W. SCHMITT-MARCEL.

FINGER TRAINING DEVICE.

APPLICATION FILED MAR. 11, 1921.

1,423,033. Patented July 18, 1922.

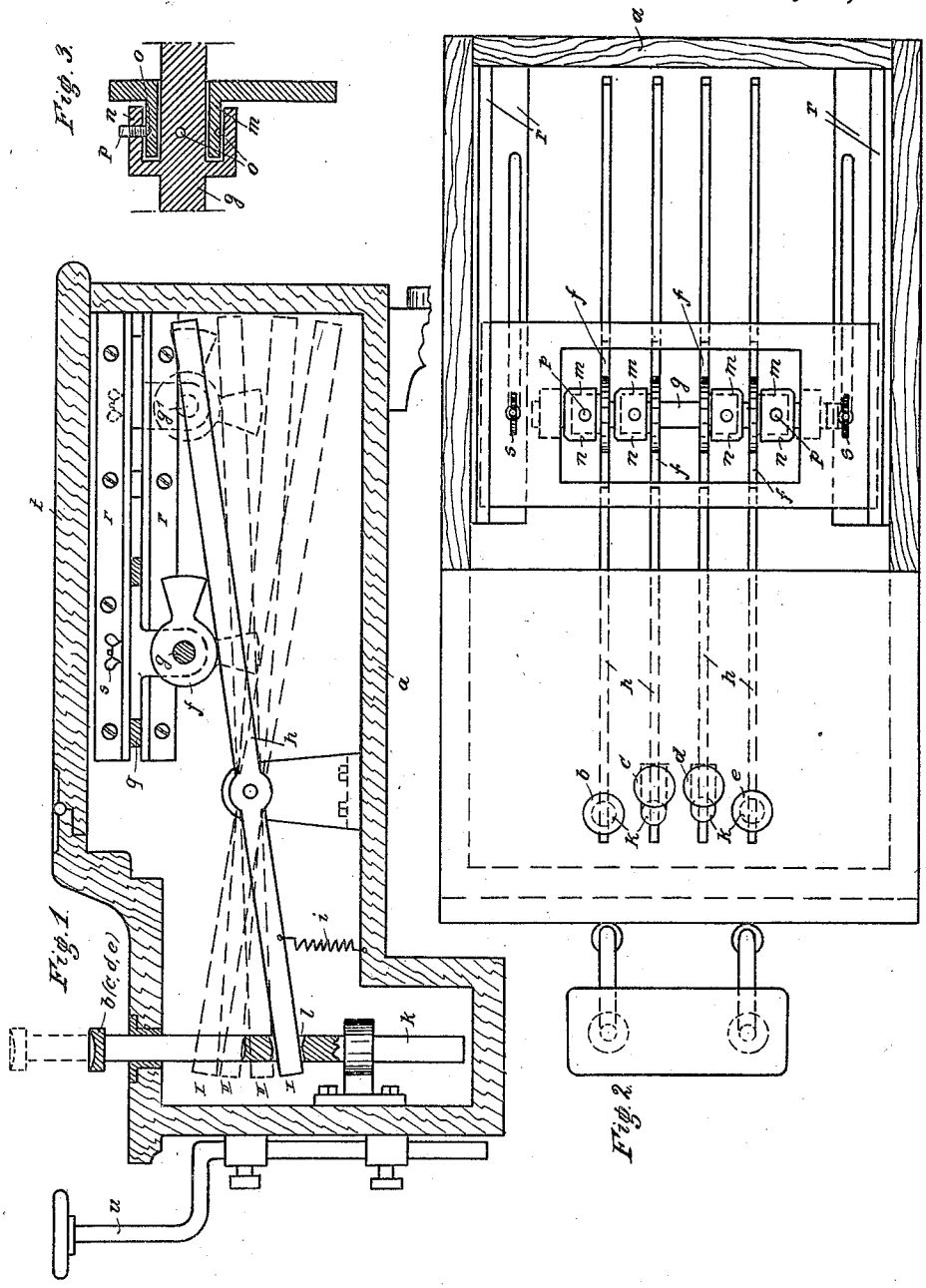


Fig. 3

Fig. 1

Fig. 2

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FINGER-TRAINING DEVICE.

1,423,033. Specification of Letters Patent. Patented July 18, 1922.

Application filed March 11, 1921. Serial No. 451,659.

To all whom it may concern:

Be it known that I, Dr. WILLIAM SCHMITT-MARCEL, a citizen of the United States, residing at Florence, Italy, have invented certain new and useful Improvements in Finger-Training Devices (for which I have filed an application in Germany, Mar. 20, 1919); and I 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.

My invention relates to improvements in finger training devices intended for students of music and the object of my invention is to provide a new construction in which certain disadvantages heretofore impeding the utility of the devices of the class referred to, as made heretofore, are avoided and certain advantages attained, all as hereinbelow described and set forth.

In describing my said invention I refer to the drawing herewith in which Figure 1 is a longitudinal vertical section through a construction in which the characteristic features of my invention, as herein below specified, are made use of; Figure 2 is a view of the said construction from above and Figure 3 is a detail view of a certain part of the said construction hereinafter more specifically described and referred to.

