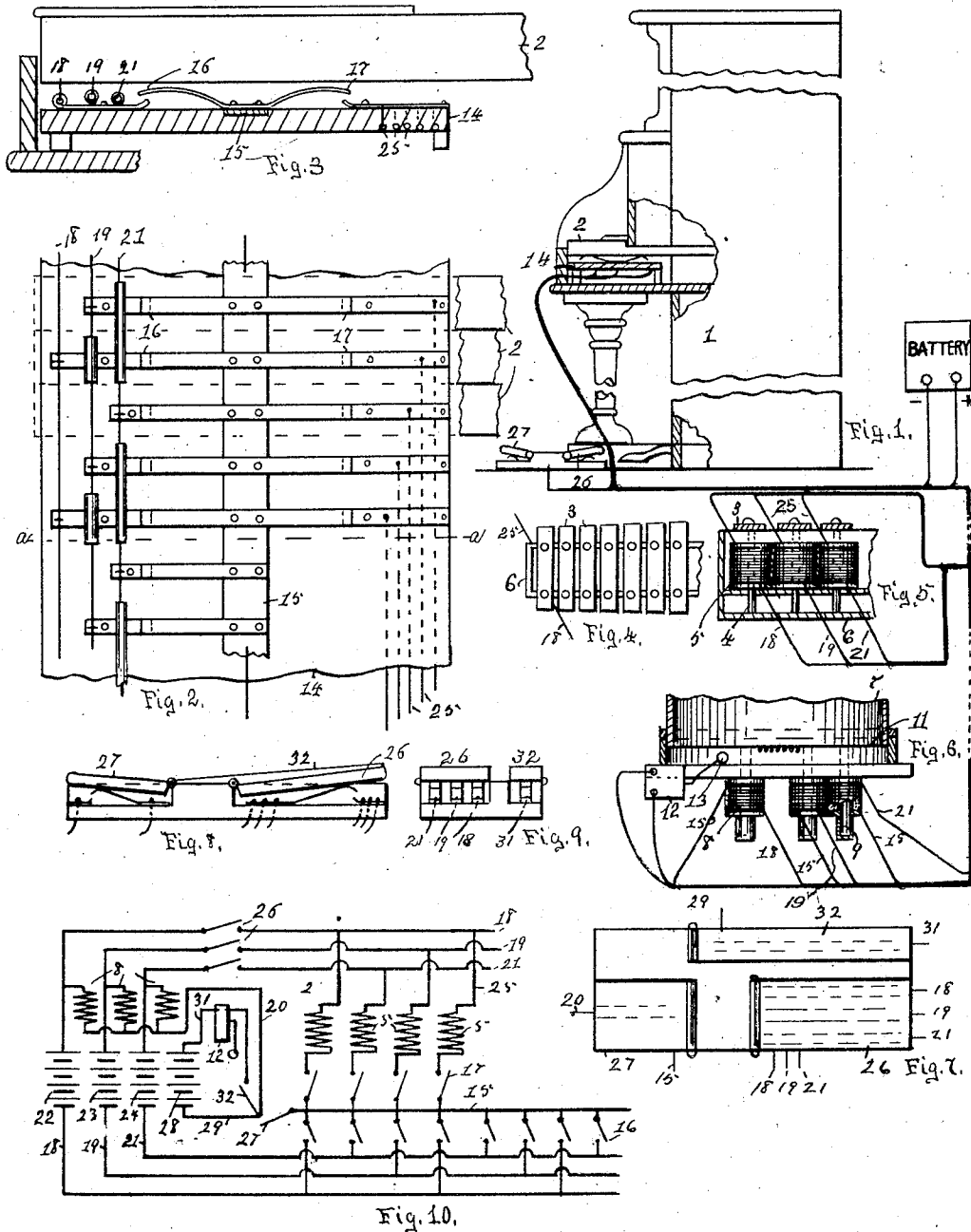


J. L. BLACK.
ELECTRICALLY OPERATED ATTACHMENT FOR PIANOS.
APPLICATION FILED FEB. 23, 1911.

1,048,798.

Patented Dec. 31, 1912.



Witnesses.

James G. Carr.
Philo Carr

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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-OPERATED ATTACHMENT FOR PIANOS.

1,048,798:

Specification of Letters Patent.

Patented Dec. 31, 1912.

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To all whom it may concern:

Be it known that I, JOHN L. BLACK, a citizen of the United States, residing at Hamilton, Ohio, have invented a new and useful
5 Improvement in Electrically-Operated Attachments for Pianos, of which the following is a specification.

