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FOOT ACTUATED MUSICAL INSTRUMENT.
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Fig. 1.

Fig. 2.

Fig. 3.

Witness

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THE AMER. PATENT CO., PROVIDENCE, RHODE ISLAND, U.S.A.
FOOT-ACTUATED MUSICAL INSTRUMENT.

UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, ALFRED C. POPE, a citizen of the United States, residing at New York, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Foot-Actuated Musical Instruments; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is a novel mechanical musical amusement instrument, especially adapted for use in theaters and vaudeville entertainments. It provides a novel instrument whereby a person dancing upon the top of the instrument may at the same time play a tune by depressing proper keys with his feet, such keys actuating musical sounding or tone producing devices arranged below the key-board.

The invention consists in the novel construction of the instrument, and features thereof, as hereinafter set forth in the claims; and the accompanying drawings illustrate a practical embodiment of the invention which I will describe in detail so as to impart a clear understanding of the invention to others.

In said drawings:

Figure 1 is a diagrammatic top plan view of the apparatus, illustrating the preferred arrangement of keys of the instrument.

Fig. 2 is an enlarged detail longitudinal vertical section on the line 2—2 Fig. 1 showing the casing in section, and one set of the musical key-operated devices complete; the parts being shown in normal position.

Fig. 3 is a similar view showing the parts in key-depressed position.

Fig. 4 is a detail.

Fig. 5 is an enlarged detail section on line 5—5 Fig. 2.

The apparatus comprises a casing, preferably made of wood or other suitable material, which may be six inches in height, approximately sixty-eight inches long and twenty-eight inches wide; these proportions however can be varied. The top of this casing is preferably made of an inner layer 1 and an outer layer 1' of wood; the top layer 1' is preferably provided with a series of openings 1 each of which corresponds in size shape and depth to a key 2, hereinafter referred to.

As shown the keys are preferably rectangular; each key 2 is provided with a stem 2a which is preferably rigidly connected therewith and which depends through a guide opening 1 in the under layer 1 of the casing. To the lower end of this stem 2 is preferably attached a rod 2b which is shown as guided in a loop or eye 3 on a metal standard 3, of any suitable construction, securely fastened to the bottom 1 and within the casing. The related opening 1 and eye 3 guide the key stem in its vertical movement.

The keys are normally held in raised position, as indicated in Fig. 2, by suitable 70 springs. As shown a flat spring 4 is employed having one end attached to the under side of the cover layer 1, as at 4a, and the free end of this spring may be suitably engaged with the stem 2a of the key. As shown the free end of the spring engages under a pin 2d attached to the stem 2a, but may be operatively engaged with the stem in any other desired manner, and will normally lift the stem and key 2 so that the top surface of the key is normally slightly elevated above the top surface of the top of the casing. The openings in which the keys fit and the parts through which the keys are guided may be covered or lined with felt or other suitable material in any desired way which will permit free and noiseless action of the keys.

Pivoting mounted on the standard 3 is a spring lever having a long arm 5 and a short arm 5; the long arm 5 may be slotted, as at 5a Fig. 4, so that it can be engaged with the lower end of the stem 2 and be depressed thereby when the key is depressed. The operative connection between the arm 5 and the key stem may be of any suitable construction. The arm 5 carries a hammer or mallet 5 which is adapted to strike or operate a suitable musical member indicated at 7.

The short arm 5 of said lever is preferably connected with one end of a spring as 6, the other end of which may be fastened to the bottom of the casing; and said spring normally tends to depress the short arm 5 and raise the long arm 5. The downward movement of the arm 5 may be limited by a suitable stop, as by a lug 3 on
standard. When the key is depressed the stem depresses the long arm of the spring lever and tensions spring.

A xylophone, bell, or other musical member may be supported in any suitable manner, as by blocks attached to the bottom of the casing. In position to be struck by the mallet if the related key is depressed. The parts however are preferably so arranged that if the key is depressed gently the mallet will not quite contact with the bell (see Fig. 3) but if the key be depressed quickly the weight of the mallet will flex the arm and strike the bell and sound the same; and then rebound so that the bell will sound clearly. A short quick depression of a key by the foot is necessary to cause the note to sound, when the parts are properly adjusted.

