V. BELZIAN.

ADJUSTABLE PIANO BENCH.

APPLICATION FILED MAR. 8, 1919.

1,308,729.

Patented July 1, 1919.

Fig. 1

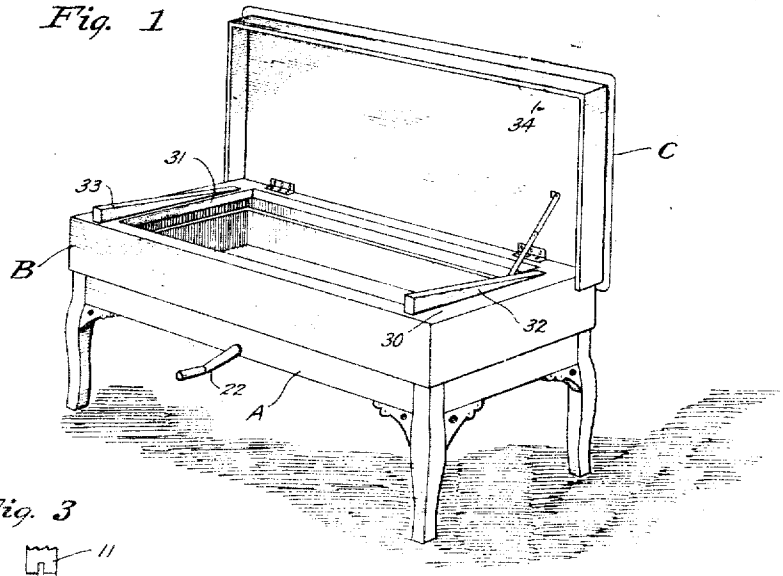


Fig. 3

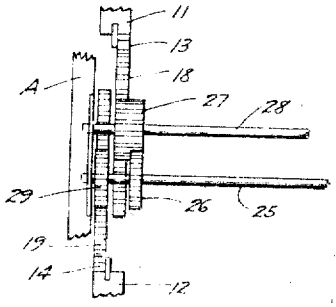


Fig. 2

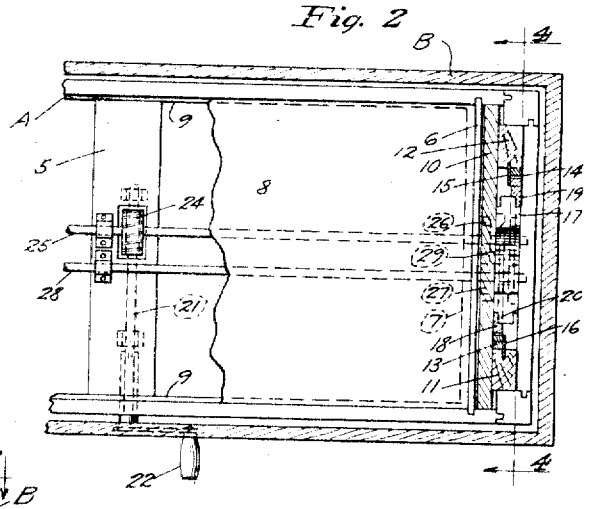
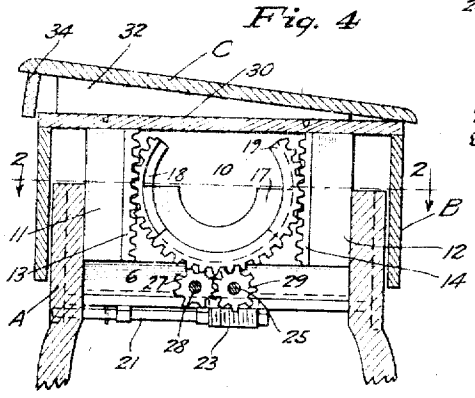


Fig. 4



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UNITED STATES PATENT OFFICE.

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ADJUSTABLE PIANO-BENCH.

1,308,729. Specification of Letters Patent. Patented July 1, 1919.

Application filed March 8, 1919. Serial No 281,443.

To all whom it may concern:

Be it known that I, VALENTINE BELZIAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Adjustable Piano-Benches, of which the following is a specification.

