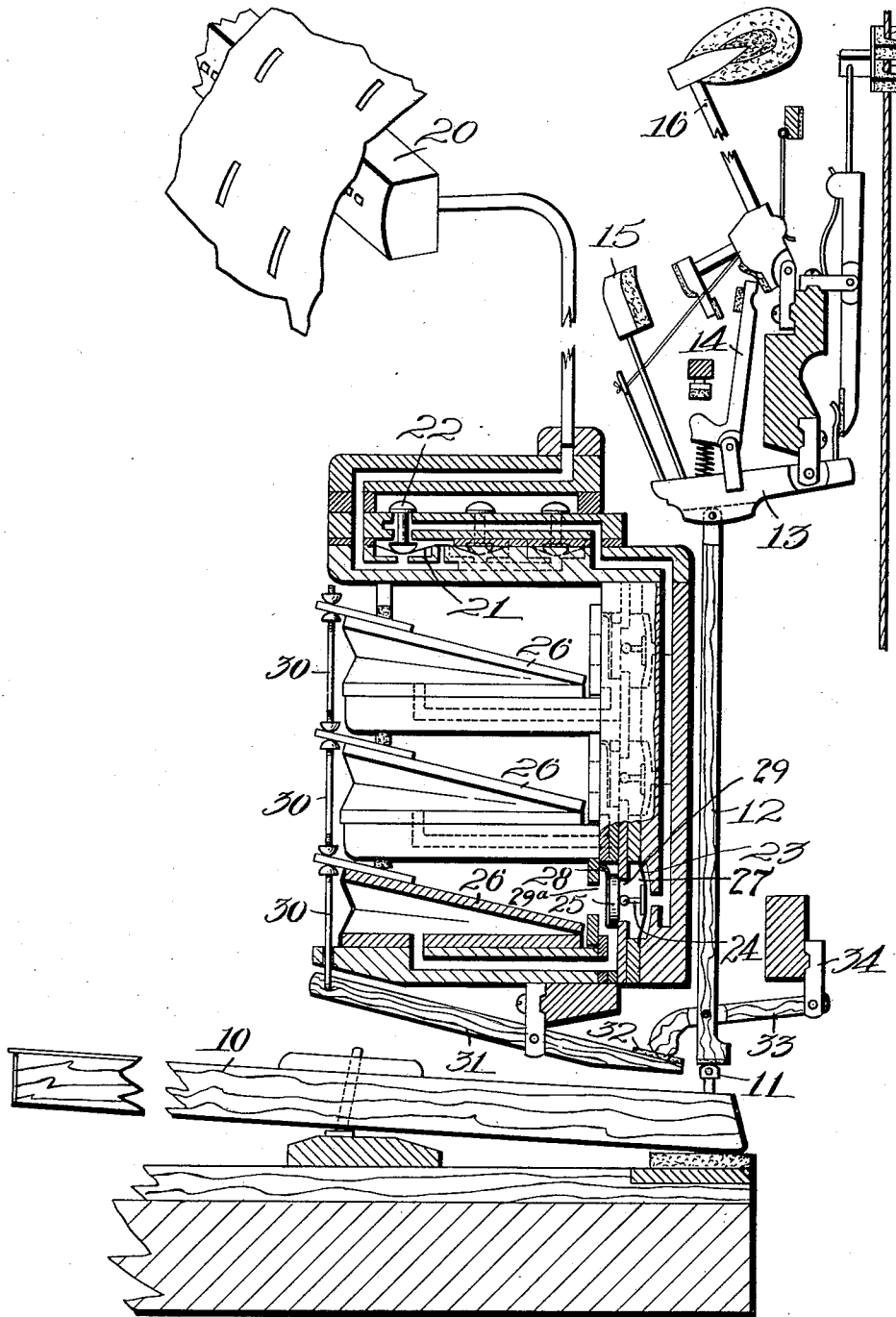


A. KRELL.  
 PNEUMATIC MUSICAL INSTRUMENT.  
 APPLICATION FILED DEC. 15, 1909.

1,021,785.

Patented Apr. 2, 1912.



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

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PNEUMATIC MUSICAL INSTRUMENT.

1,021,785.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed December 15, 1909. Serial No. 533,156.

*To all whom it may concern:*

Be it known that I, ALBERT KRELL, a citizen of the United States, residing at Connorsville, in the county of Fayette and State of Indiana, have invented a new and useful Pneumatic Musical Instrument, of which the following is a specification.

