No. 681,939. Patented Sept. 3, 1901.

R. L. VENUTO.

ELECTRICAL MUSICAL INSTRUMENT.

(Application filed Aug. 7, 1900.)

(No Model.)

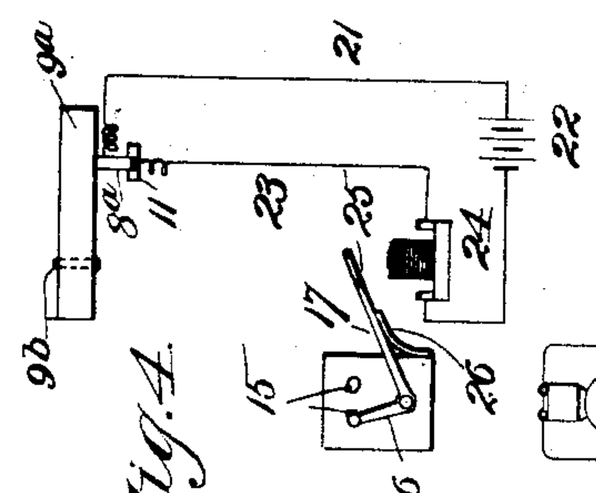

Fig. 4.

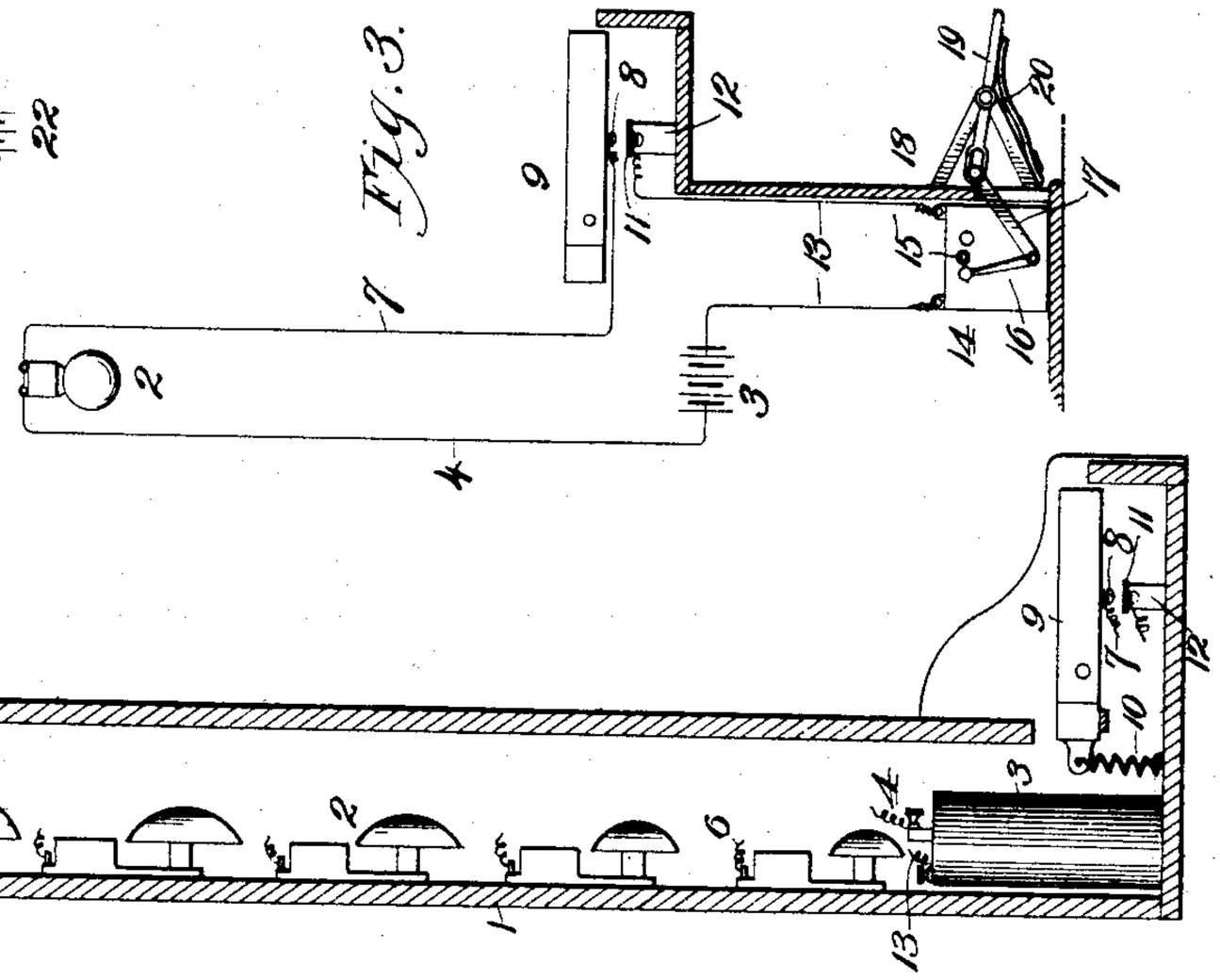

Fig. 3.

