

No. 734,964.

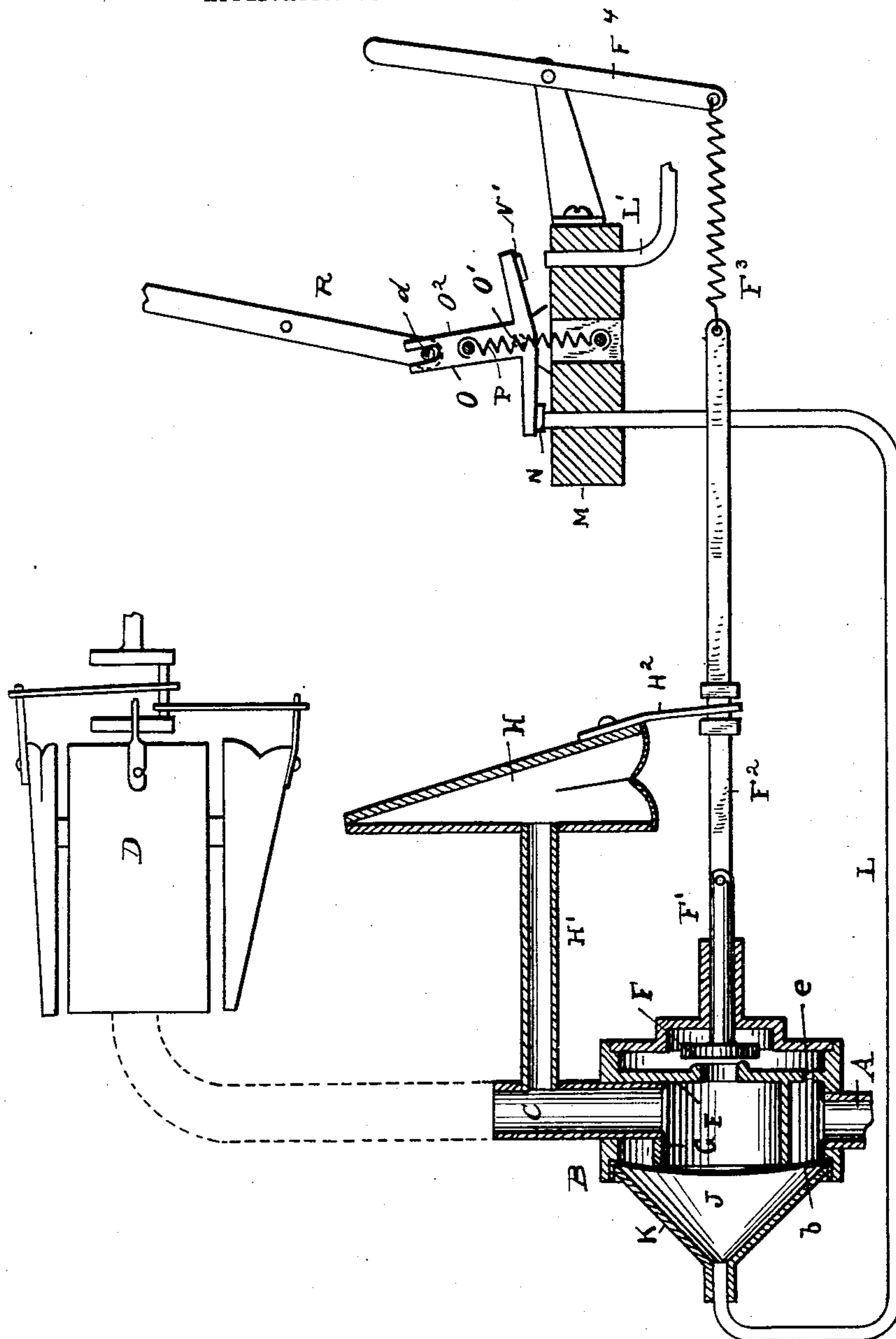
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H. M. SALYER.

AUTOMATIC PLAYING ATTACHMENT FOR MECHANICAL  
MUSICAL INSTRUMENTS.

APPLIOATION FILED JULY 28, 1902.

NO MODEL.



**WITNESSES :**

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# UNITED STATES PATENT OFFICE.

HARRY M. SALYER, OF NEW YORK, N. Y.

AUTOMATIC PLAYING ATTACHMENT FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 734,964, dated July 28, 1903.

Application filed July 28, 1902. Serial No. 117,258. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY M. SALYER, a citizen of the United States, residing at the city of New York, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Automatic Playing Attachments for Mechanical Musical Instruments, of which the following is a specification.

This invention relates to improvements in automatic playing attachments for mechanical musical instruments.

The object of my invention is to provide a new and improved motor-controller whereby the uniform speed of the motor is at all times obtained independent of the pressure of the air, so that when the suction device is operated more rapidly for louder playing the speed of the motor is thereby not affected.

A further object of my invention is to provide other improvements for controlling the motor.

In the accompanying drawing a vertical sectional view of part of an automatic playing attachment for musical instruments with my improvements is shown.

