

No. 850,330.

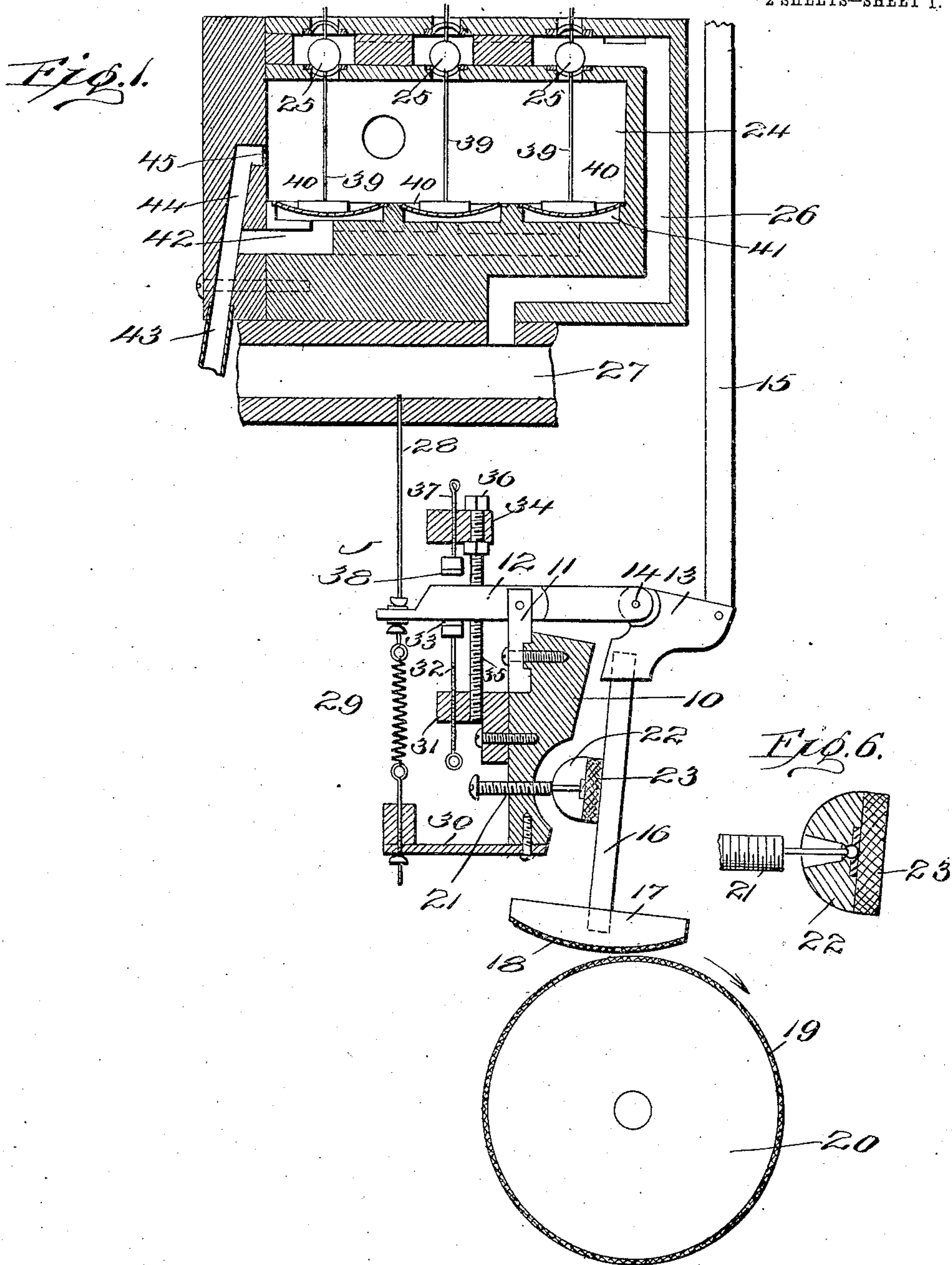
PATENTED APR. 16, 1907.

E. D. ACKERMAN, C. E. CLINTON & R. N. ELTOM.

SELF PLAYING MUSICAL INSTRUMENT.

