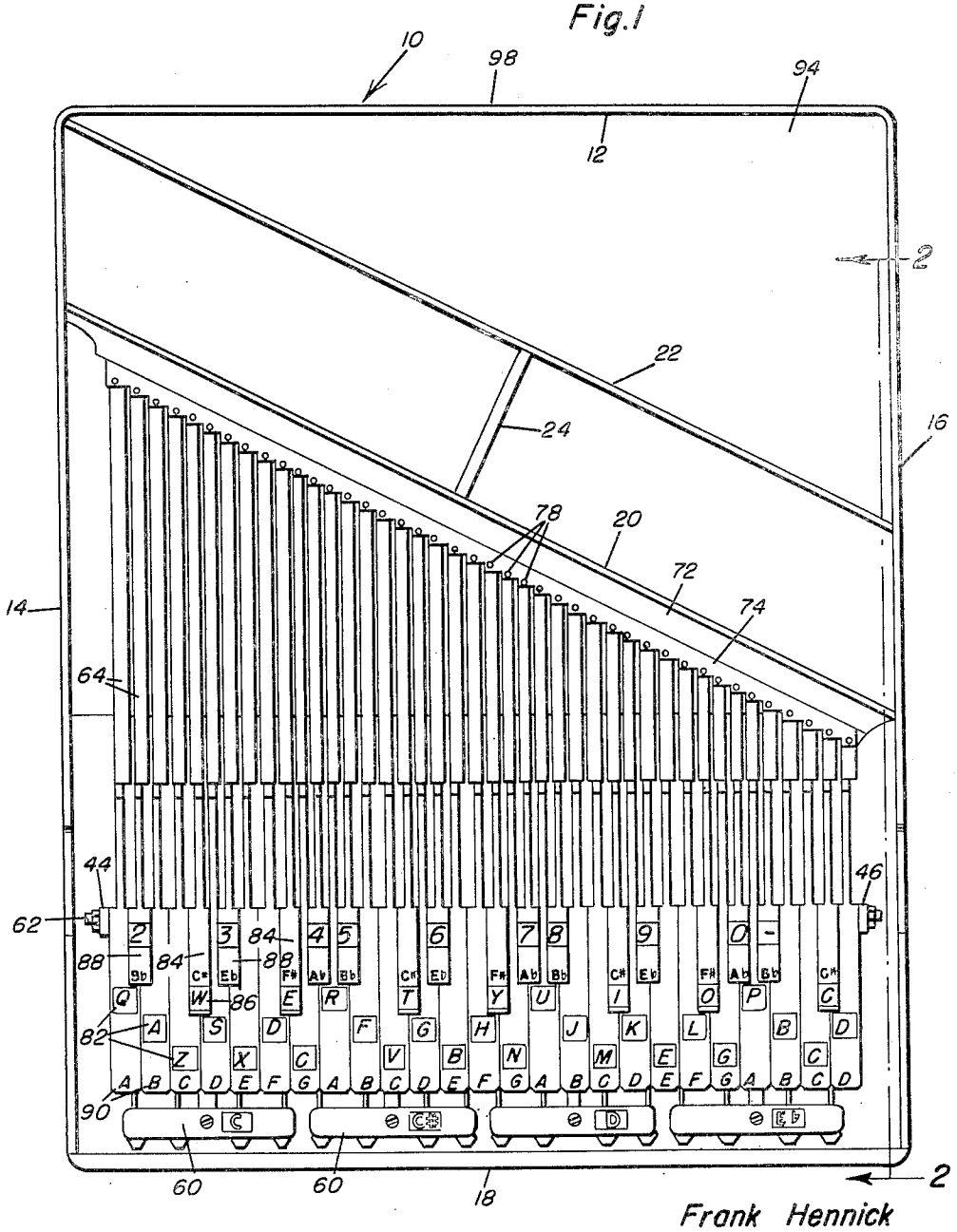
Feb. 5, 1957 F. HENNICK 2,780,127

MUSICAL INSTRUMENT

Filed Oct. 15, 1953 2 Sheets-Sheet 1

Fig. 1



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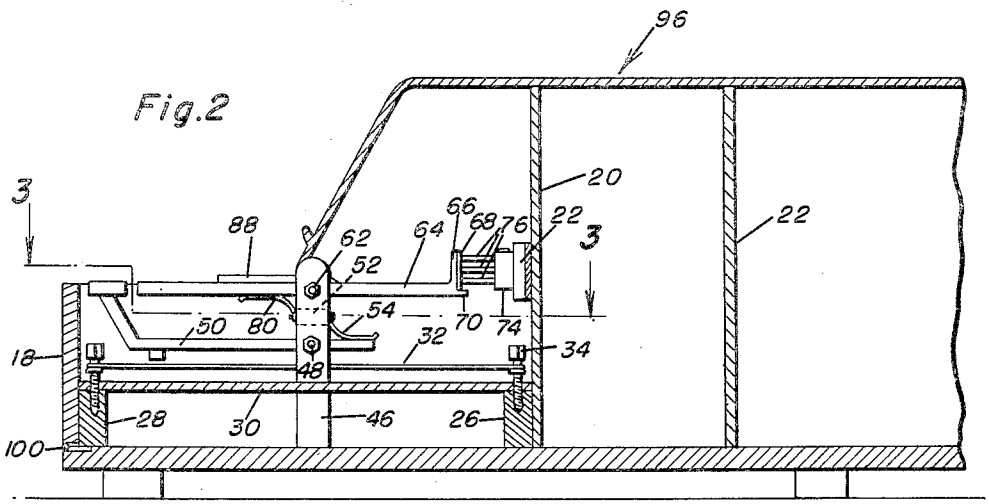
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MUSICAL INSTRUMENT