This invention relates to a piano bench whose height may be adjusted, and it pertains particularly to the means for adjusting the height.

Piano benches as ordinarily constructed have no means for adjustment of the height of the seat. It is the primary object of my invention to provide a bench having the general appearance of those now commonly used, but which may be readily adjusted to any height. It is another object of this invention to provide adjustment means, which does not interfere with the provision of a receptacle or box beneath the seat for music and the like.

In addition to the broader features of my invention, there are certain details of construction, whereby a compact, simple, strong, durable structure is secured, which is easy to manipulate and can be so arranged as not to detract from the appearance of the bench.

These objects will be more fully understood, as will also other objects and corresponding accomplishments of my invention from the following detailed description of a preferred embodiment of my invention. For the purpose of this descripton reference is had to the accompanying drawing, in which:

Figure 1 is a perspective view of the complete bench with the seat serving as a cover for the music receptacle or box, the seat or cover being in open position; Fig. 2 is a horizontal sectional view of one end of the bench taken on the line 2—2 of Fig. 4; Fig. 3 is a fragmentary plan view of the elevating gearing looking from below; Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

In general the bench comprises a box like compartment A supported upon legs and a frame B telescoping over said compartment so that it may be raised and lowered. Hinged to the frame B is a cover C which serves as a seat.

Extending across the compartment A at about the center thereof is a cross piece 5. Adjacent the ends of compartment A are false end walls, one of which is indicated by 6 in Fig. 2. As the structures at the ends of the bench are duplicates of each other, only one will be described. End 6 preferably slides in grooves in the front and back walls so that it can be removed for the purpose of exposing the elevating mechanism. The end walls 6 have a slat or rib 7 thereon to support the bottom 8 of the compartment, the latter also resting upon slats or ribs 9 formed on the front and rear walls. Cross piece 5 may also have an elevation upon whose upper surface the bottom may rest.

End wall 6 also serves to hold against displacement a sliding elevating board 10. Secured at the front and back of the elevating board are standards 11 and 12, upon the opposing faces of which are fastened racks 13 and 14. The racks may be secured to the standards by screws or by any other suitable means. It will be noted by an inspection of Fig. 2 that racks 13 and 14 are not in alinement transverse of the bench, but rack 13 is set forward of rack 14. Shroud pieces 15 and 16 substantially in alinement cover the sides of the racks. Secured to the end wall of the compartment A is a bearing block 17 whose periphery is semi-circular in shape. Mounted thereon is a segmental gear 18, a tongue 20 being formed thereon, which is disposed in a corresponding groove on bearing block 17. The gear 18 meshes with rack 13, and is so disposed upon the bearing block that it will revolve thereon. It will be noted that gear 18 hereafter called an elevating gear is so disposed that it will not mesh with rack 14. A similar elevating gear 19 having a tongue disposed in a groove on the opposite side of the bearing block 17 meshes with rack 14, but is so disposed that it will not mesh with rack 13. Gears 18 and 19 are spaced with respect to their planes of rotation so that they may revolve independently of one another. The elevating gears are revolved by gears, which are later described.

Journaled on the under side of cross piece 5 is a shaft 21 which extends into a key hole in the front side of box A. Pins may be disposed upon the shaft for engagement by the socket of a crank key 22 for turning the shaft. However, any suitable form of key connection may be used. Mounted upon

the rear of shaft 21 is a worm 23, which meshes with a worm wheel 24. Worm wheel 24 is fixed to a shaft 25, and adjacent the end thereof is a pinion 26, which drives a pinion 27 fixed to shaft 28. It will be noted that pinion 26 is so disposed that it does not mesh with either of the elevating gears 18 or 19. However, pinion 27 is wide enough to mesh with elevating gear 18, but not wide enough to mesh with elevating gear 19. Fixed to the end of shaft 25 is a pinion 29 which is just wide enough and so disposed as to mesh with elevating gear 19, but not to mesh with elevating gear 18.

