June 3, 1941. H. G. FINNEY ET AL 2,244,332

MUSICAL INSTRUMENT

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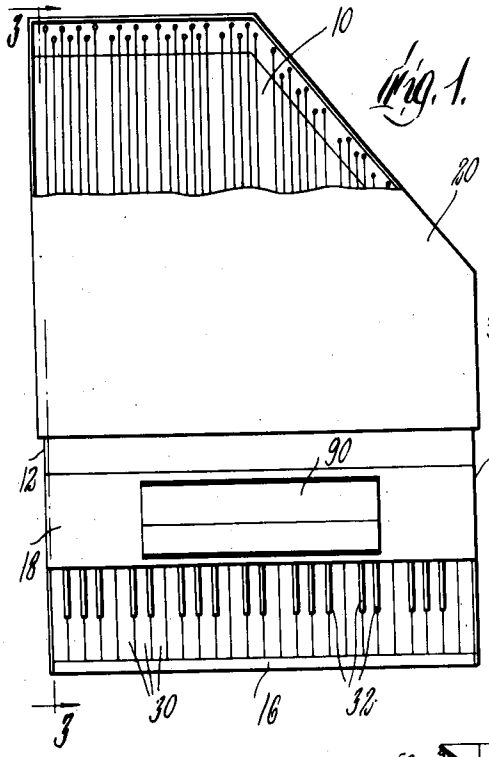


Fig. 1.

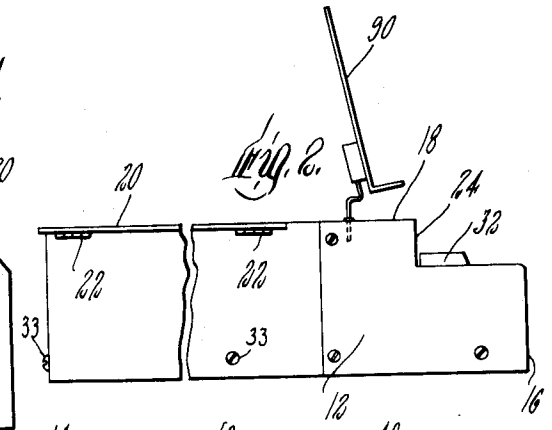


Fig. 2.

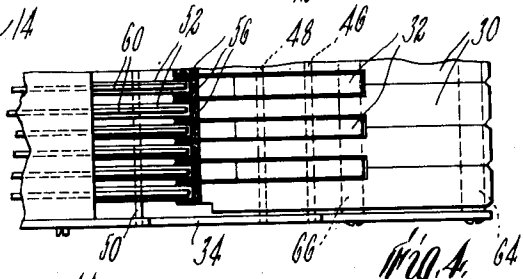


Fig. 4.

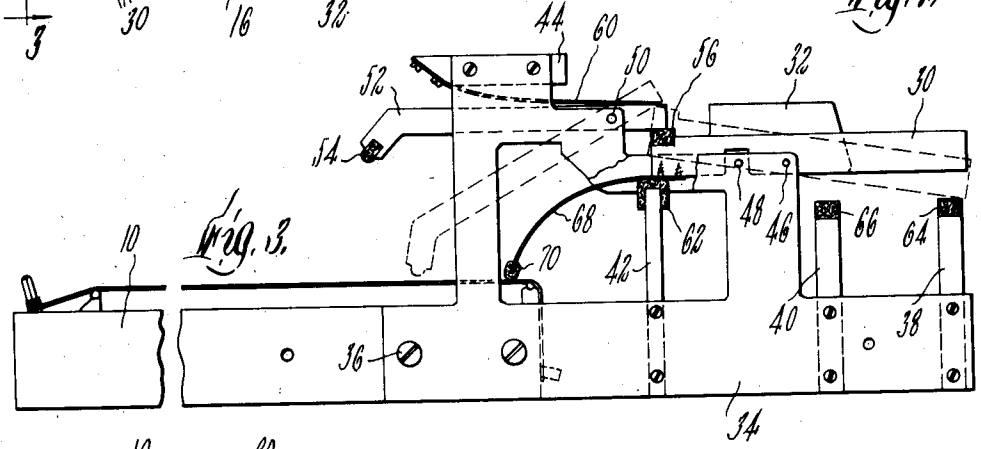


Fig. 3.