Keyed finger-trainers for the attainment of a greater mobility and of an increased muscular strength of the fingers have been designed and made in which the movement of the keys, adjustable with respect to throw and rhythm, is regulated and effectuated by means of cams or eccentric wheels actuating a double-armed lever mechanism. However, the adjustment of these devices for the several lengths of key-lifts and various rhythms is inconvenient and takes much time.

It is the object of my present invention to do away with this disadvantage and to provide instead thereof an easy and speedy adjustment of the positions of the parts herein referred to to any throw and to various rhythms of the movements of the keys.

Accordingly the cam wheels or eccentric wheels acting by their movements upon the keys are so disposed that they move commonly in longitudinal direction above or beneath double-armed connecting levers and that they allow changes of position relative to each other on a common moving-member, so that all that is required for the attainment of any desired length of the stroke or throw is to adjust the support of the cam wheels in longitudinal direction of the connecting levers, a similar simple and plain movement effectuating the change of the positions to each other of the said cam or eccentric wheels and thus any modification in the rhythm of movements.

An apparatus in which for the strengthening of the muscular force of the fingers it is intended to counteract by their operation the upward movement of the keys through the action of eccentric or cam wheels, is illustrated on the drawing which shows a construction that comprises a box or case *a* containing a plurality, say four, raisable and lowerable keys *b*, *c*, *d*, *e*, for the small finger, the ring-finger, the middle finger and the fore-finger. The raising of these keys may be effectuated from any power-source by means of cam or eccentric wheels *f* mounted on a common shaft *g*, connectible with the said power-source and acting against double-armed levers *h* which may be attached to the several keys *b*, *c*, *d*, *e* in any suitable way, the drawing showing their engagement in slots *l* in the said keys. The cam-wheels *f* thus serve to raise the keys, which are then held in their elevated positions by compression springs *i*, the latter however being incapable of raising the keys by themselves. The operator depresses the various keys against the action of springs *i* substantially as in the case of ordinary piano keys.

To permit of a simple and convenient adjustment of the apparatus to various heights of the throw of a key the shaft *g* is movable longitudinally of the levers *h*. This may be accomplished in various ways. In the example of construction shown on the drawing the shaft *g* is in a bearing in the lower side of a frame *q* which slides in guides *r*, being adjustable therein by any suitable means, as, for instance, winged screws *s*. In this way the shaft *g* may be brought into the dotted position *g'* (Figure 1) or into any other position therebetween and therewith the length of the stroke of the keys adjusted and controlled. To permit the adjustment of the instrument to a variety of rhythms the cams *f* may be supported on their shaft *g* changeable in their positions relative to each other which may also be accomplished in various ways. Thus the cams *f* may, as shown in a detail view in Figure 3 be

mounted loosely on the shaft g engaging each with a lateral nave m in a cup n of the shaft and being adjustable therein by means of a screw p. To facilitate the adjustment of the naves m, the cams f may be provided with recesses o for better securing the screws p.

To permit access to and thus render convenient the adjustment of the cams or eccentrics f upon their shaft the case a may above the said eccentrics f be provided with a lid t. In Figure 2 this lid has been taken off to show the inside of the box.

The keys b, c, d, e I prefer, as shown in Figure 2, to dispose in their position to each other in a curve which corresponds to the curve of the fingers when conveniently placed upon any support such as u. As the size of this curve depends on the size of the hand and the length of the fingers of the student, the two middle keys c, d may on their respective key-pins k be made adjustable parallel to the length axis of the levers h.

Changes may be made in details of construction without deviating from the spirit of my invention.

I claim:—

1. A finger training device, comprising movable keys, pivoted levers for actuating said keys, a shaft having a cup concentric with and encircling said shaft, and a cam for operating said levers, said cam having a hub adjustably receivable in said cup.

2. A finger training device, comprising movable keys, pivoted levers for actuating said keys, a shaft extending substantially at right angles to the longitudinal axis of said levers, a plurality of cups concentric with and encircling said shaft, and a plurality of cams for actuating said levers, each cam having a hub adjustably receivable in one of said cups.

3. A finger-training device comprising movable keys, pivoted levers for actuating said keys, a shaft extending substantially at right angles to the longitudinal axis of said levers, cams mounted upon said shaft for operating said levers, each of said cams being adjustably rotatable about the axis of said shaft.

4. A finger-training device comprising movable keys, pivoted levers for actuating said keys, a shaft extending substantially at right angles to the longitudinal axis of said levers, cams mounted upon said shaft for operating said levers, each of said cams being adjustably rotatable about the axis of said shaft, and means for fastening each of said cams in adjusted position.

5. A finger-training device comprising movable keys, pivoted levers for actuating said keys, a shaft extending substantially at right angles to the longitudinal axis of said levers, a plurality of cups concentric with and encircling said shaft, a plurality of cams for actuating said levers, each cam having a hub adjustably receivable in one of said cups, and means passing through said cups and engaging said hubs to fasten said cams in adjusted position.

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

WILLIAM SCHMITT-MARCEL.

Witnesses:

A. DE OLEA,

PAUL DREY.