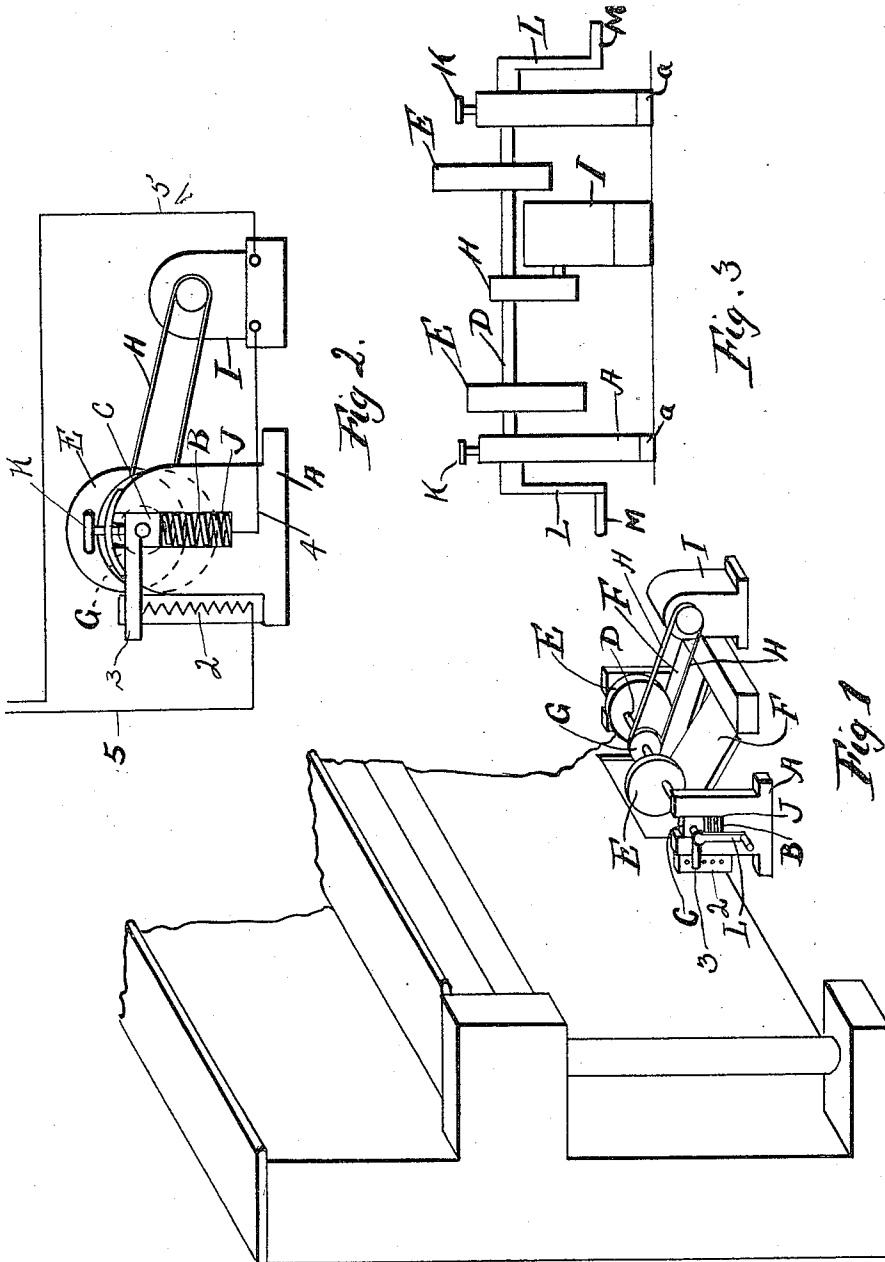


J. C. CAKE.
 PEDAL OPERATOR FOR PNEUMATIC PIANOS.
 APPLICATION FILED JAN. 13, 1911.

1,064,706.

Patented June 17, 1913.

2 SHEETS—SHEET 1.



Inventor

J. C. Cake

Witnesses
 Francis C. P. P. P.
 May 1911.

