

UNITED STATES PATENT OFFICE.

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PRACTICE-CLAVIER.

SPECIFICATION forming part of Letters Patent No. 681,438, dated August 27, 1901.

Application filed December 13, 1900. Serial No. 39,852. (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 more particularly to that class of practice-claviers in which touch-resistance means for the keys are provided; and it has for its object to provide improved regulating means for the touch-resistance means comprised in such practice-claviers which shall be superior in point of ease, positiveness, and accuracy of operation.

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

In the drawings, Figure 1 is a longitudinal vertical sectional view of a preferred form of clavier-action, illustrating the improved regulating means constituting the present invention. Fig. 2 is a vertical sectional view of the same, taken upon the line *xx*, Fig. 1. Fig. 3 is a detail vertical sectional view of a portion of the improved construction. Fig. 4 is a detail sectional view of a further portion of the improved construction, taken upon the line *yy*, Fig. 2.

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, embodying a base member 2, a rear member 3, and a transverse front member 4. Upon the base member are supported the usual keys 5. In the preferred form of clavier construction as disclosed in said prior application the keys operate hammer elements 6, which coact with sound-producing elements 7 to produce the required "clicks" or toneless sound. The keys are borne upon at their rear end portions 8 by tensional devices consisting, preferably, of spring-fingers 10, which are carried by a touch-bar 11, which latter extends transversely of the casing and is pivotally supported at its lower edge portion, as at 12, in connection with the rear casing member 3.

The improved regulating means embody-

ing the present invention are illustrated at 13 and comprise a regulating-arm 14 and operative connection devices 15 between the same and the touch-bar 11. The regulating-arm 14 ranges longitudinal of the casing at right angles to the touch-bar and is rotatably mounted in the front casing member 4 and in the rear casing member 3, being provided at its forward end with an operating-knob or thumb-piece 16. The rear end portion of the regulating-arm preferably enters a recess 17 in the rear casing member 3 and is provided with a spindle or gudgeon 18, which is journaled in a bearing-plate 19, secured to the rear face of the rear casing member 3.

The connection devices 15 comprise a member 20, carried by the regulating-arm 14, and a member 21, carried by the touch-bar 11. The member 20 consists of a follower 22, which is threaded upon the rear end portion 23 of the regulating-arm 14, which is correspondingly threaded and carries a depending pivoted arm 25, preferably pivoted, as at 26, between cheeks 27, formed upon the lower portion of the follower. The member 21 consists of a plate or base 28, secured to the forward face and adjacent to the upper edge portion of the touch-bar 11 and provided with a keeper or keepers 29 upon its forward face, which keepers receive and embrace the pivoted arm 25. Two of the keepers 29, spaced apart and arranged in vertical alinement, are preferably employed. The arm 25 is free to move vertically in the keepers 29 and has a free swinging movement in connection with the follower 22.

The operation and advantages of my improved regulating means for touch-resistance means for practice-claviers will be readily understood. The function of the spring-fingers 10 consists in opposing the manual operation of the keys for purposes of technical advantage, as fully understood by those skilled in or conversant with the art. The regulating means 13 are operated by means of the end knob 16 to cause a swinging movement of the touch-bar 11, which varies the tensional pressure of the spring-fingers 10 upon the keys. When it is desired to increase the tension of the spring-fingers, the regulating-arm 14 is turned in the requisite direction to cause the follower 22 to advance upon the screw-

threaded portion of the regulating-arm, and the pivoted arm 25, carried by the follower, swings the touch-bar forwardly and presses the spring-fingers firmly upon the keys. The
 5 pivotal connection of the arm 25 with the follower and the slidable operative connection of the same arm with the touch-bar, through the medium of the keepers 29, compensate for the variation of movement of the
 10 follower and the touch-bar, the former of which moves in a straight path and the latter of which moves in a curved path. This combined pivotal and slidable movement executed by the arm 25, while causing a positive
 15 actuation of the touch-bar, is performed with relatively slight friction of the working parts and permits a fineness and accuracy of adjustment or regulation of the touch-bar otherwise not obtainable. At the same time the
 20 regulating-arm 14 is supported firmly in longitudinally immovable position and operates with a high degree of rigidity and positiveness.

It will be noted that the follower moves in
 25 a path coincident in direction with the path of movement of the touch-bar, causing a direct actuation of the latter.

I do not desire to be understood as limiting myself to the specific details of construction
 30 and arrangement as set forth, but reserve the right to modify and vary the same in adapting my improvements to varying conditions of use without departing from the scope of my invention or the terms of the following
 35 claims.

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

1. In a practice-clavier, a touch-bar or member
 40 mounted with respect to the keys and capable of swinging movement, a rotatable reg-

ulating-arm, and connection means between said touch-bar and said regulating-arm comprising a reciprocating pivoted member carried by the latter and having a slidable connection with the former. 45

2. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement; and means for regulating the same comprising a reciprocating member, a pivoted member carried by the reciprocating member and having a slidable connection with the touch-bar, and devices for operating said reciprocating member comprising a regulating-arm which is operatively
 55 connected with said reciprocating member.

3. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement, a rotatable regulating-arm; and connection means between
 60 said touch-bar and said regulating-arm comprising a follower threaded upon the regulating-arm, a pivoted arm carried by the follower, and a keeper secured to the touch-bar and embracing said pivoted arm. 65

4. In a practice-clavier, a touch-bar or member mounted with respect to the keys and capable of swinging movement; and means for regulating the same comprising a rotatable longitudinally-immovable regulating-arm, and connection means between such touch-bar and said regulating-arm comprising a follower threaded upon the regulating-arm, and a pivoted arm carried by the follower and slidably connected with the touch-bar. 75

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

AMOS C. BERGMAN.

Witnesses:

FREDERIC MARINER,
 RAYMOND I. BLAKESLEE.