APPLICATION FILED FEB. 7, 1906.

2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 2.

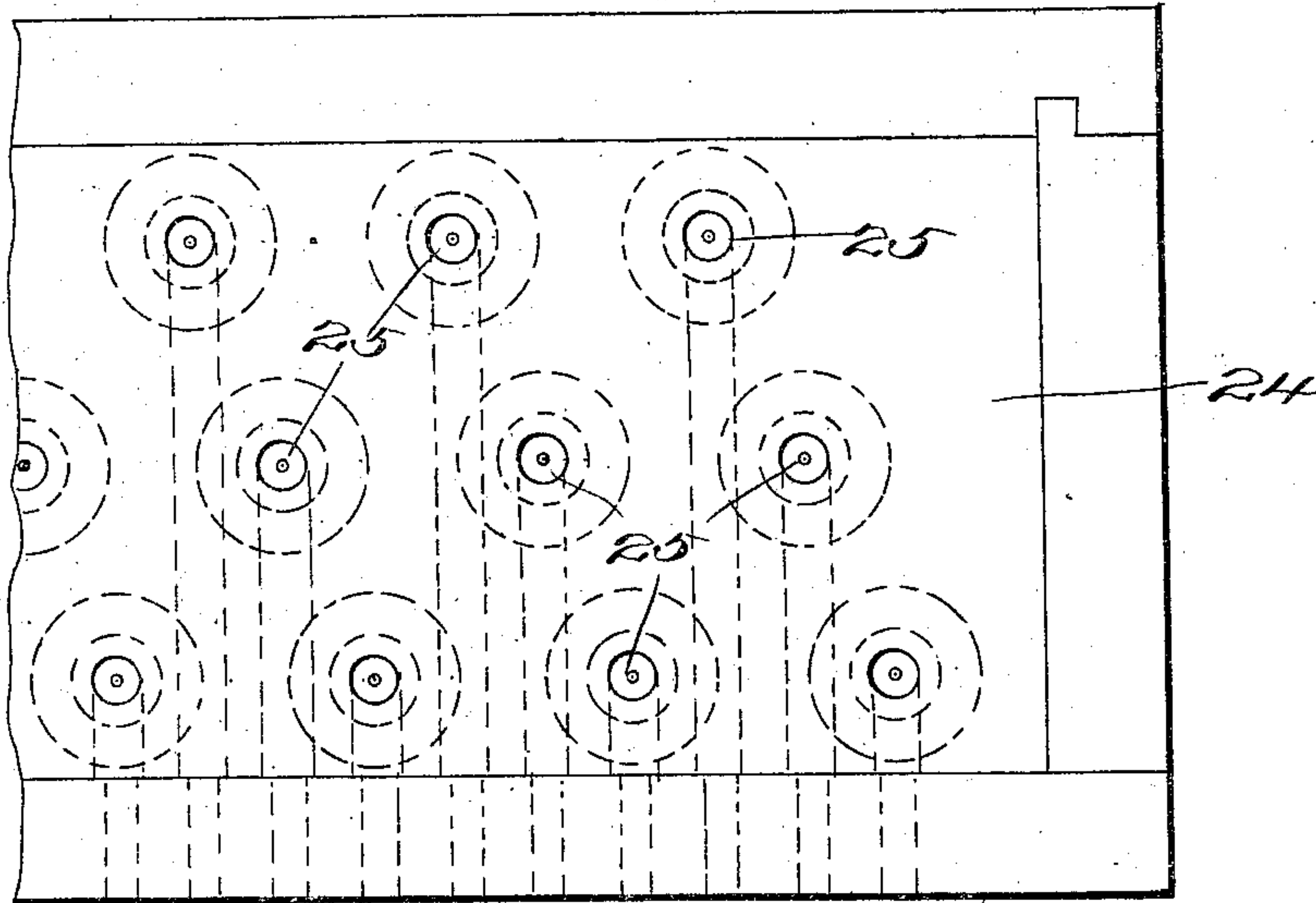


Fig. 3.