By

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Attorney

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Fig. 4

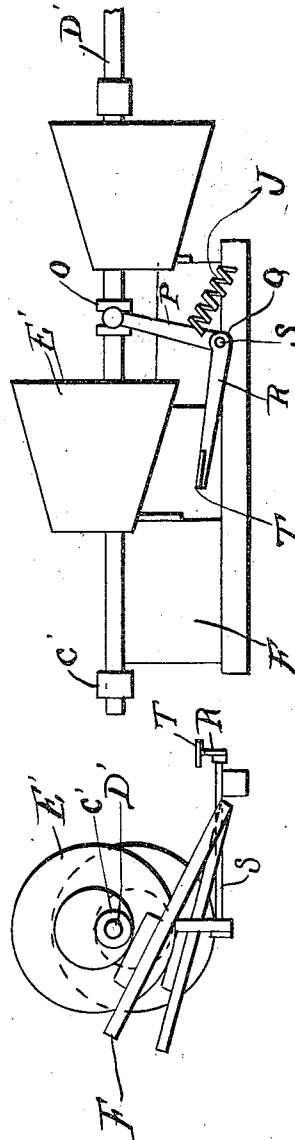
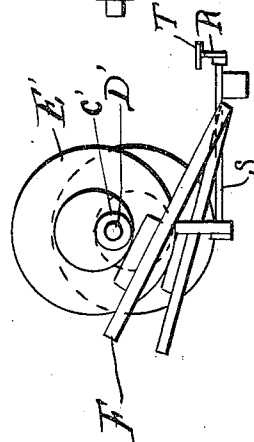


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN C. CAKE, OF CHESTER, PENNSYLVANIA.

PEDAL-OPERATOR FOR PNEUMATIC PIANOS.

1,064,706.

Specification of Letters Patent.

Patented June 17, 1913.

Application filed January 13, 1911. Serial No. 602,437.

To all whom it may concern:

Be it known that I, JOHN C. CAKE, a citizen of the United States, residing at Chester, in the county of Delaware and State of Pennsylvania, have invented a certain new and useful Improvement in Pedal-Operators for Pneumatic Pianos, of which the following is a specification.

My invention relates to new and useful improvements in pedal operators for pneumatic pianos, and has for its object to produce a device which may be placed upon the floor adjacent the piano, whereby it may be brought into contact with the pedals operating the bellows of the piano, whereby said device will operate said pedals, eliminating the necessity of the operator pedaling with the feet which is a very tiresome operation and which detracts from the pleasure in producing the music.

In operating the pneumatic piano or the pneumatic piano player, the quickening of the pedaling or the lengthening of the stroke of the pedal produces a louder tone to the music, and it is the object of this device to accomplish the foregoing by a slight pressure of the foot.

A further object of the invention is to provide a device which will give to the pedals the same motions as produced by foot pedaling, with the use of an electric motor, said electric motor operating a pair of cams which may be adjusted vertically to change the length of the stroke of the pedal, said pressure of the foot also changing the speed of the motor.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1, is a perspective view of a section of a piano, showing my improvement applied thereto. Fig. 2, a side elevation of my improved pedal operator for pneumatic pianos. Fig. 3, a front elevation thereof. Fig. 4, a front elevation of a slightly modified form of my invention, and Fig. 5, an end view thereof.

In carrying out my invention as here embodied, A represents a pair of standards which comprise the frame, each of these standards having a vertical longitudinal slot B therein, in each of which is slidably mounted a bearing C. In these bearings is journaled the shaft D carrying a pair of cams E which correspond to the pedals F, said pedals being those which operate the bellows of the pneumatics. At some suitable point on the shaft D is also mounted a pulley G over which runs a belt H from the dynamo I. The dynamo is supplied with an electric current from an electrical source through the wire (5), which contacts with the rheostat (2), with which co-acts the contact arm (3) carried by one of the slidable bearings C, from which point the current passes through any suitable portion of the frame or coiled spring J to a wire (4), connected with one post of the motor I, and after the current has passed through the motor passing through the wire (5) back to the electrical source.

The coiled springs J are mounted in the longitudinal vertical slots, one end resting upon the lower wall of the slot, the opposite end resting against the under side of the bearing C, thus normally forcing said bearing upward.

