.

Patented Dec. 3, 1901.

A. C. BERGMAN.
PRACTICE CLAVIER.

(Application filed Dec. 13, 1900.)

(No Model.)



WITNESSES
Edwood Bell
J. M. Hoctor

INVENTOR
Amos C. Bergman,
BY *Raymond S. Blakelee,*
his ATTORNEY.

UNITED STATES PATENT OFFICE.

AMOS C. BERGMAN, OF NEW YORK, N. Y.

PRACTICE-CLAVIER.

SPECIFICATION forming part of Letters Patent No. 687,972, dated December 3, 1901.

Application filed December 13, 1900. Serial No. 39,851. (No model.)

To all whom it may concern:

Be it known that I, AMOS C. BERGMAN, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Practice-Claviers, of which the following is a specification.

This invention relates to practice-claviers; and it has for its object to provide improved means for adjusting the sound-producing or "click" devices which are customarily embodied in practice-claviers.

The present invention constitutes an improvement or modification with respect to the related subject-matter embodied in a prior application for Letters Patent filed by me June 5, 1900, Serial No. 19,123.

The present invention provides a construction for the purpose set forth which is superior in point of ease and positiveness of operation and general efficiency.

In the drawings, Figure 1 is a longitudinal sectional view of a practice-clavier embodying my present invention, several of the parts being broken away for clearness of illustration. Fig. 2 is a transverse sectional view of the same, taken upon the line $x x$ in Fig. 1 and looking in the direction of the adjacent arrow, the improved construction above alone being shown. Fig. 3 is a detail sectional view taken upon the line $y y$ in Fig. 2 and looking in the direction of the adjacent arrow.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring to the drawings, 1 designates the casing of a practice-clavier, which embodies side members 2 and 3 and a bottom member 4. Within the casing 1 are arranged the keys, one of which is illustrated at 5, and the sound-producing elements, two of which are preferably employed, as illustrated at 6 and 7. In the preferred form of construction, as disclosed in the prior application initially herein referred to, the sound-producing elements 6 and 7 are operated upon by a plurality of hammer elements, one for and operated by each key 5, as illustrated at 8. Each hammer element embodies a striker device 9 for each of the sound-producing elements 6 and 7. The hammer elements and striker devices carried thereby are operated by the keys in a vertical path of movement, the hammer ele-

ments being each pivotally supported at one end, as at 10.

The sound-producing elements 6 and 7 are adjustably mounted, and their positions with respect to the path of play of the striker devices 9 are respectively regulated and determined, according to my present invention, by means of the adjusting devices 11 and 12.

According to the present invention in the preferred form of construction the sound-producing elements, which range, respectively, transversely above and below the hammer elements, are each capable of vertical adjustment and rotation or pivotal movement upon a longitudinal axis. The sound-producing element 6 is mounted upon a plurality of upright props or arms 13, which are pivotally connected at their lower end, as at 14, with supplemental props or arms 15, which are rigidly connected with a rod or shaft 16, which extends transversely of the casing 1 and beneath the keys 5. The rod 16 is revolvably mounted in bearing-blocks 17, secured to the casing-bottom 4. An operating-arm 18 is operatively connected with the rod 16, preferably by means of a crank-arm 19, fixed to the rod 16. The crank-arm 19 and operating-arm 18 are preferably arranged at one side of the casing 1 and connected with one end of the rod 16.

20 designates tensional means which exert a constant tendency to maintain the sound-producing element 6 in depressed or operative position and preferably consists of a coiled spring secured at one end to the operating-arm, as at 22, and at the other end to the frame-bottom 4, as at 23, at a point forward of the point of connection 22.

The sound-producing element 6 is guided in its vertical movement and axial oscillation by means of end projections or pins 24, which operate between spaced cleats or strips 25, secured to each of the sides 2 of the casing.

When the operating-arm 18 is moved longitudinally, it adjusts the sound-producing element 6 in a vertical path with respect to the path of play of the striker devices 9, which coact with the same.

The sound-producing device 7 extends transversely of the casing 1, above which the hammer elements are supported similarly to the elements 6 by props or arms 13, pivotally

connected, as at 14, with supplemental props or arms 15, rigidly connected with a rod or shaft 26, which extends transversely of the casing 1 and beneath the keys 5. The rod 26 is revolvably mounted in bearing-blocks 17, secured to the casing-bottom 4. An operating-arm 27 is operatively connected with the rod 26, preferably by means of one of the supplemental props or arms which is secured to the same, with which prop or arm it is pivotally connected, as at 28, at the point of pivotal connection of the respective prop or arm 15 and that one of the props or arms 13 which is connected with the latter. The operating-arm 27 is preferably arranged at the side of the casing opposite that at which the operating-arm 18 is arranged and connects with the adjacent end of the rod 26. Tensional means 29, similar in arrangement, construction, and function to the tensional means 20, are connected with the operating-arm 27 and exert a constant tendency to maintain the element 7 in elevated or operative position.