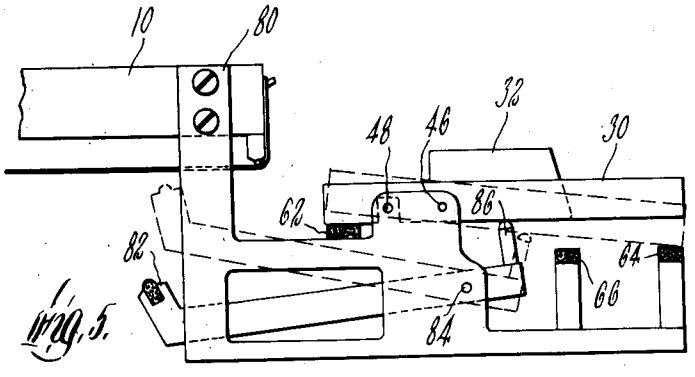


Fig. 5.

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MUSICAL INSTRUMENT

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6 Claims. (Cl. 84—285)

This invention relates to a stringed musical instrument of the zither type, consisting of a relatively flat resonance box over which are mounted a series of strings, this instrument having attached thereto a playing mechanism similar to a piano action and a removable case which encloses the instrument and playing mechanism, the case having an aperture therein through which the keys are exposed for access.

The ordinary zither usually includes a relatively flat resonance box which is rectangular in shape except for one corner which is slabbed off so that the resulting contour is somewhat suggestive of the shape of a grand piano.

According to the present invention, a playing mechanism including a series of hammers and a series of playing keys for operating the hammers is removably secured to the instrument at the base end thereof so as to project beyond the base end. A casing or housing is removably secured to the instrument in such a way as to enclose it as well as the playing mechanism, this housing being shaped somewhat like a grand piano case. Preferably the housing includes a hinged cover portion with a prop for holding it in raised position so as to resemble a grand piano with its top open.

It is an object of the present invention to combine with a zither or similar instrument a simple piano action and a casing to house the zither and action so as to expose the playing keys of the action, the result of this combination being a toy-sized grand piano. The casing and the playing mechanism are preferably removable from the zither so that the zither can readily be tuned or played as usual.

For a more complete understanding of the invention, reference may be had to the following description thereof and to the drawing of which

Figure 1 is a plan view of an instrument embodying the invention, a portion of the top being broken away.

Figure 2 is a side elevation of the instrument shown in Figure 1.

Figure 3 is a section on the line 3—3 of Figure 1.

Figure 4 is a fragmentary plan view of a portion of the structure shown in Figure 3.

Figure 5 is a partial side elevation of a modified form of playing mechanism for a zither.

As indicated in Figure 1, a zither 10 of the usual kind, or a similar instrument, may be mounted in a housing which includes side walls 12 and 14, a base end wall 16, and a top 18. A portion of the top 20 is hinged as at 22 to the side wall 12 so that it can be swung from its normal horizontal position. A suitable prop (not shown) is provided to hold the cover portion 20 in its raised position. The upper portion of the end wall 16 is offset as at 24, leaving an aperture in the casing through which are exposed the white keys 30 and the black keys 32 of a playing mechanism for the instrument 10. The housing comprises two separable parts and is removably secured to the zither and playing mechanism as by a few screws or bolts 33. Thus the rear section of the housing can be removed for tuning the instrument without disturbing the alinement of the keyboard section. The playing mechanism is illustrated in Figure 3 and comprises a pair of end frames 34 which are removably secured as by screws 36 to the side walls of the zither adjacent to the base end thereof and which project beyond the base end of the zither. Extending between the frames 34 are rails 38, 40, 42 and 44. Also extending between the end frames 34 are rods 46, 48 and 50. The rod 46 serves as a pivot element about which the white keys 30 rock. The rod 48 is a pivot element on which the black keys 32 rock. The rod 50 is a pivot element on which a series of hammers 52 rock. Each of these hammers consists of a normally horizontal lever rockable on the pivot member 50 so as to strike a corresponding string on the zither 10. To this end, each hammer may be provided with a suitable felt 54 in its striking end. The opposite end of each hammer rests on a felt pad 56 mounted on the adjacent end of the corresponding key which is overlapped by the end of the hammer. A series of leaf springs 60 are mounted on the rail 44 so as to bear on the upper faces of corresponding hammers adjacent to the overlapping end portions of the hammers so as to hold the hammers resiliently in their normal horizontal position. The action thus consists principally of a pair of simple levers having overlapping end portions, so that, when the key is rocked by finger pressure, it in turn rocks the corresponding hammer against the pressure of the leaf spring so as to cause the felt 54 to strike one of the strings of the zither. The rail 42 is surmounted by a strip 62 of felt which acts as a stop member to determine the normal positions of the keys and hence of the hammers. The rocking movement of the white keys 30 is limited by a strip 64 of felt mounted on the upper edge of the rail 38. In like manner, the rocking movement of the black keys 32 is limited by a

strip of felt 66 mounted on the upper edge of the rail 40.