The complete instrument has a number of such sets of keys and related sound producing devices; the keys are arranged in rows transversely of the top as indicated in Fig. 1; there being, as shown, first a row of four keys at the right hand end of the instrument, then one key, then a row of four keys, then a row of three keys, then a row of four keys, then one, and so on, as shown. The first row of four keys at the right hand end of the board correspond respectively to the musical notes A-sharp, A, G-sharp, G; the single key next this first row corresponds to the musical note B; the second row of four keys adjacent the single keys B correspond respectively to the notes D, D-sharp, C, C-sharp; each row of three notes respectively corresponds to the musical tones F-sharp, F and E. Thus each chromatic octave is arranged in four rows of keys, first a row of four, then one, then another group of four notes, then a row of three notes; and this arrangement is repeated throughout the length of the scale. The notes and keys are so disposed that they can be most conveniently operated by the dancer, and the arrangement specified and indicated I consider a novel and the preferred arrangement of notes and keys. By the peculiar arrangement of the keys in groups, each group including the notes for a chromatic octave, and the keys in each group being divided into a plurality of parallel rows, as shown, the various notes in each chromatic octave are located in such relative position that the performer can easily reach the desired key or keys; further the keys in each group constituting a chromatic octave are so related that it is possible for the performer to play at one time notes of a major or a minor chord, and chords of the seventh. In the device shown the apparatus has three similar groups and the extreme tonal range is three octaves; and not only can the melody in any key be played, but also harmonies can be played.

The instrument is set with the keys uppermost, and the tops of the keys will normally project about five-eighths of an inch above the top of the casing. The keys are adapted to be operated by either foot of a person dancing upon the top of the casing. To cause the keys to sound it is necessary that they be depressed quickly by the foot of the dancer; but the dancer can walk gently thereon, and even depress a key gently, without causing the related note to sound.

The keys are so arranged that the performer can play both melodies and harmonies as two or more keys in adjacent rows may be simultaneously depressed by the foot of the operator to produce harmony.

The performer in playing the instrument should quickly depress the desired keys with the feet; and it is desirable to have the parts so adjusted that after depressing a key with the toe, the dancer momentarily rest the heel of the foot on an adjacent key, that will not sound a note. It would be very fatiguing to the performer to have to dace entirely on the toes, and with the parts properly adjusted he can let his heel down to rest and ease up the foot or to balance without causing any improper note to be sounded by the unintentional depression of a key with the heel.

What I claim is:

1. In a musical instrument adapted to be operated by the feet, the combination of a support, twelve musical tone producers within said support, each tuned to produce one of the notes of an octave, a depressible key on top of said support, related to each producer, said keys being arranged in four parallel rows, the keys being of such size and so located that two or more keys in adjacent rows may be simultaneously depressed by the foot of the operator, and means actuated by the related key when depressed to sound said tone-producer.

2. In a musical instrument adapted to be operated by the feet, the combination of a casing, a plurality of musical tone producers within said casing, comprising a plurality of groups, the producers in each group corresponding in number to the notes of an octave, each producer tuned to produce one of the notes of one of said octaves, a depressible key on top of said casing related to each producer, the keys in each octave group being arranged in four parallel rows, the keys being of such size and so located that two or more keys in adjacent rows may be simultaneously depressed by the foot of the operator, and means actuated by the related key when depressed to sound said tone-producer.

3. A musical instrument adapted to be operated by the feet, having a casing, a plurality of tone producers within the cas-
ing, tuned to give the chromatic scale, means to sound said tone producers, and a plurality of keys adapted to be operated by the feet to actuate said means, said keys arranged in groups on top of said casing, the keys in each group being arranged in adjacent parallel rows, the keys being of such size and so located that two or more keys in adjacent rows may be simultaneously depressed by the foot of the operator. In testimony that I claim the foregoing as my own, I affix my signature.

ALFRED C. POPE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."