Filed Oct. 15, 1953 2 Sheets-Sheet 2

Fig.2



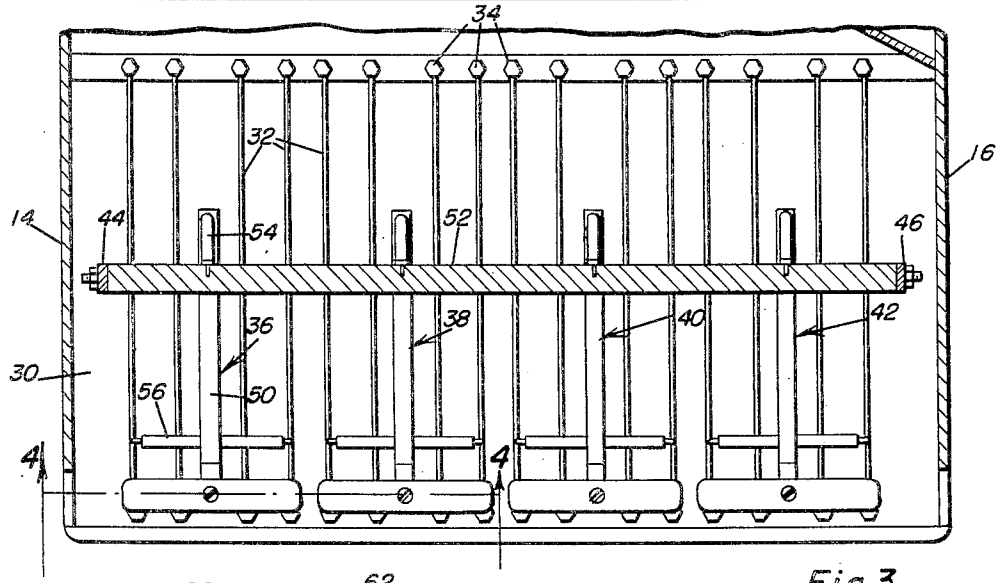


Fig.3

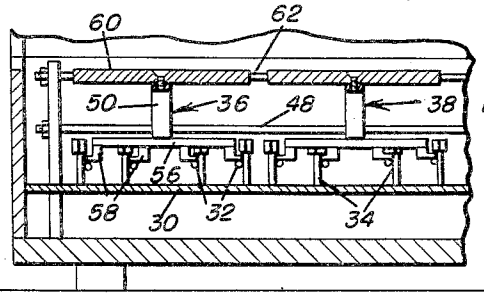


Fig.4

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2,780,127

MUSICAL INSTRUMENT

Frank Hennick, Berkeley Heights, N. J.

