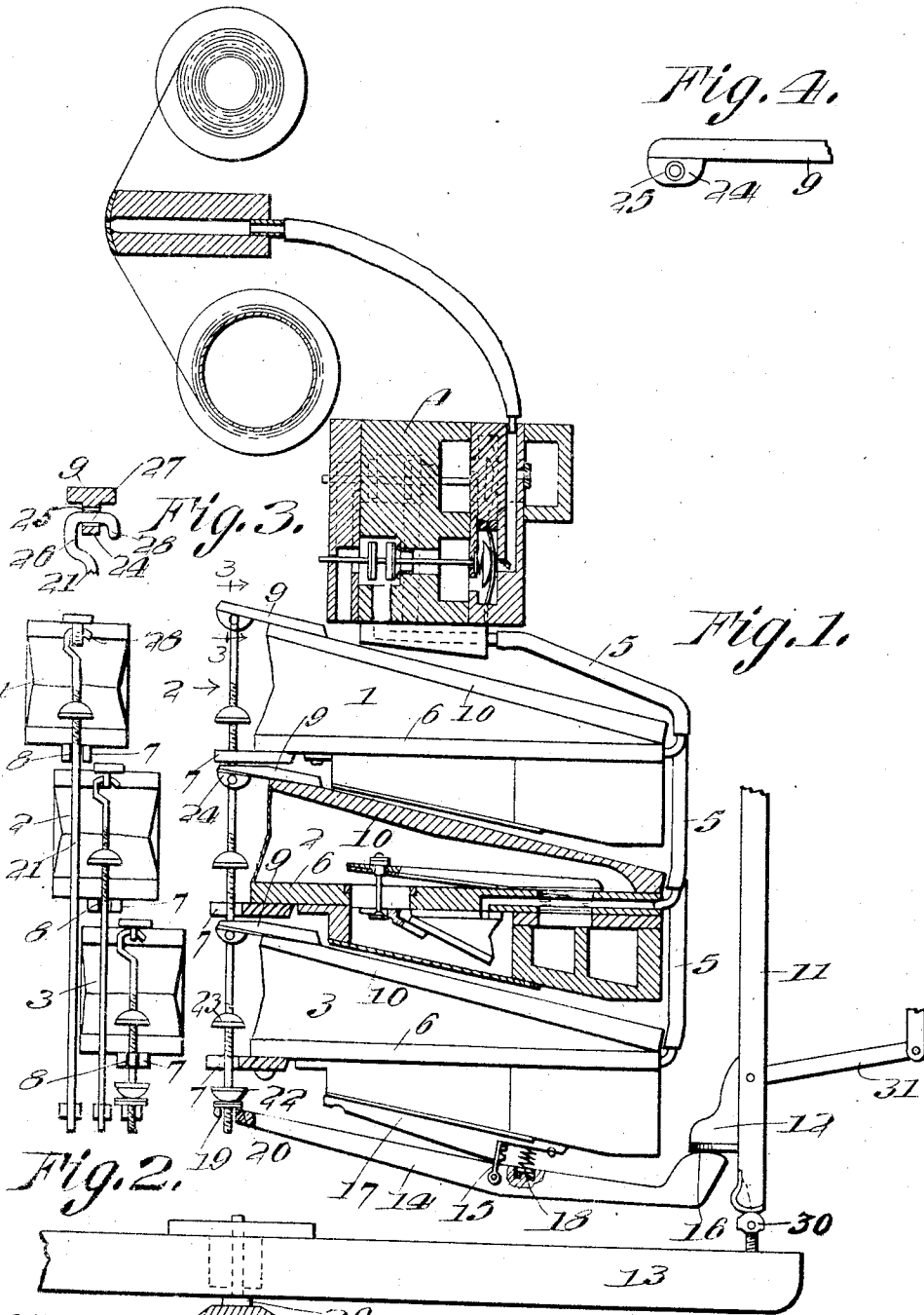
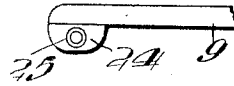


1,036,957.

Fig. 4.



F. Wm. Ernst

Inventor
George P. Brand,
E. M. Bond
Attorney

UNITED STATES PATENT OFFICE.

GEORGE P. BRAND, OF NEW YORK, N. Y.

ACTUATING MECHANISM FOR PIANO-PLAYERS, &c.

1,036,057.

Specification of Letters Patent. Patented Aug. 27, 1912.

Application filed March 12, 1910. Serial No. 548,887.

To all whom it may concern:

Be it known that I, GEORGE P. BRAND, a citizen of the United States of America, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Actuating Mechanism for Piano-Players, &c., of which the following is a specification.

This invention relates to certain new and useful improvements in actuating mechanism for automatic pianos and piano players.

The present invention has for its objects among others to provide simple mechanism for connection between the pneumatics and the levers, permitting of ready removal of the pneumatics when desired, yet insuring maintenance of proper relation between the pneumatics and the levers.

It has for a further object to provide for the disposition of the regulating buttons in different horizontal planes and accessible from the front of the action without removal of the action from the piano.

It has for a further object to simplify the construction as a whole, whereby advantageous results in construction, mode of application and operation are produced.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a vertical transverse section partly in elevation of a portion of a piano player embodying my present improvements. Fig. 2 is an elevation looking in the direction of the arrow 2 in Fig. 1. Fig. 3 is a vertical section on the line 3—3 of Fig. 1 looking in the direction of the arrow. Fig. 4 is a detail in side elevation with the connecting rod removed.

