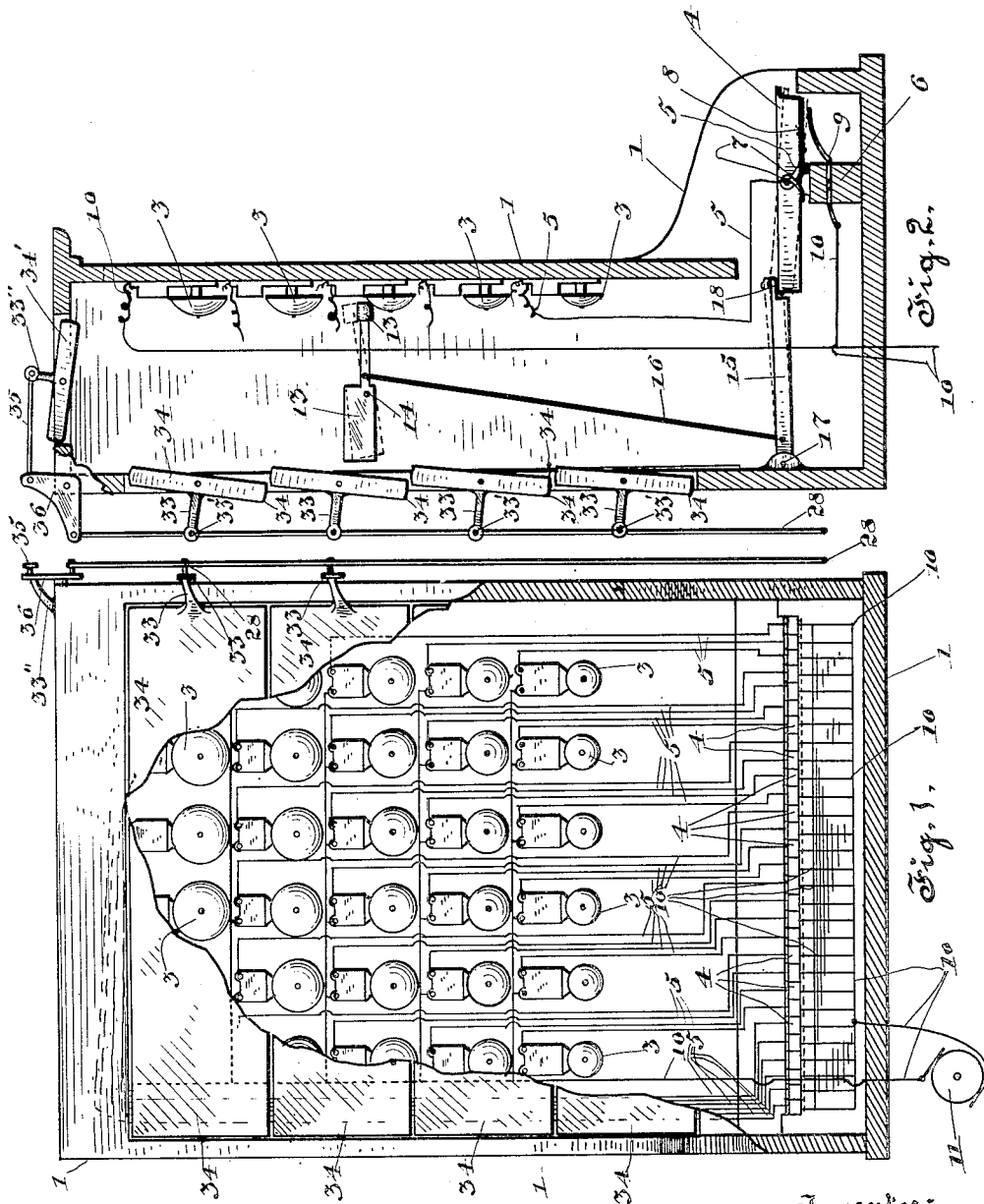


I. ENGSTROM.
ELECTRICAL MUSICAL INSTRUMENT.
APPLICATION FILED JULY 14, 1909.

964,503.

Patented July 19, 1910.

2 SHEETS—SHEET 1.



Witnesses:

W. C. Smith

B. G. Richards

Inventor:

Ivan Engstrom,

By Joshua H. Porter

his Attorney.

964,503.

2 SHEETS—SHEET 2.



Inventor:

Evan Engstrom,

By *Joshua R. F. Foss*
his Attorney

UNITED STATES PATENT OFFICE.

IVAN ENGSTROM, OF CHICAGO, ILLINOIS.

ELECTRICAL MUSICAL INSTRUMENT.

964,503.

Specification of Letters Patent.

Patented July 19, 1910.

Application filed July 14, 1909. Serial No. 507,620.

To all whom it may concern:

Be it known that I, IVAN ENGSTROM, a subject of the King of Sweden, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electrical Musical Instruments, of which the following is a specification.

My invention relates to improvements in electrical musical instruments and has for its object the production of an electrical instrument of improved construction and operation and which is provided with improved means for regulating the volume of the tones thereof.