Application October 15, 1953, Serial No. 386,272

2 Claims. (Cl. 84—170)

This invention relates generally to musical instruments and pertains more particularly to an instrument primarily intended for amusement as well as instruction, the instrument being capable of play by anyone having a general knowledge of the typewriter keyboard.

A primary object of this invention resides in the provision of a series of tuned elements or members, preferably arranged in the order of the chromatic scale, capable of being set into motion to produce a musical sound by actuation of a set of keys, the keys being arranged generally in the manner of a typewriter keyboard.

Another object of this invention is to provide an improved form of musical instrument adapted particularly for use by a musical novice so that manipulation of a single key will produce a tuned chord, the arrangement being such that a variety of musical effects may be produced by proper manipulation of the keys.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a plan view of the invention with the cover member thereof removed;

Figure 2 is a vertical section, taken substantially along the plane of section line 2—2 in Figure 1, showing details of the internal construction;

Figure 3 is a horizontal section, taken substantially along the plane of section line 3—3 in Figure 2, showing detail of the major chord key assemblies; and

Figure 4 is a vertical section taken substantially along the plane of section line 4—4 in Figure 3, showing further details of the major chord key assemblies.

Referring now more particularly to the drawings, reference numeral **10** indicates the cabinet or housing of the instrument generally, which includes a rear wall **12**, spaced-parallel side walls **14** and **16** and a front wall **18** arranged in the manner shown. A support or partition wall **20** extends diagonally between the side walls **14** and **16** and a further partition wall **22** extends parallel thereto, these walls having a sound bar **24** extending between them in a manner shown most clearly in Figure 1, the purpose of which will be presently apparent.

Abutting the lower edge of the front face of the wall **20** is an anchor member **26** and a similar anchor member **28** is secured in abutting relation to the inner face of the front wall **18**. These members are interconnected by a bridge piece **30** which extends between the opposite side walls of the cabinet in the manner shown. Securing the bridge piece between the members **26** and **28** and also providing adjustable securing pegs for the various strings **32** are the peg members **34**. It will be noted that there are sixteen of these strings of equal length and that consecutively in groups of four they are adapted for actuation by the key members **36**, **38**, **40** and **42**. A pair of posts **44** and **46** are disposed adjacent opposite

side walls of the cabinet and a pivot rod **48** is secured between these posts in the manner shown most clearly in Figure 4 to which intermediate portions of the levers **50** constituting a portion of the various key members are secured for pivotal movement thereon. Each lever has a free end portion projecting beyond the plane of the post and a support bar **52** extending between the posts carries a series of spring finger members **54** which abut against the free ends of the levers to hold them normally in a substantially horizontal position, as shown most clearly in Figure 2. Adjacent the other free end of the levers are the hammer or striker bars **56**, each of which carries four pick members **58** in depending relation thereto which are adapted, upon downward movement of the levers, to strike an associated one of the various strings **32** such as to cause the strings to vibrate and produce a musical sound. It will be understood that the four strings associated with each of the striker bars **56** and their associated picking elements are arranged in the order of a major chord such as is indicated by the indicia provided on the key plates **60** associated with each of the various levers, as for example, C, C♯, and the like. These strings in their associated key assemblies are adapted to produce base sounds to provide the accompaniment for the melody which is played in a manner hereinafter set forth.