Fig. 2.

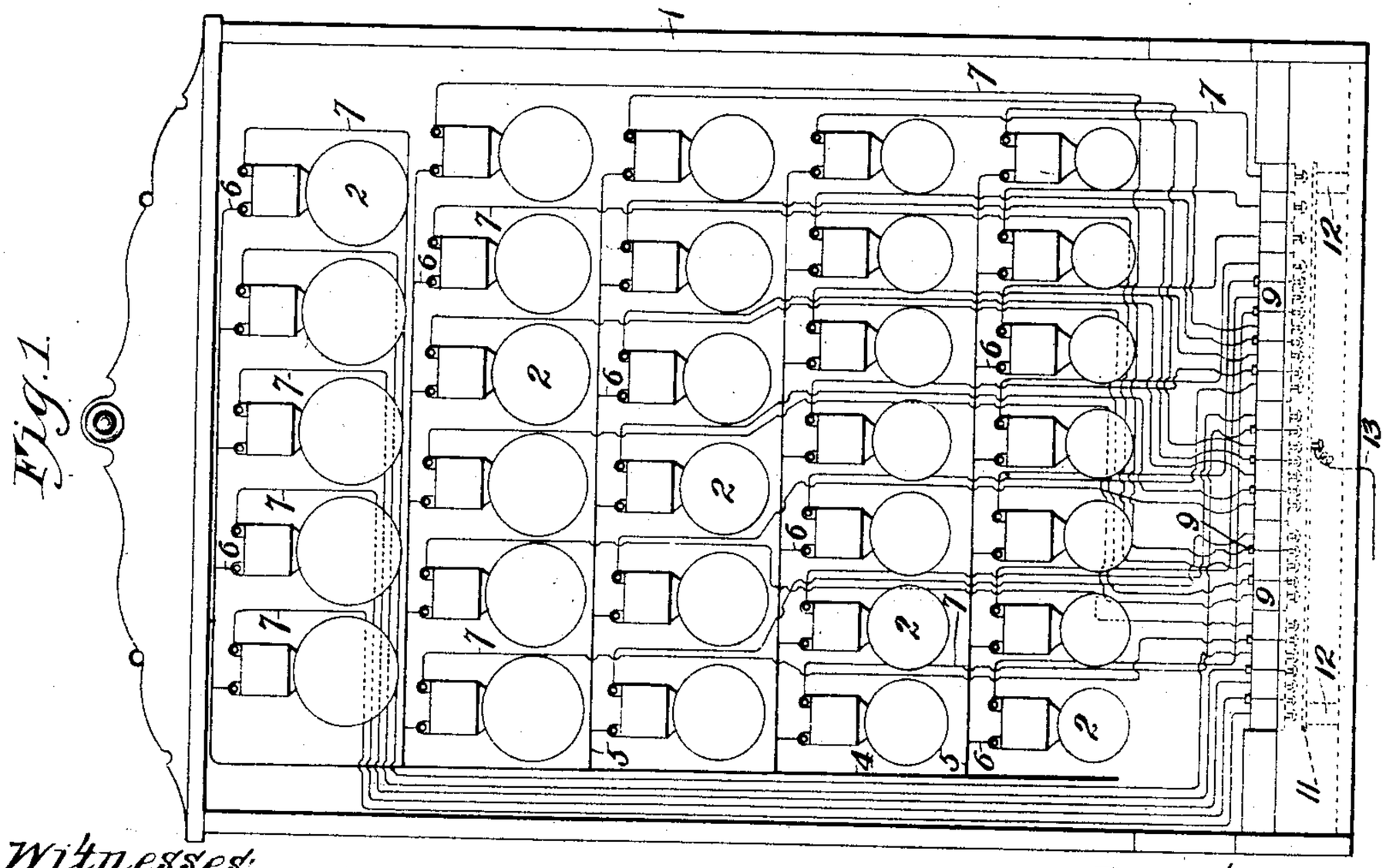

Fig. 1.

Witnesses:
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UNITED STATES PATENT OFFICE.

ROCCO L. VENUTO, OF KANSAS CITY, MISSOURI.

ELECTRICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 681,939, dated September 3, 1901.

Application filed August 7, 1900. Serial No. 26,119. (No model.)

To all whom it may concern:

Be it known that I, ROCCO L. VENUTO, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Electrical Musical Instrument, of which the following is a specification.

My invention relates to electrical musical instruments of that class embracing a number of electromagnetic bells and keys electrically connected to said bells to operate the same; and it consists in certain novel and peculiar features of construction and organization of parts, as is hereinafter described and claimed.

The object of the invention is to produce an instrument of the type mentioned which possesses the desirable features of simplicity, durability, and cheapness of construction.

In the drawings, Figure 1 represents a view with the face-plate omitted to show the arrangement of the bells. Fig. 2 is a vertical central section of the same. Fig. 3 is a diagrammatic view showing a bell and a key in circuit with the battery and the resistance or rheostat, and said figure also shows a foot-pedal for operating said rheostat. Fig. 4 is a view showing a key-operated local-circuit mechanism for operating the rheostat.

