J. T. AUSTIN.

KEY MECHANISM FOR ORGANS.

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1,097,507. Patented May 19, 1914.

Fig. 3.

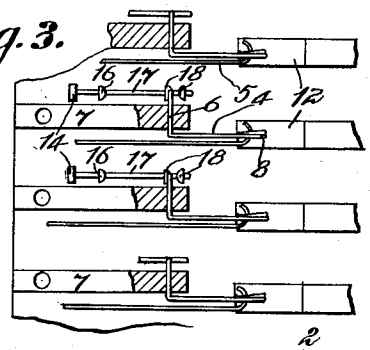


Fig. 1.

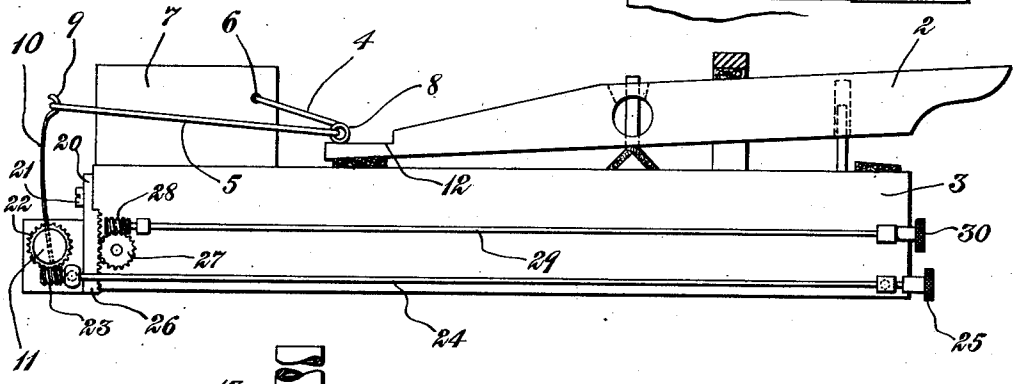
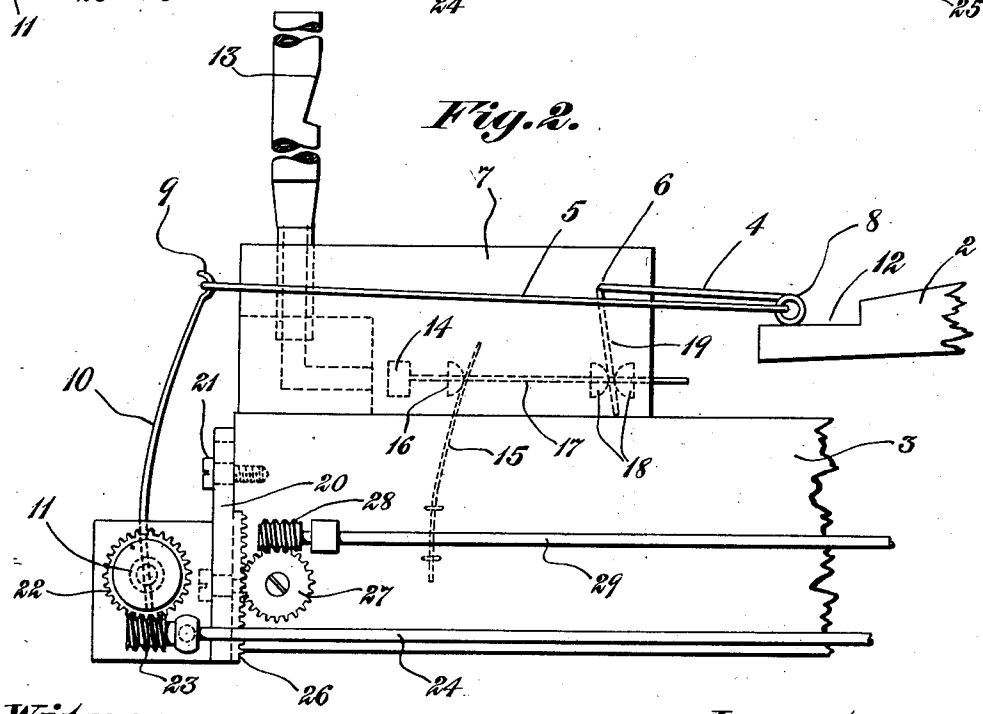


Fig. 2.



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KEY MECHANISM FOR ORGANS.

1,097,507. Specification of Letters Patent. Patented May 19, 1914.

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To all whom it may concern:

Be it known that I, JOHN T. AUSTIN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Key Mechanism for Organs, of which the following is a specification.

This invention relates to key mechanism for organs, among the objects of the invention being the provision of simple, effective and inexpensive mechanism by which a progressively decreasing resistance can be applied to the key when the same is depressed, by virtue of which the operation of the key board becomes more like that of a piano, said mechanism also preferably having associated therewith means by which a pipe can be made to speak.

In the drawings accompanying and forming part of the present specification I have shown in detail one of the several convenient forms of embodiment of the invention which to enable those skilled in the art to practise the same will be set forth fully in the following description. I do not restrict myself to this disclosure; I may depart therefrom in several respects within the scope of the invention defined by the claims succeeding said description.

Referring to said drawings: Figure 1 is a side elevation of key mechanism involving my invention. Fig. 2 is a similar view of a portion of the same. Fig. 3 is a top plan view partly in section of the left-hand portion of Fig. 1.