A further pivot bar **62** is arranged in vertically spaced relation to the previously mentioned member **48** between the post members **44** and **46** and this member is adapted to pivotally receive intermediate portions of the various levers **64**. These levers or key members are provided at their rearward free ends with an enlarged foot **66**, the rear faces of which are arranged vertically in opposition to the partition wall **20**, previously described. These rear faces are provided with felt pads, or the like, **68** and at their lower portions with projecting rake portions **70** in the manner shown most clearly in Figure 2. A backing strip **72** is secured to the front face of the wall **20** opposite the free end portions of the levers **64** and this strip carries a stepped strip **74**, each forward face of which carries a set of three reed members **76** in cantilever relationship, these reed members being secured to the strip **74** as by the vertical pin members **78**. The various lever or key members **64**, similar to the previously described levers **50**, are normally held in substantially horizontal position by the spring fingers **80** carried by the previously mentioned bar **52**. Normally, the free ends of the various reeds **76** are in frictional engagement with the felt pads **68** on the key members such that they will be held against vibration.

Referring now more particularly to Figure 1, it will be seen that the key members in the intermediate tier of the keyboard of the instrument terminate at their forward ends closely adjacent the previously described key plates **60** and that they are provided with indicia **82** arranged substantially in the manner of a typewriter keyboard with certain of the keys **84** being of shorter length and provided with indicia **86** completing the standard letter keyboard of a typewriter. These shorter keys are positioned at the second and sixth notes of a chromatic scale. There are a series of keys **88** corresponding to the number line of a standard typewriter keyboard which provide the half tones and the fourth, ninth and eleventh half tones of the chromatic scale.

The various reeds **76** are arranged to sound three notes of a major chord, the lowermost reed being that note which corresponds to the note in the chromatic scale as indicated by the indicia **90** on the various keys. A further partition wall **22** which is disposed in spaced-parallel relation to the previously described wall **20** so as to provide a sound box therebetween, the opposite

side walls 14 and 16 being provided with openings 92 for allowing the air column to properly resonate. The previously mentioned sound bar 24 is positioned at that point between the walls 20 and 22 such that the most pleasing tonal qualities of the instrument are brought forth. The chamber 94 between the wall 22 and the wall 12 of the cabinet provides a further sound box for the musical instrument, as will be readily apparent. The instrument may be provided with a removable cover member 96 which is hinged as at 98 to the upper edge of the rear wall 12 and it is to be noted that the front wall 18 is provided with the hinge means 100 so this wall member may be dropped to a substantially horizontal position when it is desired to play the instrument, allowing proper manipulation of the various key members. Also, lowering the wall 18 allows access to the members 34, which have square heads for manipulation with a suitable wrench, to tighten or loosen the same and attain proper tuning of the instrument.

It will be appreciated that one or several fingers may manipulate one or more of the various keys on the keyboard of the instrument and that the music denoting the musical composition to be played is in the form of a series of arbitrarily arranged characters of a typewriter which are interpreted by the user through the medium of the novel keyboard assembly of the insturment into the proper musical sounds. A very rapid striking and releasing of the various keys will enable the operator to produce a staccato sound whereas a slow depression of one of the keys will produce a strumming sound, the slower the depression, the more spaced the tones that are played in the chords of each of the series of vertically arranged reed elements. In fact, various effects can be produced both by the rapidity or slowness of manipulation, as well as the amount of depression, such as the simulation of a mandolin by rapid up-and-down manipulation of one of the keys. Obviously, the material used in the reeds is to be selected on the basis of producing the most desirable tonal qualities. Also, their thickness and length will necessarily be dependent upon the tonal

quality desired, and it is to be understood that the angle and disposition of the wall members 20 and 22 may be altered to produce the most desirable results.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. A musical instrument comprising a cabinet in the form of a miniature piano, said cabinet including a transverse partition wall, a plurality of keys, support means for pivotally mounting said keys, at least some of said keys having free inner end portions providing end faces opposing said wall, a group of vertically spaced reeds associated with each of said end faces, said reeds being secured at one end to said wall and extending therefrom into engagement with the end faces of associated keys, each key also having a rake extension underlying its associated reeds such that depression of a key will set the associated reeds into motion.

2. The combination of claim 1 wherein said end faces of the keys are provided with resilient material for damping vibration of said reeds.

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