A further object of my invention is to provide a musical instrument of the character described which will be relatively simple and inexpensive of construction and generally superior in point of serviceability simplicity of operation, and general efficiency.

Other objects will appear hereinafter.

With these objects in view my invention consists in the novel construction and arrangement of parts which will be hereinafter fully described and more particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a rear view of my invention showing the top portion of a musical instrument embodying my invention. Fig. 2 is a vertical section thereof, Fig. 3 is a detail view showing a driving disk and an electric generator driven thereby, Fig. 4 is an end view showing the lower portion of the piano, the top portion being broken away, and Fig. 5 is a detail view showing the driving shaft.

Referring now to the drawings 1 designates the top portion of a case and 2 the base or lower portion thereof. Attached to the top portion 1 are a series of electric bells 3. One terminal of each bell 3 is connected with the underside of a finger-key 4 by means of the conductor 5, the keys 4 being pivoted on the member 6 and held in the normal or full line position by means of the spring 7. Each key is lined on its underside with a strip of metal 8 forming a terminal for wire 5 which is adapted to contact with a terminal 9 when the key is depressed, thus closing the circuit, the wires

10 leading from the other terminals of the bells 3 being connected to generator 11 shown diagrammatically in Fig. 1. A damper 13 is provided for each bell which is moved to the dotted line or inoperative position when the key 4 with which it is connected is depressed as shown in Fig. 2. The dampers 13 are pivoted on a rod 14, which extends lengthwise the piano, and are connected to the levers 15 by means of the rods 16, the levers 15 being pivoted to the sides of the casing by means of the pins 17 and provided with shoulders 18 which rest on the inner ends of the keys 4.

The generator 11 is adapted to be driven by the driving disk 19 which is integral with the driving shaft 20, the latter being driven by any suitable means.

The floor on which the piano rests is indicated by the numeral 21, and resting on the same is a block 22 which supports the generator 11, said block having guide flanges 23 between which the base of the generator is mounted to reciprocate. The armature shaft 24 of the generator is provided with a friction wheel 25 in frictional engagement with the face of the disk 19, said wheel being adapted to move radially on said disk when the generator is reciprocated, thus changing the speed of the generator and the strength of the current produced thereby. When the wheel 25 is in engagement with the periphery of the driving disk 19 it obviously revolves at a higher speed than when said wheel is in the full line position as shown in Fig. 4.

The pedal 26 is fulcrumed at the point 27 and extends to the vertical rod 28 to which it is pivoted, an upwardly extending arm 29 being provided on said pedal. The top extremity of the arm 29 is pivoted to a rod 30 which connects with the generator 11 at the point 31. A spring 32 is provided to maintain the pedal 26 in the normal or elevated position. The rod 28 is pivoted to the arms 33 at the points 33' which arms are integral with the shutters 34 and disposed perpendicular thereto as shown in Fig. 2, said shutters being pivoted in the rear of the top portion 1 of the instrument. The shutter 34' is operated by the link 35 which connects the arm 33'' to the bell crank 36, the latter being pivoted to the top portion 1 and actuated by the rod 28 in pivotal connection therewith. When the pedal is depressed the speed of the generator is ac-

celerated, and the tones produced by the bells. Simultaneously with the increase in speed of the generator the shutters are opened so as to permit the better dissemination of the sound. The volume of the tones are changed instantly on releasing the pedal. By this construction it is apparent that the tones may be varied to suit the player and that any given tone may be continued as long as desired, thus producing artistic effects in playing which are impossible with the ordinary piano.

While I have shown what I deem to be the preferable form of my invention I do not wish to be limited thereto as there might be various changes and modifications made without departing from the spirit and scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an electrical musical instrument, a casing; a series of musical members mounted in said casing; electrical means for actuating said musical members; a rotary generator; electrical conductors between said generator and said electrical means; finger keys adapted to close said circuits; a friction disk for driving the generator; a second friction disk for driving said first mentioned generator to cause said first mentioned friction disk to traverse the face of said last mentioned friction disk radially; and a pedal for reciprocating said generator, substantially as described.

2. In an electrical musical instrument, a casing; a series of musical members mounted in said casing; electrical means for actuating said musical members; a rotary generator; electrical conductors between said generator and said electrical means; finger keys adapted to close said circuits; a series of shutters in the wall of said casing; and means for simultaneously increasing the speed of said generator and opening said shutters, substantially as described.

3. In an electrical musical instrument, a casing; a series of musical members mounted in said casing; electrical means for actuating said musical members; a rotary generator; electrical conductors between said generator and said electrical means; finger keys adapted to close said circuits; a series of shutters in the wall of said casing; a friction disk for driving the generator; a second friction disk for driving said first mentioned generator to cause said first mentioned friction disk to traverse the face of said last mentioned friction disk radially; and a pedal for reciprocating said generator and operating said shutters simultaneously, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

IVAN ENGSTROM.

Witnesses:

JOSHUA R. H. POTTS,
A. A. OLSON.