This invention relates to a pneumatic musical instrument, and the principal object thereof is to provide an improved valve and connections for controlling the striking pneumatics.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing which is a vertical sectional view of a preferred form of the invention showing many of the parts in end elevation.

The invention is shown as applied to an instrument having keys 10 as usual, each provided with a capstan screw 11 engaging the bottom of the abstract 12. The abstract is shown in the drawing as pivoted to the wippen or rocker 13 on which is pivotally mounted the jack 14, and which supports the back-check 15 and the like. The hammer 16 is shown as operated in a well known way. These parts can be varied as desired, a well known form being shown merely for the purpose of illustration.

For the pneumatic operation of the instrument, the channels of the tracker 20 are connected as usual with the primary pneumatics 21 which operate valves 22 to admit air impulses behind the secondary pneumatics 23. These pneumatics 23 are shown in the form of pouches each having thereon a stud 24 engaging a valve 25 for controlling the passage of air from the striking pneumatic 26 through an exhaust wind way or channel 27. This valve is shown as hung by a flexible soft support 28, shown in the form of a leather or other strap, secured above the valve so that the valve is free to move with the diaphragm of the pneumatic 23 and will normally tend to remain closed, on account of the suction in the wind way 27, to prevent the communication of the striking pneumatic with said wind way. But when moved back from the port 29 leading to the exhaust channel 27 the valve will hang by gravity in position to close the atmospheric port 29<sup>a</sup> which otherwise connects the pneumatic 26 with the outer air. This soft support also is shown as covering

one side of the valve to form a soft seating surface therefor.

Each striking pneumatic is connected by means of a push-rod 30 with a lever 31 at the bottom, each of these levers being provided with a cushion 32 which engages the end of a multiplying lever 33. This multiplying lever is pivoted on a bracket 34 fixed behind the abstracts and it is pivotally connected with one of the abstracts at a point between its point of pivotal support and the point at which the lever 31 engages it. It will be seen therefore that when a striking pneumatic is collapsed it will push the forward end of the corresponding lever 31 down and raise the other end to carry the abstract up. At the same time when it is desired to play manually this can be done so long as all of the striking pneumatics are in communication with the external air as shown in the drawings, it being understood that springs are provided as usual to hold them expanded when not connected with the exhaust. At such time the operation of the keys will not in any way affect the levers 31 and their action will be entirely normal, because the only extra thing that is lifted is the multiplying lever 33 which has very little weight and presents no other resistance to the operation of the abstract. Then when it is desired to play pneumatically this can be done without changing or adjusting the parts in any way.

By means of the construction of the valve it bears no weight upon the diaphragm which operates it, and consequently it does not strain this diaphragm under any conditions, the diaphragm being used only to move the valve back and forth.

While I have illustrated and described a preferred form of the invention, I am 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. Therefore, I do not wish to be limited to all the details of construction herein shown and described but

What I do claim is:—

1. In a pneumatic musical instrument, the combination of a main pneumatic, an atmospheric port therefrom to the air, an exhaust channel having an opposite port connecting said channel with the pneumatic, a vertical diaphragm in the exhaust channel, a vertical valve for controlling the con-

nection of the main pneumatic with both  
ports, means on the diaphragm independent  
of the valve for operating it, and a flexible  
soft support for the valve depending from  
5 above the inner surface of the atmospheric  
air port, whereby the exhaust will normally  
hold said valve against the exhaust port,  
but when it is once freed therefrom it will  
tend to lie flat against the inner surface of  
10 the atmospheric port.

2. In a pneumatic musical instrument, the  
combination of a striking pneumatic having  
an air passage, an exhaust channel, a port  
from the air passage to the exhaust channel,  
15 a port from the air passage to the external  
air located directly opposite the first named  
port, a depending soft flexible support nor-

mally adapted to hang freely in line with  
the inner surface of the air port, a vertical  
valve mounted on said flexible support and 20  
adapted to close either of said ports, a pneu-  
matic in the exhaust-channel having means  
supported independently of said soft sup-  
port for moving the valve back and forth,  
and a channel adapted to admit air behind 25  
the pneumatic for operating it.

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

ALBERT KRELL.

Witnesses:

LOUIS W. SOUTHGATE,

WILLIAM G. MURPHY, JR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."