Similar parts throughout the several views are identified by corresponding reference characters.

1 designates a casing or frame of any suitable or preferred form, material, and ornamentation.

2 designates electromagnetic bells, of the continuously-ringing type, secured to or in the casing in any suitable manner and representing the various tones of the chromatic scale. In toy instruments eight bells, representing the various tones of the chromatic scale, will, perhaps, be sufficient. In large instruments, however, it will be preferable to employ sufficient bells to cover from two and one-half octaves upward.

3 designates an electric battery having its positive pole connected by a conductor 4 and branch conductors 5 and 6 to the electromagnetic bells 2, and leading from said bells are conductors 7, said conductors being each electrically connected at its opposite end to a contact 8 of a piano-key 9, each key being normally held inoperative by a retractile spring 10 or its equivalent. Below the key-contacts 8 is a contact-strip 11, mounted on posts 12 or otherwise supported, and electrically connecting said contact 11 to the negative pole of the battery is a conductor 13, the arrangement being such that the depression of a key completes a circuit, in which is located the bell to produce the tone desired.

In practical or full-sized machines it will be necessary to provide for a variation in the volume of sound produced in order to play any particular piece of music properly. I accomplish this object by throwing more or less resistance into the path of the current. I make provision for this by means of a supplemental piano-key or its equivalent or by means of a foot lever or pedal. In Figs. 3 and 4 is shown the resistance device or rheostat, the same being numbered 14 and preferably of that type embodying a plurality of contacts 15 for successive engagement by a contact-lever 16, said rheostat being located on the conductor 13. The lever 16 is provided with a supplemental arm 17, having in Fig. 3 a pin-and-slot connection, as at 18, to the pedal 19, said pedal having its forward end normally elevated by means of a spring 20, the result of which is to hold the lever 16 in engagement with the rearmost contact 15, which contact may represent the greatest amount of resistance to the current, and thereby insure the minimum volume of sound as long as the pedal is thus elevated. By depressing said pedal the contact-lever 16 is thrown forward, and as it successively passes from one contact 15 to the other the volume of sound is gradually increased. As soon as the pedal is released the spring 20 restores the pedal to its original position and the tone, consequently, to its original volume.

By reference to Fig. 4 it will be noticed that I provide a supplemental key 9^a, pivoted, as at 9^b, to swing laterally, so as to throw the depending contact 8^a in or out of contact with the end of contact 11. A conductor 21 connects the contact of the supplemental key 9^a with one pole of the battery 22, the other pole of the battery being connected by a conductor 23 with contact 11, said contacts, conductors, and battery 22 constituting a local circuit, and arranged in

said circuit or conductor 23 is an electromagnet 24, armature 25 of said magnet being mounted, in this case, on the arm 17 of lever 16. When the local circuit is broken—that is, when contacts 8^a and 11 are disengaged—the spring 26 holds arm 17 of the rheostat-lever elevated and the least resistance is thrown in the path of the bell-circuits. When key 9^a is operated to cause the engagement of contacts 8^a and 11, the local circuit is completed and magnet 24 energized, with the result, of course, of attracting the armature and automatically introducing into the bell-circuits a greater resistance, this action, as stated, being followed by a diminution of sound.

The character of the music produced by this instrument will be readily understood, each tone being represented by the rapid intermittent sounding of an electromagnetic bell, the sound continuing as long as the key is held depressed.

From the above description it will be apparent that the invention is susceptible of various modifications as regards its detail construction or arrangement without departing from its spirit and scope.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An electrical musical instrument, comprising a suitable casing, a plurality of electromagnetic bells therein, an electric battery, a conductor connecting one pole of the battery with each bell, a contact connected to the opposite pole of the battery, keys corresponding in number to the bells, a conductor between each key and the bell representing the tone of said key, a contact for each key adapted to contact with the said contact connected to the battery, a resistance or rheostat in said circuit, a local circuit including a source of electric energy, an electromagnet, and a pair of contacts, a key to place said contacts in electrical engagement, an armature-carrying arm for operating the rheostat, and a spring to normally hold said arm elevated when said local circuit is broken, substantially as described.

2. An electrical musical instrument, comprising a suitable casing, a plurality of electromagnetic bells therein, an electric battery, a conductor connecting one pole of the battery with each bell, a contact connected to the opposite pole of the battery, keys corresponding in number to the bells, a conductor between each key and the bell representing the tone of said key, a contact for each key adapted to contact with said contact connected to the battery, a rheostat in said circuit, embodying a plurality of contact-points, and a lever to contact successively with said points, provided with an arm, a spring engaging said arm, an armature carried by said arm, a local circuit including a source of electric energy, an electromagnet, and a pair of contacts and a key pivoted to work laterally and adapted to place said contacts in electrical engagement, all arranged substantially as and for the purpose described.

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

ROCCO L. VENUTO.

Witnesses:
H. C. RODGERS,
G. Y. THORPE.