In order that the bearing may be depressed some suitable means must be provided which would preferably be a frame secured to each of the bearings so that they will be moved simultaneously, but for convenience I have here shown a button K attached to each of the slidable bearings and extending above the frame to permit the bearings to be depressed to their full extent. As these buttons have to be depressed by the feet, the distance above the frame or the height from the floor, in some cases might be detrimental so that I have shown another means, comprising Z shaped members L', the upper ends being attached to the sliding bearings, the lower ends forming foot rests M, this form bringing the portions on which the feet rest in close proximity to the floor.

In practice it has been found that the shortest radius of the cams will rest approximately two inches above the pedals, but during the revolution of said cams the pedals will be depressed a little less than $\frac{1}{2}$ inch, but as the cams are depressed the

stroke of the pedals will be lengthened and when said cams are moved downward their entire distance, the effect will be approximately a $4\frac{1}{4}$ inch action of the pedal.

5 In playing pneumatic pianos the tone is to a great extent controlled by the pedals, as for instance the accelerated motion of the pedals produces a louder tone and at the same time a faster playing, and with this
10 accelerated motion of the pedals the length of the stroke of said pedals should also be increased and in my device this effect is accomplished by the rheostat, for when the sliding bearings are depressed the resistance
15 is diminished, thus causing the motor to increase its speed for operating the cams at a greater speed, so that simultaneously with the increased pedal movement their operation is accelerated, in this way quite accurately imitating the motion of the feet.

In Figs. 4 and 5 I have shown a slightly modified form of my invention in which C' represents the bearings for the sliding shaft D', on which are mounted the conical cams
25 E' which engage the pedals F for operating the latter. On this shaft is also mounted a collar O to which is attached one member P of the bell crank lever Q, the other member R of said bell crank lever being attached
30 to the member P by a shaft S which permits the member R to be mounted forward of the pedals as plainly shown in Fig. 5, said member R having a foot piece T formed in its outer end whereby it may be depressed. The
35 operation of this form of the device is as follows:

It being understood that the shaft D' is operated in some suitable manner similar to that shown in Figs. 1, 2 and 3. When the
40 cams are in position shown in Fig. 4, they will depress the pedals only slightly during the revolution and to lengthen the stroke of the pedals the foot piece T is depressed, causing the member P of the bell crank lever
45 to move laterally, gradually bringing a greater circumference of the cams in contact with said pedals.

In order that the cams may be normally held in position shown in Fig. 4, a spring J' may be utilized, one end of which is attached
50 to the frame, the opposite end to the member P of the bell crank lever.

Of course I do not wish to be limited to the exact details of construction as here
55 shown, as these may be varied within the limits of the appended claims without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

1. In a pedal operator a frame comprising a pair of standards, each having a vertical longitudinal slot therein, a bearing slidably mounted in each of said slots, a shaft journaled in said bearings, cams carried by said shaft coacting with the pedals, means
60 for normally holding the shaft upward, foot rests for depressing the shaft, and means for revolving said shaft.

2. The combination with a plurality of pedals and a motor, of a frame, a shaft supported in the frame, devices on the shaft adapted to engage the pedals, a device controlling the speed of the motor, and means for moving the first-mentioned shaft to move the pedal operating devices toward and
75 away from the pedals, and simultaneously operating the motor controlling device, whereby the speed of the shaft is increased as the pedal operating devices are moved toward the pedal, substantially as described. 80

3. In a pedal operator, the combination with a frame, of a shaft movably supported on the frame, cams mounted on the shaft, foot rests constructed to move the shaft and cams whereby the stroke of the cams may be
85 varied with relation to the pedals upon which they operate, a motor, means connecting the motor and shaft, motor controlling mechanism, and means connected with the shaft whereby the motor controlling mechanism is operated simultaneously with the
90 movement of the shaft, substantially as described.

4. In a pedal operator, the combination with a frame, of a shaft movably supported
95 on the frame, cams mounted on the shaft, and mechanical means for moving the shaft and cams whereby the stroke of the cams may be varied with relation to the pedals upon which they operate, a motor, and
100 means connecting the motor and shaft, and means operated by the first-mentioned mechanical means, whereby the speed of the motor is controlled simultaneously with the stroke of the cams, substantially as described. 105

In testimony whereof, I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOHN C. CAKE.

Witnesses:

HENRY W. JONES,
MARIE B. JOHNSON.