My invention relates to electrically operated attachments for pianos, and the objects
10 of my improvements are to provide orchestra bells with solenoid ringing mechanism having electrical connections which may be controlled by the corresponding keys of a piano; to provide means for controlling the
15 electrical connections with solenoids for beating a drum; to provide an electrical device for beating the roll on a drum either independently or simultaneously with the playing of a piano, and to provide simple
20 and durable construction and assemblage of the various members for obtaining facility of operation and efficiency of action. These objects are attained in the following described manner as illustrated in the accompanying drawings, in which:—

Figure 1 is an end elevation with parts in section of a piano provided with my improvements; Fig. 2 a plan of portions of a switch board adapted to be removably supported under the keys of a piano; Fig. 3 a
30 section on the line *a-a* of Fig. 2; Figs. 4 and 5 a plan and a longitudinal vertical section respectively of a portion of a series of orchestra bells; Fig. 6 a diametrical section
35 of portions of a snare drum provided with tap and roll playing attachments; Fig. 7 a plan and Figs. 8 and 9 side and end elevations respectively of the switch pedal, and Fig. 10 a diagram of the electrical circuits.

40 In the drawings, 1 represents a piano provided with the usual keys 2. A series of orchestra bells here represented a xylophone or metallophone bars 3 are each arranged to be sounded by the contact therewith of the
45 core 4 of a corresponding solenoid 5 supported thereunder in a box 6. A snare drum 7 is provided with a series of solenoids 8 each being adapted to sound single taps by the separate contact of their respective cores
50 9 with the drum head 11. An electric bell mechanism 12 is arranged for its hammer 13 to rapidly contact with the drum head 11 for beating the roll thereon. Any suitable source of current may be employed for operating
55 said solenoids and bell mechanism.

Such source is typified by several distinct batteries 22, 23, 24 and 28, in Fig. 10. These batteries may be housed in one box such as that marked "Battery" in Fig. 1. The bells and drumming mechanism, shown in detail
60 in Figs. 5 and 6, preferably have the various circuit wires, graphically shown in Fig. 10, bound into a cable and connected to the foot switches and to the key board switches, as indicated by heavy lines joining the sole-
65 noids 5 of Figs. 5, 8 of Fig. 6, and bell mechanism 12 of Fig. 6, to said switches and batteries of Fig. 1. This cable is shown in dotted lines where it extends from Fig. 6 to Fig.
70 5 and from Fig. 5 to Fig. 1. The union of said circuit wires in the cables makes it easy to move the combined attachments from one piano to another.

A switch board 14 may be removably supported under the keys 2 of the piano as
75 shown in Fig. 1. Said board is provided with a longitudinal metal conductor 15 whereon similar series 16 and 17 of resilient metal switches are secured to register with the corresponding piano keys 2. Corre-
80 sponding switches of each of said series may be closed simultaneously by the depression of the piano key directly thereover. The switches of series 16 serve to close the electrical circuit through one of the correspond-
85 ing wires 18, 19 or 21 from the respective batteries 22, 23 and 24 with the corresponding solenoid 8 of the drum.

The switches of series 17 serve to close the circuits from the same batteries through the
90 respective wires 25 to corresponding solenoids 5 of the respective orchestra bells. A normally open switch pedal 26 Figs. 7, 8 and 9 and graphically represented as open
95 in Fig. 10 may be operated by the toe of the piano operator for closing the circuits from the batteries 22, 23 and 24 for playing the orchestra bells. A similar switch pedal 27
100 may be likewise operated by the heel for closing the circuits from the same batteries through wire 20 to either of the solenoids 8 for beating taps on the drum.

An independent circuit from batteries 28 through wires 29 and 31 serves to actuate
105 the electric bell for beating a roll on the drum. A normally open pedal switch 32 Figs. 7, 8 and 9 and graphically represented as open in Fig. 10 may be closed by the toe of the operator for maintaining said circuit
110 closed as desired.

In operation, the range of keys for the drum are preferably greater in number than for the orchestra bells. The pedal switches permit the operator while playing the piano to simultaneously play either or both the orchestra bells and taps or the roll on the drum.

What I claim is:--

The combination with a piano of a series of 10 of orchestral bells or the like, a series of electro-magnetic hammers one for each bell, a drum, a series of electro-magnetic hammers arranged to strike the head of the drum, a series of switches for each set of 15 hammers said switches being mounted on a

removable support placed under the outer ends of the piano keys and arranged in pairs each pair operable by a single key, said pairs having a contact member in common consisting of a spring attached at its middle and 20 having upwardly curved extremities, and detached independently operable switch-controlling pedals in the hammer circuits whereby either one or both sets of hammers may be connected in circuit for operation by 25 the piano keys, substantially as set forth.

JOHN L. BLACK.

Witnesses:

BEN A. BICKLEY,

THOMAS L. PHILLIPS.