Like numerals of reference indicate like parts throughout the several views.

Referring to the drawings, 1, 2 and 3 designate the pneumatics of a player action of any well-known or approved form of construction.

4 is the primary chest.

5 are the tubes affording connection between the same and the pneumatics,

6 are the stationary members of the pneumatics.

7 are the abutments on said stationary members. They are slotted at their outer ends, as seen at 8, to permit of the removal of the connecting rod, soon to be described, as will be readily understood.

11 is the sticker or abstract of the piano action and 12 the shoe carried thereby.

13 is the piano key.

14 is a lever fulcrumed to a flange 15 in the usual manner and carrying at its rear end the upward projection or member 16 for engagement with the under side of the shoe, as will be clearly understood upon reference to Fig. 1. The flange 15 depends from the lever rail 17 in the usual manner.

18 is a spring interposed between the lever rail and the lever 14 and disposed at a point between the upwardly extending member 16 and the flange 15, for a purpose which will soon be made clear. The other end of the lever is provided with an opening 19, while upon the upper side of this lever is a punching 20 of felt or analogous material, serving as a cushion. This punching serves to prevent noise and also as a cushion for the regulating stop or button 22 which is adjustably mounted upon rod 21. The opening 19 is, as seen clearly in Fig. 1, of considerably greater diameter than the rod 21, so as to prevent contact of the rod with the walls of the opening. 23 is another regulating stop or button adjustable on the rod 21 above the button 22 and for a purpose which will soon be made clear.

24 are lugs depending from the lugs 9 on the movable members of the pneumatics. They are perforated transversely, as seen at 25, for the reception of the upper ends of the connecting rods 21. Each of these rods has its upper end bent laterally forming an offset 26, the terminal portion 27 being extended through the opening 25 in the lug 24 and its extreme end turned down or deflected, as seen at 28 in Figs. 2 and 3. This brings the rod 21 in vertical alinement with the point of engagement of the horizontal member 27 with the wall of the opening 25 in the lug 24 so as to get direct vertical pressure to avoid strain or distortion of the parts.

In assembling the parts, the upper ends of the connecting rods are engaged in the lugs 24 in the manner described, the front

ends of the levers 14 are then pressed downwardly, so as to allow of the insertion of the lower ends of the rods 21 in the openings 19. When the levers are released, the springs 18 serve to force the front ends thereof upward and the punchings thereon engage the under faces of the regulating buttons 22. These regulating buttons serve, by their adjustment, to compensate for the lost motion between the shoes 12 and the upwardly projecting members 16 on the levers 14. This loose connection between the connecting rods and the front ends of the levers serve to permit of ready removal of the parts when desired and facilitates assembling or disassembling for repairs or other purposes. The rods 21, after being disengaged from the openings in the front ends of the levers by depression of the latter, are movable endwise through the slots 8 of the abutments 7 and then their upper ends are readily disengaged from the openings 25 of the lugs 24. The buttons 23 are adjustable on the rod 21 in the direction of the length thereof for coöperation with the abutments 7 so as to limit the movement of the pneumatics in action, allowing the necessary movement of the levers 14 to impart the proper movement to the stickers 11 to give the necessary movement to the wippen, as usual.

It is well-known that the sticker in its vertical movement has also a slight movement toward the front at its lower end. In using the lever 14 in contact with the lug 12 mounted on the sticker which is used in a great many different forms of actions, the lever should be so constructed as to avoid friction and thereby the wear in the contact of the lever with the lug. By drawing a circle from the key bearing punching 29 as a center and the top of the capstan 30, it will be readily seen that by the upward movement of said capstan 30, there is a travel forward and the sticker is guided by a tongue lever 31 which is put on a slant sufficient to cause the bottom part of the sticker 11 bearing on the capstan 30 to cause no friction at this point. Ordinarily this forward movement tends to create undue friction between the shoe and the part with which it contacts. I aim to overcome this friction and for this purpose I provide the

upward extension 16 on the rear end of the lever, the upper face of which is preferably rounded, as seen in Fig. 1. This raised portion brings the contact point between the lever and the under face of the shoe at a higher level than the fulcrum point of the lever, so that it will take the same general direction forward as the movement of the lug 12 on the sticker does, when the lower end thereof is moved forward, as above stated. The spring 18 tends at all times, when not otherwise influenced, to keep the forward ends of the levers 14 up in close contact with the abutments 22.

Modifications in details may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. A pneumatic, an abutment on the stationary member thereof and slotted at its outer end, a lever pivotally mounted between its ends and provided at one end to the rear of its pivot with an upward projection, a spring acting on said lever between its fulcrum and said projection, an arm on the pneumatic, a rod pivotally connected with said arm and loosely movable through the slot of the abutment, and buttons on the rod on opposite sides of the abutment, the said lever having a bearing against the lowermost button.

2. A pneumatic, a pivoted lever operatively connected therewith and having at one end an upward projection, a spring acting on the lever adjacent its fulcrum and between the latter and said projection and tending to keep the pneumatic in its open condition, a sticker, and a shoe carried thereby, the upward projection on the lever having its upper face so rounded for contact with the under face of said shoe at a higher level than the fulcrum point of the lever as to cause said face and the shoe to move forward in substantially rolling contact when the sticker is moved vertically.

Signed by me at Washington, D. C., this 11th day of March 1910.

GEORGE P. BRAND.

Witnesses:

E. H. BOND,
JOHN SCRIVENER.