It is obvious that upon turning the crank key 22 shaft 25 will be rotated in one direction and motion conveyed through pinions 26 and 27 to rotate shaft 28 in the opposite direction. Pinion 27 moves elevating gear 18 in a direction opposite to elevating gear 19. Thus, both racks 13 and 14 are moved simultaneously upwardly or downwardly, and thereby move elevating board 10 upwardly or downwardly. A like set of elevating gears and coöperating racks at the other end of the bench simultaneously move an elevating board in the same direction. By this means two elevating boards, one at each end of the bench are raised and lowered.

Telescoping over the box A is the frame B provided with end pieces 30 and 31 which rest upon the elevating boards, so that the frame B moves upwardly and downwardly with the elevating boards. The end pieces 30 and 31 coöperating with front and back pieces on the top also serve as a finish to the appearance of the music compartment.

The bench when used for manually playing a piano should have the cover or seat C horizontal. When used for playing automatic piano players, it is more convenient and comfortable to have an inclination to the seat. This is conveniently accomplished by having inclination blocks or wedges 32 and 33, which are detachably mounted upon the top of the frame. A convenient means of attachment consists in having dowel pins fixed to the bottoms of the wedges and engaging holes in the frame, as best shown in Fig. 4. In order to preserve the appearance of the bench, a molding 34 is secured to the cover so that it will overhang the opening between the top of the frame and the cover when the wedges are in position. When the bench is to be used for a player piano, the wedges 32 and 33 will be placed in position. When the bench is to be used for manual playing, the wedges are removed and the seat is horizontal.

Let it be assumed that the cover or seat C is closed either with or without the wedges thereunder as desired, and that the seat is in its lower position. If it is wished to raise the seat, the key 22 is placed in position on a shaft 21 and rotated. Motion is conveyed to the elevating gears at the ends of the bench and the elevating boards are raised. This lifts the frame B. In whatever position, as to height, the seat may be, the outside of the frame work B appears as a molding. The operating mechanism is inclosed within the ends, so that when the cover is raised the compartment for containing music is not marred in appearance and gives no evidence of other than the usual piano bench construction. By reason of the character of the gear structure a firm support for the seat is provided in whatever position it may be.

Although certain details of structure are described, I do not limit myself thereto. Thus, the elevating gears 18 and 19 may be complete spur gears, and various mechanical expedients well known in the art may be resorted to.

What I claim and desire to secure by Letters Patent is:

1. In a piano bench, the combination of a supporting frame, a seat mounted thereon for elevation and depression; an elevating structure on which said seat is supported comprising a pair of racks at one end for raising and lowering said seat, juxtaposed elevating gears concentrically mounted, one each in mesh with a rack, a shaft having a pinion thereon meshing with one of said gears, a second pinion on said shaft, a second shaft parallel to said first shaft, a pinion on said second shaft meshing with the other of said gears and with said second pinion, and means to drive one of said shafts, said gears being supported by said pinions.

2. In a piano bench, the combination of a supporting frame, a seat mounted thereon for elevation and depression; an elevating structure on which said seat is supported comprising a pair of juxtaposed elevating gears concentrically mounted and connected to said seat, a shaft having a pinion thereon meshing with one of said gears, a second pinion on said shaft, a second shaft parallel to said first shaft, a pinion on said second shaft connected with the other of said gears and with said second pinion, and means to drive one of said shafts, said gears being supported by said pinions.

3. In a piano bench, the combination of a supporting frame, a seat mounted thereon for elevation and depression; an elevating structure on which said seat is supported comprising a pair of juxtaposed elevating gears concentrically mounted and connected to said seat, a pinion connected with one of said gears, a pinion connected with the other of said gears, said pinions being mounted on parallel shafts, said shafts being geared together to rotate in opposite directions, and means to drive one of said shafts, said gears being supported by said pinions.

4. In a piano bench, the combination of

a supporting frame, a seat mounted thereon for elevation and depression; an elevating structure on which said seat is supported comprising a pair of racks at one end for raising and lowering said seat, juxtaposed elevating gears concentrically mounted, one each in mesh with a rack, pinions one meshing with each of said gears, and mechanism for driving said gears in opposite directions, said gears being supported by said pinions.

In witness that I claim the foregoing I have hereunto subscribed my name this 26th day of February, 1919.

VALENTINE BELZIAN.