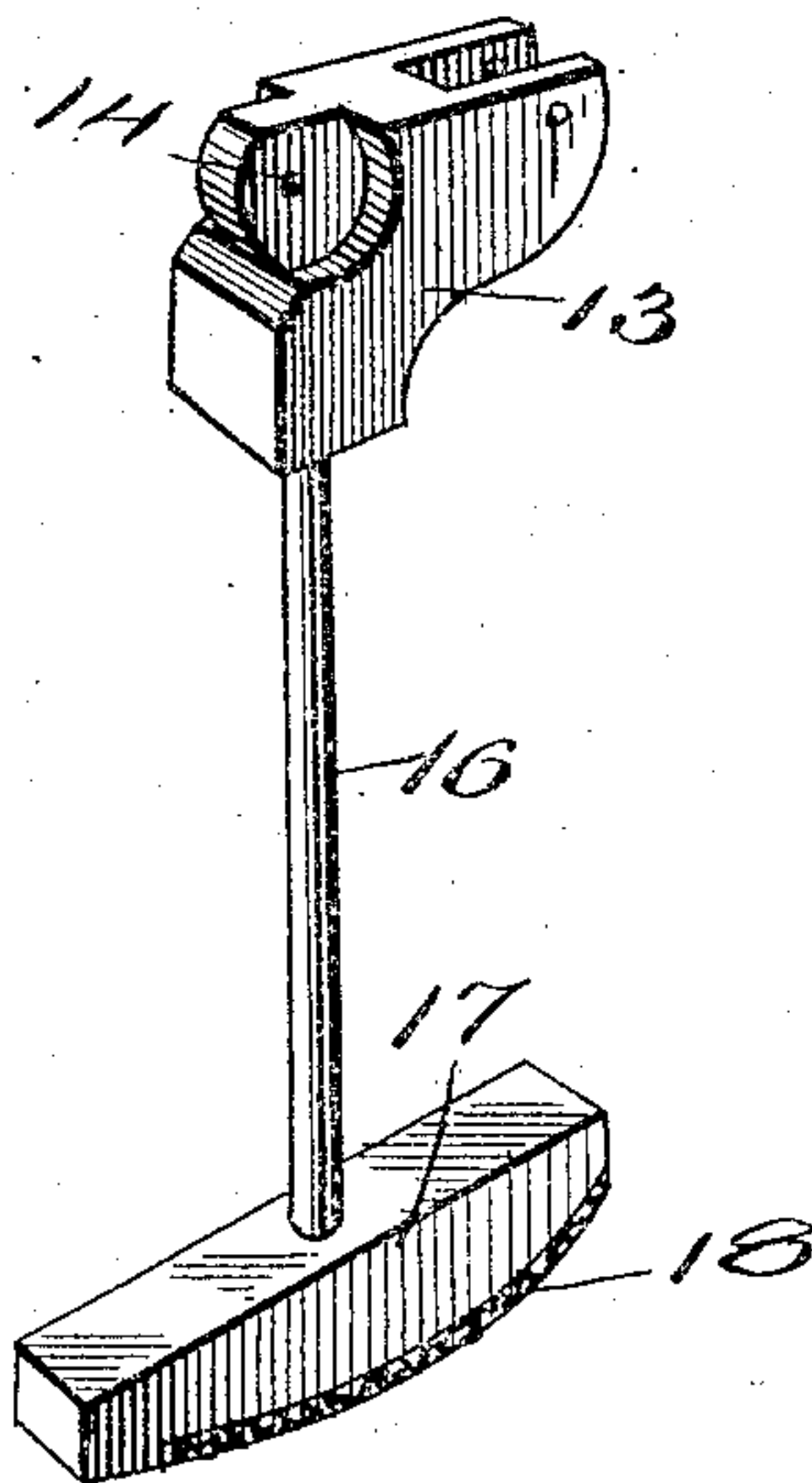


Fig. 4.

