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C. F. Messers
C. I. Hartnett

Inventors:
M. M. Hostner
Conrad Hotz
By Attorneys
Southern & Son, Agents.

UNITED STATES PATENT OFFICE.

MACARIUS MAXIMILIAN KASTNER AND CONRAD KATZ, OF LONDON, ENGLAND.

PNEUMATIC STRIKER APPARATUS.

1,008,415.

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To all whom it may concern:

Be it known that we, MACARIUS MAXIMILIAN KASTNER and CONRAD KATZ, subjects of the German Empire, residing at London, England, have invented a new and useful Pneumatic Striker Apparatus, of which the following is a specification.

This invention relates to an improvement in pneumatic musical instruments.

Ordinarily the pneumatics at present employed in musical instruments, particularly the striking pneumatics comprise a rigid movable leaf which is hinged at one end so that the cross section of one of these pneumatics is always triangular or substantially so. It is obvious of course that a triangle virtually requires as much space as a rectangle formed on its base and of the same height as the highest angle of the triangle. Consequently these pneumatics take up twice as much space as is really necessary in fact.

The principal object of this invention is to provide simple and inexpensive means whereby a pneumatic may be employed to occupy very little more than the space which it theoretically ought to occupy in order to secure the desired result; that is, substantially half the space required by a triangular pneumatic of the same capacity and power. In view of the fact that one of the greatest problems to be solved in the manufacture of interior players is the construction of the parts so that they can be contained in an instrument casing which is of the same size as those employed for manually operated instruments, it will be seen that the reduction by half of the space required for each of the striking pneumatics is an important feature in this art.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a rear view of a portion of a section of striking pneumatics and their connected abstracts constructed in accordance with this invention, and Fig. 2 is a transverse vertical sectional view thereof.

The invention is illustrated as applied to a type of musical instrument having a tracker 2, a series of channels 3 communicating therewith, a series of pouches 4, the position of which is controlled by the presence of air in the corresponding channels 3, and an exhaust chamber 5. Each pouch con-

trols a valve 6 which normally is in the position shown in Fig. 2, in which it closes a port 7 connected with the chamber 5 and leaves a port 8 open to the outer air so as to communicate through a passage 9 with a striking pneumatic 10. When an impulse of air passes through one of the channels 3 in the usual way it operates the corresponding pouch 4 to close the opening 8 and causes the valve to open the port 7 which connects the passage 9 with the exhaust chamber 5. All these parts of the apparatus operate in a well-known way.

The striking pneumatic is shown as comprising a movable member 13 and a stationary member 14. This movable member or leaf is designed to move bodily transversely with respect to its broad surface instead of having the usual swinging movement about a hinge. It is connected rigidly with its proper abstract 15 so that the two move together as by a screw or pin 16 secured to the abstract and fixed to the leaf 13. In order that this abstract may be caused to move along parallel lines it is provided at its opposite ends with two links 17 pivoted to it. These links are pivoted at their opposite ends to stationary parts of the frame and are of equal length between the pivots. The pivots on the frame are at the same distance apart as the pivots on the abstract so that when the pneumatic causes the abstract to move the latter will always have a parallel motion and will take the abstract exactly with it. The abstract is shown as having a block 20 by which the blow is transmitted to the playing devices. By the use of this principle it will be seen that substantially the entire space between the supports 18 on which the pneumatics are located is occupied by the pneumatics themselves instead of only half the space as is the case with the ordinary forms on the market. Consequently the space required for this entire set of striking pneumatics can be reduced almost one-half, thus permitting the use of pneumatic playing devices in piano cases where they could not heretofore be used without enlarging the same.

While we have illustrated and described a preferred embodiment of the invention, we are aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. There-

fore we do not wish to be limited to all the details of construction shown and described, but

What we do claim is:—

- 5 1. In a pneumatic musical instrument, the combination of a pneumatic having a stationary member, and a parallel member substantially rectilinearly movable at all times as a whole freely toward and from the stationary member, an abstract movable longitudinally, means for rigidly connecting the abstract with the movable member, whereby they will both move together, and means for keeping the abstract parallel with its
10 original position.
15 2. In a pneumatic musical instrument, the

combination of a pneumatic having a freely movable member, an abstract, means for connecting the abstract with said member and for preventing oscillation of said movable member toward and from the abstract and means for keeping said abstract parallel with its original position. 20

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses. 25

MACARIUS MAXIMILIAN KASTNER.
CONRAD KATZ.

Witnesses:

H. D. JAMESON,
C. P. LIDDON.