The sound-producing element 7 is guided in its vertical movement and axial oscillation similarly to the element 6 by end projections or pins 24, which operate between spaced cleats 25, secured to each of the sides of the casing.

When the operating-arm 27 is moved longitudinally, it adjusts the sound-producing element 7 vertically in a manner similar to that in which the element 6 is adjusted and in a path with respect to the path of play of the striker devices, which coact with the same.

The operating-arms 18 and 27 may be each supported at its forward end in any desired manner, but preferably by means of a thumb-lever 30, as illustrated in connection with the operating-arm 27, which thumb-lever is centrally pivoted to the adjacent casing side 2.

The rods or shafts 16 and 26 are respectively arranged substantially in alinement with the elements 6 and 7. The crank-arm 19 is connected with the rod 16 at an angle with the props 15, which are connected with said rod for more effective actuation of the said props by the operating-arm 18. It is manifest that the operating-arm 27 may, if desired, have a crank-arm connection with the rod 26 in the same manner as the operating-arm 18.

The operation and advantages of my improved adjusting means for sound-producing elements will be readily understood.

The tensional means 20 and 29 tend to maintain the elements 6 and 7 in operative respectively depressed and elevated position and assist the forward movements of the operating-arms in adjusting the said elements into operative position and oppose the opposite movement of the operating-arms. The construction and relative arrangement of parts is such that when the operating-arm 18 is in extreme forwardly-adjusted position the props 13 and 15, which are connected with the element 6 and with the rod 16, are in extreme

relative angular position and the element 6 is in operative or depressed position and that when the operating-arm 18 is in extreme rearwardly-adjusted position the same props are in approximately straight end-to-end or co-extensive position and the element 6 is in inoperative or elevated position. Contrarily, when the operating-arm 27 is in extreme forwardly-adjusted position the props 13 and 15, which are connected with the element 7 and with the rod 26, are in approximately straight end-to-end or coextensive position, and the element 7 is in operative or elevated position, and when the operating-arm 27 is in extreme rearwardly-adjusted position the last-mentioned props are in extreme angular relative position and the element 7 is in inoperative or depressed position. When the element 7 is in operative position, the props 13 and 15, which are connected with the same, being in coextensive end-to-end position, oppose positively the impact of the striker devices 9 upon the element 7 and firmly maintain the element 7 in operative position. Both elements 6 and 7 are firmly maintained in operative position by the tensional means 20 and 29, respectively.

It will be noted that the elements 6 and 7 during their vertical adjustment are swung in a longitudinal axial movement by the props 13 and 15, but are maintained in the proper path of vertical movement by the end projections 24 and cleats 25. The operative leverage connections between the operating-arms 18 and 27 and elements 6 and 7, respectively, produce positiveness and ease of operation.

The parts are maintained in normal inoperative position in opposition to the constant tendency of the tensional means 20 and 29 preferably by the friction and weight of parts.

I do not desire to be understood as limiting myself to the specific details of construction and arrangement as herein specified, but reserve the right to such variation and modification as shall fall within the scope of my invention and the terms of the following claims.

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

1. In a practice-clavier, the combination, with an adjustable sound-producing element, and means for guiding the same in its adjustment; of movable supports for the same consisting of a rotatable rod or shaft, main props fixed to the sound-producing element, supplemental props fixed to said rod or shaft and operatively connected with said main props, and means for actuating said rod or shaft.

2. In a practice-clavier, a casing, a sound-producing element adjustably mounted therein, said casing being provided with members which guide said sound-producing element in its adjustment, main props connected with said sound-producing element, a rotatable rod or shaft, supplemental props fixed to said rod or shaft and operatively connected at their outer ends with said main props, and an

operating-arm connected with said rod or shaft and whereby said sound-producing element may be adjusted.

3. In a practice-clavier, a casing embodying
5 oppositely-arranged members, spaced guides or cleats arranged upon each of said members, a sound-producing element provided with end projections which operate between the guides or cleats upon said casing members, a
10 prop fixed to said sound-producing element, a rod or shaft arranged beneath said sound-producing element and capable of oscillation, a supplemental prop fixed to said rod or shaft

and operatively connected with the lower end portion of said first-named prop, and an op- 15
erating-arm operatively connected with said rod or shaft whereby the sound-producing element may be vertically adjusted and oscillated upon a longitudinal axis.

In testimony whereof I have signed my 20
name, in the presence of the subscribing witnesses, this 19th day of October, 1900.

AMOS C. BERGMAN.

Witnesses:

FREDERIC MARINER,

RAYMOND J. BLAKESLEE.