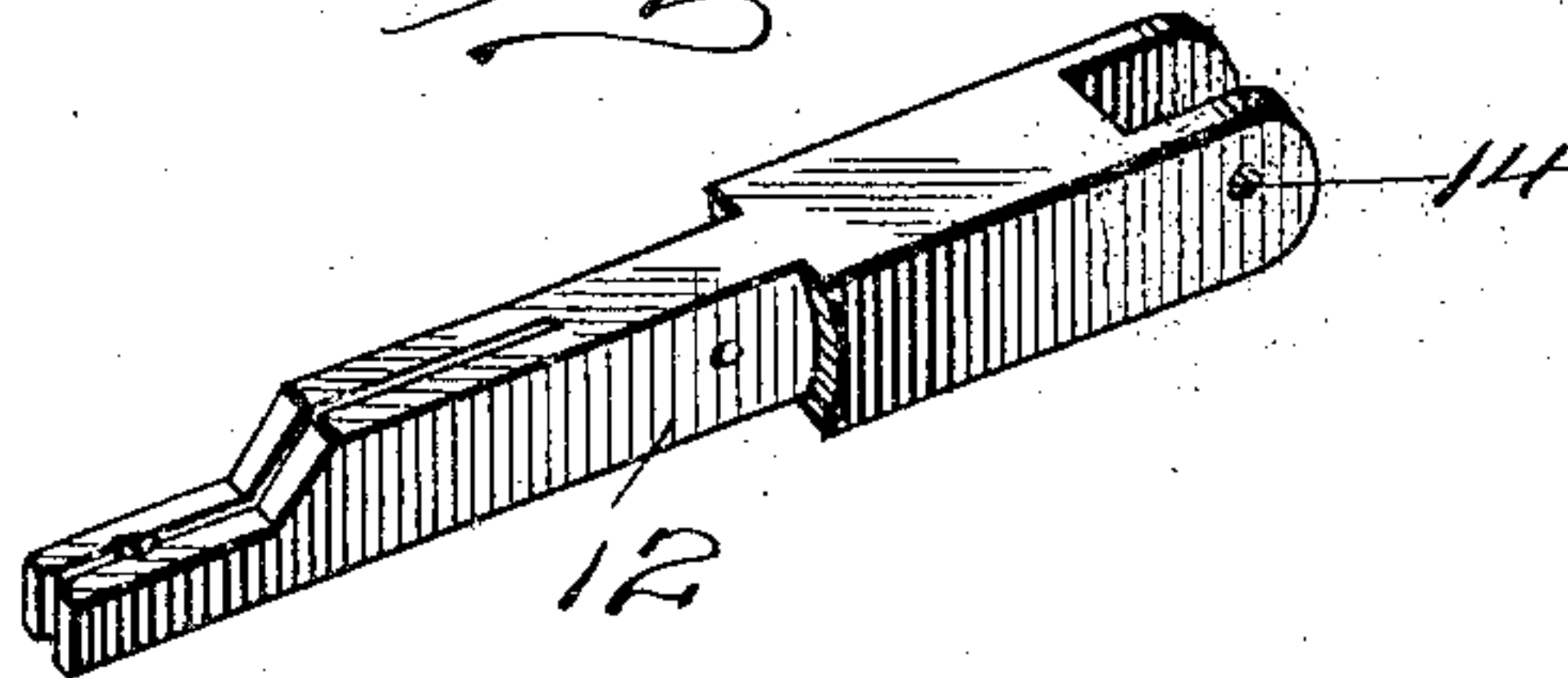
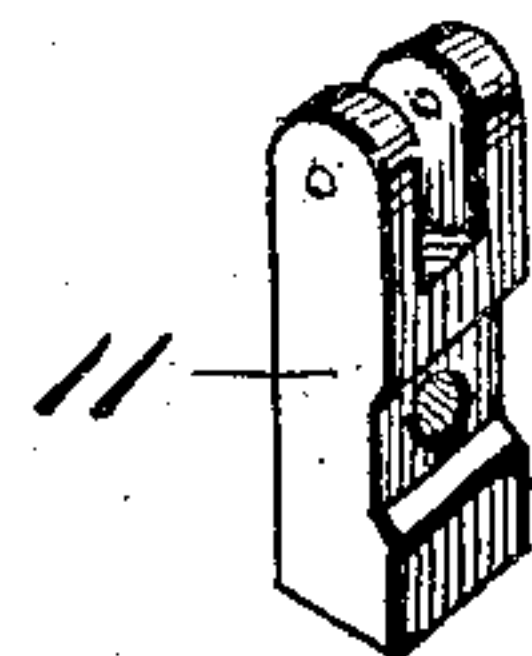


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWIN D. ACKERMAN, OF NEW YORK, AND CHARLES E. CLINTON AND ROBERT N. ELTOM, OF CORONA, NEW YORK, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE PIANORA COMPANY, A CORPORATION OF NEW YORK.