Like characters refer to like parts in both figures, which it will be observed are on different scales.

The numeral 2 denotes an organ key which may be and is of the ordinary kind and which, therefore, requires no detailed description, the same being carried on the key bed 3. As already intimated I provide means for applying a progressively decreasing resistance to the key on the depression thereof, and such means consists preferably of a yieldably-acting toggle, which may apply its effect to the key at any desirable point such as at the inner end thereof and which may be of any suitable character, the yieldable effect being preferably obtained by spring means. The toggle shown is therefore, one of several kinds which answers my requirements in a satisfactory manner and which as represented consists of members 4 and 5. The toggle arm 4 is jointed or pivoted at one end as at 6 to the block 7 rising from and suitably fastened to the key bed 3, the opposite end of said toggle member 4 having an eye 8 to which is pivoted one end of the toggle member or link 5, the opposite end of said toggle member or link 5 being hooked around the bend 9 at the upper end of the bowed spring 10, the shank of which is supported by the normally stationary rock shaft 11 hereinafter described. The effect of the spring-operated toggle in the present case is applied to the key 2 directly by the toggle member 4, the eye 8 for this purpose bearing against the inner end of the key which is cut away as at 12 for such purpose. The spring 10 as shown exerts a constant outward pull and hence a constant tendency to draw the centers of the toggle out of line, the farther away from the dead center line of the toggle, the three pivots are, the greater will be the thrust applied to the inner end of the key 2. On the depression of the key 2 the toggle centers, through the action of the key are moved toward the dead center line, so that the resistance applied by the toggle to the key progressively decreases. When the player frees the key, the spring actuated toggle instantly returns said key to its original position.

The key-resisting mechanism whether it be in the form already described or of any other character, the invention not being limited in this respect, preferably has as a part thereof, means for operating a pipe or as it is known in this art, causing the same to "speak", and such means may vary decidedly as to character, although that shown will now be described.

The pipe and its accessories are of the ordinary kind, and therefore require no detailed description. The pipe shown is denoted in a general way by 13 having a valve 14 normally held closed by the spring 15. On the opening of the valve the pipe will speak, the valve being held normally closed by the spring 15 acting against a collar 16 on the stem 17 of the valve, this stem further having two collars 18 thereon between which is situated the downward extension 19 of the pivot of the arm or toggle member

4. When the key is depressed as shown in Fig. 2 the extension 19 is swung forward so as to open the valve and thus effect the action of the pipe. Releasing the key frees the valve so that the same can be closed by the joint action of the toggle and the spring 15.

The rock shaft 11 is supported by flanges at the ends of the bracket 20 which is vertically adjustable for a purpose that will hereinafter appear, this adjustment in the present instance being secured by longitudinally slotting the body of the bracket to receive the set screws 21 which are tapped into the rear of the key bed 3. It will be clear that there is a toggle for each key and that all the springs 10 are supported by the rock shaft 11. It, therefore, follows that by rocking this shaft 11 the tension of the several springs can be simultaneously regulated; that is to say the tension may be either increased or decreased to conform to the touch of the operator. The shaft 11 is shown having at one end thereof the worm gear 22 in mesh with the worm 23 at the inner end of the shaft 24 supported by suitable bearings on the key bed 3 and having at its forward end a knob or finger piece 25 by which said shaft 24 can be turned so as to regulate with the aid of the coöperating parts the tension of the springs 13.

The vertical adjustment of the bracket 20 varies the relation of the several pivots of the toggle to conform to the desires of the player, and the means shown for thus adjusting the bracket 20 will now be described.

Fastened to the body of the bracket is a rack 26 in mesh with the pinion 27 rotatively supported by the key bed 3 and also in mesh with which is the worm 28 on the shaft 29 supported by bearings on said key bed 3 and having at its forward end a knob 30 by which said shaft 29 can be turned to raise and lower the bracket through the intermediate parts.

What I claim is:

1. The combination of an organ key, a toggle acting directly against said key, and spring means connected with the toggle and acting constantly to flex the same.

2. The combination of an organ key, a toggle acting against said key, spring means connected with the toggle, said spring means and toggle jointly acting to apply a progressively decreasing resistance to said key on the depression thereof, a pipe, and means connected with said toggle for causing said pipe to speak on the depression of said key.

3. The combination of an organ key, a pivotally mounted arm, a link jointed to said arm, said arm and link constituting together a toggle and acting against the key approximately at their point of connection, and a spring connected with said link and applying a constant pull thereto in a direction away from the point of connection thereof with said arm.

4. The combination of an organ key, a pivotally mounted arm, a link jointed to said arm, said arm and link constituting together a toggle and acting against the key approximately at their point of connection, a spring connected with said link and applying a constant pull thereto in a direction away from the point of connection therewith with said arm, a pipe associated with said key, and means connected with said arm, for causing said pipe to speak on the depression of said key.

5. The combination of an organ key, a pivotally mounted arm having an eye at a point removed from its center of motion, a link connected to said eye, said eye having a bearing engagement against the inner end of the key, and a spring connected to the link, for applying a constant pull thereto in a direction away from the point of connection thereof with said eye.

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

JOHN T. AUSTIN.

Witnesses:
CHARLES T. CORBIT,
T. MAY NORRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."