A tube A extends from a main suction-chamber or other suction device (not shown) to a valve-casing B, from which a tube C extends to a suction pneumatic motor D of any approved construction. In a partition E in said casing a seat is formed for a valve F, which is secured to a stem F', guided in a neck of the casing, which stem is connected by a link F<sup>2</sup> with a spring F<sup>3</sup>, which in turn is connected by a rod with the lower end of a lever F<sup>4</sup>, by means of which the tension of the spring F<sup>3</sup> can readily be adjusted. Within the valve-casing a neck G is formed which projects from the partition E, and outside of said neck apertures e are formed in the partition E for the passage of air to the port controlled by the valve F in the interior of the neck G. As shown, the tube C communicates with said neck.

A pneumatic mechanism H—such as a bellows, for example—is connected by a tube H' with the tube C, between the valve-casing B and the motor, and the movable board or member of this pneumatic mechanism H is connected by an arm H<sup>2</sup> or of an analogous contrivance with the rod F<sup>2</sup>, connected with

the valve-stem F'. A diaphragm J, adapted to seat on the edge of the neck G, is held by a cap K on one side of the casing B, the area of the annular part of the diaphragm between the circumference of the casing and the circumference of the neck G being greater than that of the central part of the diaphragm surrounded by the circumference of said neck. This diaphragm has a fine vent-aperture b in the annular space defined by the edge of the neck G and the edges of the casing.

From the neck of the cap K a tube L extends to a block M, and the end of this tube can be closed by a valve N on the end of one arm of a T-shaped lever O, pivoted to the block M at O'. The valve N' on the other arm of this T-shaped lever can close the end of a tube L', which can control the admission of air to the playing mechanism. The spring P, attached to the block M, has its upper end attached to the end of the upwardly-projecting arm O<sup>2</sup> of the lever O. A pivoted lever R, which serves for starting and stopping the playing mechanism, is provided with a pin d, which enters a longitudinal slot in the upper end of the arm O<sup>2</sup>. The spring P holds the valve N or N', one at a time, on its seat, and as soon as the arm O<sup>2</sup> of the lever O has been moved beyond the center this spring automatically throws the T-shaped lever O.

The operation is as follows: According to the speed desired the manipulator shifts the lever F<sup>4</sup> a greater or less distance in one direction or the other, and thereby unseats the valve F more or less. The suction produced in the main suction-chamber withdraws the air from the motor through a tube C, the neck G, the port controlled by the valve F, and the apertures e. At the same time it withdraws air from the pneumatic mechanism H, and the same collapses as far as the tension of the spring F<sup>3</sup> permits. If at any time the suction is increased to produce louder playing, this greater suction will cause a further collapsing of the pneumatic H, and as a result the valve F will be brought nearer its seat, and thus the passage of air from the motor is decreased, and the increase of suction has thus no effect on the speed of the motor. On the other hand, when the suction in the main suction-chamber is decreased it is likewise



decreased in the pneumatic H, permitting the spring  $F^3$  to hold the valve farther from its seat, thus permitting the air to pass more rapidly from the motor and preventing the motor from slowing down on account of the decreased suction. Whenever the suction is increased or decreased, the valve F is moved correspondingly, so as to maintain a uniform speed of the motor. When the instrument is to play faster or slower, the tension of the spring  $F^3$  is varied according to the desired variations of the speed; but the action of the pneumatic H on the valve F remains the same—that is to say, the medium, high, or low speed is never affected by the increase or decrease in suction in the main suction-chamber.

When the instrument is playing, the valve  $N'$  closes the tube  $L'$ , and the valve N is lifted off the end of the tube L. The atmospheric air entering through the tube L presses on the diaphragm J and seats the same on the edge of the neck G, thus closing the outer end of said neck and compelling all the air that is drawn from the motor to pass through the port controlled by the valve F and through the apertures  $e$ .

In order to reroll the sheet, the lever R is swung to the right, whereby the valve N is seated on the end of the tube L and the valve  $N'$  is lifted off the end of the tube  $L'$ . As the atmospheric air can now enter through the tube  $L'$ , it automatically closes the valve controlling the playing mechanism, the construction of which valve forms no part of the present invention, and therefore is not described or shown. Through the vent-apertures  $b$  the air is drawn out of the cap K, thus placing the diaphragm J in equilibrium. The air from the tube C can now be exhausted through the annular slit between the diaphragm and

the edge of the neck G, the area of which annular slit is greater than that of the port controlled by the valve F, and in consequence the air is exhausted at a much greater speed from the motor in rerolling, and thus the music-sheet is rerolled at a much greater speed. When the instrument is to play again, the lever R is thrown over, so as to open the tube L and close the tube  $L'$ , and so on.

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

1. In a playing attachment for musical instruments, the combination with a block having two air-ducts formed within it, of a pivoted T-lever having valves on the ends of its shanks for closing said ducts alternately, a lever for shifting said T-shaped lever and tubes extending from said air-ducts to valve mechanisms of the playing attachment, substantially as set forth.

2. In a mechanical playing attachment for musical instruments, the combination with a block having two air-ducts, of a T-shaped lever, a valve on each end of said lever for closing said ducts, a spring attached to the block, and to the free end of the central shank of said T-shaped lever, a lever for shifting the T-shaped lever, tubes connected with said ducts and valve mechanisms of the playing attachment connected with said tubes, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 26th day of June, 1902.

HARRY M. SALYER.

Witnesses:

CHARLES A. ERICSSON,  
OSCAR F. GUNZ.