SELF-PLAYING MUSICAL INSTRUMENT.

No. 850,330.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed February 7, 1906. Serial No. 299,972.

To all whom it may concern:

Be it known that we, EDWIN D. ACKERMAN, CHARLES E. CLINTON, and ROBERT N. ELTOM, citizens of the United States, residing at New York and Corona, respectively, in the counties of New York and Queens, respectively, and State of New York, have invented certain new and useful Improvements in Self-Playing Musical Instruments; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to actions for self-playing musical instruments, and has for an object to provide an action embodying new and improved features of accuracy of adjustment, simplicity, and efficiency.

A further object of the invention is to provide an action wherein the touch may be controlled by means of padded screws applied to the action for each key.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a vertical sectional view of the improved action. Fig. 2 is a top plan view of the wind-chest or exhaust-chamber. Fig. 3 is a detail perspective view of the contact-shoe and bell-crank lever. Fig. 4 is a detail perspective view of the shoe-actuating lever. Fig. 5 is a detail perspective view of the lever-fulcruming ear member. Fig. 6 is a detail view of the swivel-joint and parts associated with the means for limiting the movement of the shoe.

In its preferred embodiment the improved action for self-playing instruments forming the subject-matter of this application comprises a bar 10, extending entirely across the instrument and parallel with the keyboard. Upon the bar 10 are secured a plurality of upstanding ears 11, between which are fulcrumed levers 12, one for each key upon the keyboard. To one end of the lever 12 is fulcrumed the bell-crank lever 13, as by the pivot 14, carrying at one extremity the striking-rod 15, and at the other extremity the arm 16, carrying at its lower extremity the contact-shoe 17. The contact-shoe 17 is pro-

vided with any approved elastic material or fabric (indicated at 18) for engagement with a like fabric or covering 19, carried upon the roller 20, which extends entirely across the instrument parallel with and spaced from the bar 10. The bar 10 is provided with a plurality of screws 21, corresponding in number to the number of shoes 17 and provided each at its outer end with a swiveled head 22, carrying a pad 23, disposed for contact with and to limit the movement of the arm 16.

Above the bar 10 is disposed the wind-chest or exhaust-chamber 24, provided with a plurality of valves 25, communicating each with the passage, as 26, which opens into the pneumatic 27, one of which is provided for each individual key-action and is connected by the rod 28 with the lever 12 at the end opposite the bell-crank lever 13. The pneumatic 27 is disposed relative to the lever 12 in such position that when the said pneumatic is exhausted the inner end of the lever 12 is raised against the tension of the spring 29, carried by the bracket 30, and arranged to return the lever to normal position when the exhaustion of the pneumatic 27 is relieved.

Upon the bar 10 is carried a cleat 31, which may be secured thereto or integral therewith and through which are inserted a plurality of screws 32, corresponding in number to the levers 12 and provided each with a pad 33 for contact with and to limit the downward movement of the inner end of the said lever 12. Above the cleat 31 and above the lever 12 is secured and spaced a strip 34, as by means of a bolt 35, provided with adjusting jam-nuts 36. Through the strip 34 are inserted the screws 37, provided each with a pad 38, disposed to contact with and limit the upward movement of the inner end of the lever 12.

For operating the valves 25 each is provided with a stem 39, secured to a pneumatic 40, which covers a pocket, as 41, communicating by means of a passage 42 with the pipe 43, leading to and communicating with the usual openings of the tracker-bar. The opening 42 is provided with an offset portion 44, leading to the wind-chest above the pneumatics and communicating therewith by means of a very small aperture or bleeder 45.