If desired, each key may be provided with a damper 68 which has an end felt 70 normally in contact with the corresponding string of the zither when the key is in its normal horizontal position. When the key is struck, the damper 68 is elevated with the end portion of the key to which it is attached, thus moving its felt 70 out of contact with the string just prior to the impact of the hammer on the string. The foregoing piano action is simple in structure and easy to manufacture and assemble.

A modified form of action is illustrated in Figure 5. As therein shown, the zither 10 is supported in an elevated inverted position. To the zither is secured at the base end thereof a pair of end frames 80 which extend beyond the base end of the zither and support a piano action for striking the strings of the zither. This action consists of a series of hammers 82 is pivoted as at 84 to rock upward so as to strike the strings of the zither. Each hammer is provided with a capstan 86 bearing against the under face of a key 30 or 32. These keys are pivoted respectively on pivot elements 46 and 48 as hereinbefore described. Suitable stop elements 92, 94 and 96 are mounted on rails which extend between the end frames 80 to limit the rocking movement of the keys in the manner described in connection with Figure 3. Owing to the position of the pivot element 84 about which the hammers 82 rock, the hammers are held by gravity in their normal inactive position from which they are rocked when the corresponding keys are struck.

The casing shown in Figures 1 and 2 may be decorated as desired to imitate more closely the appearance of a grand piano. A removable music rack 90 may be mounted on the top of the casing, and, if desired, legs (not shown) may be attached to the casing.

It is evident that various modifications and changes may be made in the specific embodiments of the invention herein shown and described without departing from the spirit or scope of the invention as defined in the following claims.

We claim:

1. In combination with a stringed musical instrument of the zither type arranged with its strings uppermost, a frame detachably secured to the instrument adjacent to the base end thereof, a piano action supported by said frame above the level of the instrument and in playing relation to the strings of the instrument whereby the strings are struck from above, said action including a set of piano keys, and a case completely enclosing said instrument and having an aperture through which said keys are exposed.

2. In combination with a stringed musical instrument of the zither type arranged with its strings uppermost, a frame detachably secured to the instrument adjacent to the base end thereof, a piano action supported by said frame above the level of the instrument and in playing relation to the strings of the instrument whereby the strings are struck from above, said action including a set of piano keys, and a case enclosing and removably secured to said instrument, said case following the side walls of the instrument but projecting beyond the base end to enclose said action, the projecting portion of the case having an aperture therein through which said keys are exposed, said case also having a top portion hinged along a side edge thereof, and a prop to support the top portion in open position.

3. In combination with a stringed musical instrument of the zither type, a frame secured to said instrument and projecting from the base end thereof, a series of hammers pivotally mounted on said frame and rockable to strike the strings of said instrument, a series of piano keys pivotally mounted on said frame in operative relation to said hammers, and a series of dampers secured to said keys and normally in contact with respective strings of the instrument, each said damper being movable from its string by rocking movement of its key to operate the corresponding hammer.

4. In combination with a stringed musical instrument of the zither type, a frame secured to said instrument and projecting from the base end thereof, a series of hammers pivotally mounted on said frame and rockable to strike the strings of said instrument, spring means resiliently maintaining said hammers in horizontal position, a series of piano keys pivotally mounted on said frame, each said key having an end portion overlapped by an end portion of one of said hammers for operation thereof, a felt pad between the lapping portions of each hammer and key, and stop elements limiting the rocking movement of each said key.

5. In combination with a stringed musical instrument of the zither type, a frame detachably secured to said instrument near the base end thereof, said frame including a pair of end members and a plurality of rails extending between said end members, three parallel rods extending between said end members, a series of hammers pivoted on one of said rods, a set of white piano keys pivoted on the second of said rods, and a series of black piano keys pivoted on the third rod, said keys being arranged in operative relation to corresponding hammers, and strips of felt mounted in the upper edges of said rails and arranged for engagement by said keys to limit the rocking movement thereof.

6. In combination with a stringed instrument of the zither type, a frame secured to the base end of the instrument, a series of normally horizontal hammers pivotally supported on said frame and rockable to strike respective strings of said instrument, a leaf spring bearing on the upper surface of each hammer near the end remote from the strings, a series of horizontal playing keys pivotally mounted on said frame, each said key having an end portion overlapped by an end portion of a corresponding hammer, stop means limiting the rocking movement of said keys, and a series of dampers secured to said keys and normally engaging corresponding strings, each said damper being movable from its string by rocking movement of its key to actuate the corresponding hammer.

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