In normal position the exhaust upon each side of the pneumatic 40 is neutralized by means of the passages 42 and 44 and the bleeder 45. When, however, by reason of the passage of the perforations over an opening in the tracker-bar, air is admitted to the pipe 43, the exhaust of the wind-chest permits the atmospheric pressure to raise the pneumatic 40 and the valve 25, by means of which the air from the passage 26 to the pneumatic 27 is exhausted into the wind-chest, permitting the atmospheric pressure to raise the lower leaf of the pneumatic and with it the rod 28 and inner end of the lever 12. Raising the inner end of the lever 12 depresses the outer end of the said lever, which also depresses the bell-crank lever 13 and throws the shoe 17 into operative engagement with the roller 20, which is rotated continuously by mechanical means in the direction of the arrow. The contact of the shoe with the roller causes the movement of the shoe in the direction of the rotation of the roller, which throws the striker-rod 15 upward to raise the inner end of the key of the instrument. (Not shown.)

The upward movement of the inner end of the lever 12 and the shoe 17 are adjustably limited by the padded screw 37, while the normal interval between the shoe and the roller is adjusted by means of the padded screw 32. The swiveled padded head 22 upon the screw 21 provides means whereby the pad 23 may be adjusted with great nicety to receive and admit the return movement of the arm 16 and by reason of the swiveled head to conform at any adjustment to the inclination of the arm.

It will be noted that by reason of the several adjusting-screws 21, 32, and 37 the action may be adjusted with extreme nicety, whereby the tone produced may be made to conform to the touch of a manually-played instrument.

What we claim is—

1. A mechanical action for playing instruments comprising a horizontal bar, a plurality of spaced levers fulcrumed upon and transversely of the bar, a contact-shoe pivoted upon each lever, means to actuate the shoe, a strike-rod pivotally connected with the shoe, means for actuating the lever, means carried by the bar to limit the downward movement of the levers, a strip carried by the bar and spaced above the bar and levers, and means carried by the strip to adjustably limit the upward movement of the levers.

2. A mechanical action for playing instruments comprising a horizontal bar, a plurality of spaced levers fulcrumed upon and transversely of the bar, a bell-crank lever pivoted upon each lever, a contact-shoe carried rigidly by each bell-crank lever, means to actuate the shoe, a strike-rod pivotally

connected with the shoe, means for actuating the lever, means carried by the bar to adjustably limit the downward movement of the levers, a strip carried by the bar and spaced above the bar and levers, and means carried by the strip to adjustably limit the upward movement of the levers.

3. A mechanical action for playing instruments, comprising a horizontal bar, a plurality of spaced levers fulcrumed upon and transversely of the bar, a contact-shoe pivoted upon each lever, a rotating roller for contact with and to actuate the shoe, a strike-rod pivotally connected with the shoe, a pneumatic for actuating the levers, means carried by the bar to adjustably limit the downward movement of the levers, a strip carried by the bar and spaced above the bar and levers, and means carried by the strip to adjustably limit the upward movement of the levers.

4. A mechanical action for playing instruments, comprising a horizontal bar, a plurality of spaced levers fulcrumed upon and transversely of the bar, a contact-shoe pivoted upon each lever, means to actuate the shoe, a strike-bar pivotally connected with the shoe, a pneumatic connected with each lever, means to exhaust the pneumatic, a padded screw carried by the bar to adjustably limit the downward movement of the levers, a strip carried by the bar and spaced above the bar and levers, and a padded screw carried by the strip to adjustably limit the upward movement of each lever.

5. A mechanical action for playing instruments, comprising a horizontal bar, a plurality of spaced levers fulcrumed upon and transversely of the bar, a bell-crank lever pivoted upon each lever, a contact-shoe rigidly connected with each bell-crank lever, a mechanically-rotated roller disposed for contact with and to actuate the shoes, a strike-rod pivotally connected with each lever, pneumatics, means connecting the pneumatics and levers, means to exhaust the pneumatics, a padded screw carried by the bar to adjustably limit the downward movement of the inner end of each lever, a strip carried by the bar and spaced above the bar and levers, a padded screw carried by the strip to adjustably limit the upward movement of the inner end of the lever, and a screw carried by the bar and provided with a swiveled pad to limit the movement of the shoe.

In testimony whereof we affix our signatures in presence of two witnesses.

EDWIN D. ACKERMAN.
CHARLES E. CLINTON.
ROBERT N. ELTOM.

Witnesses:

SAMUEL A. LICHTENSTEIN,
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