

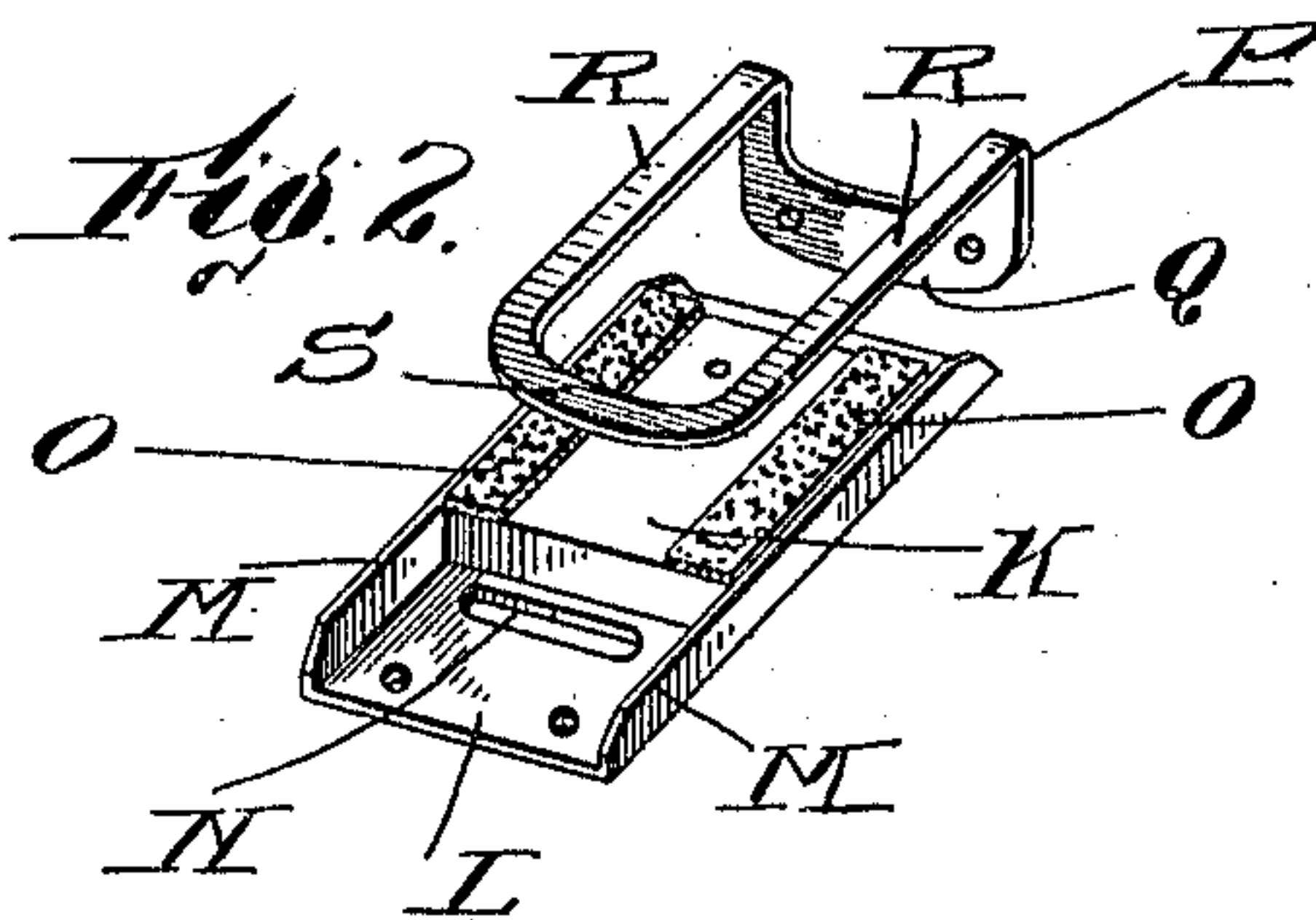
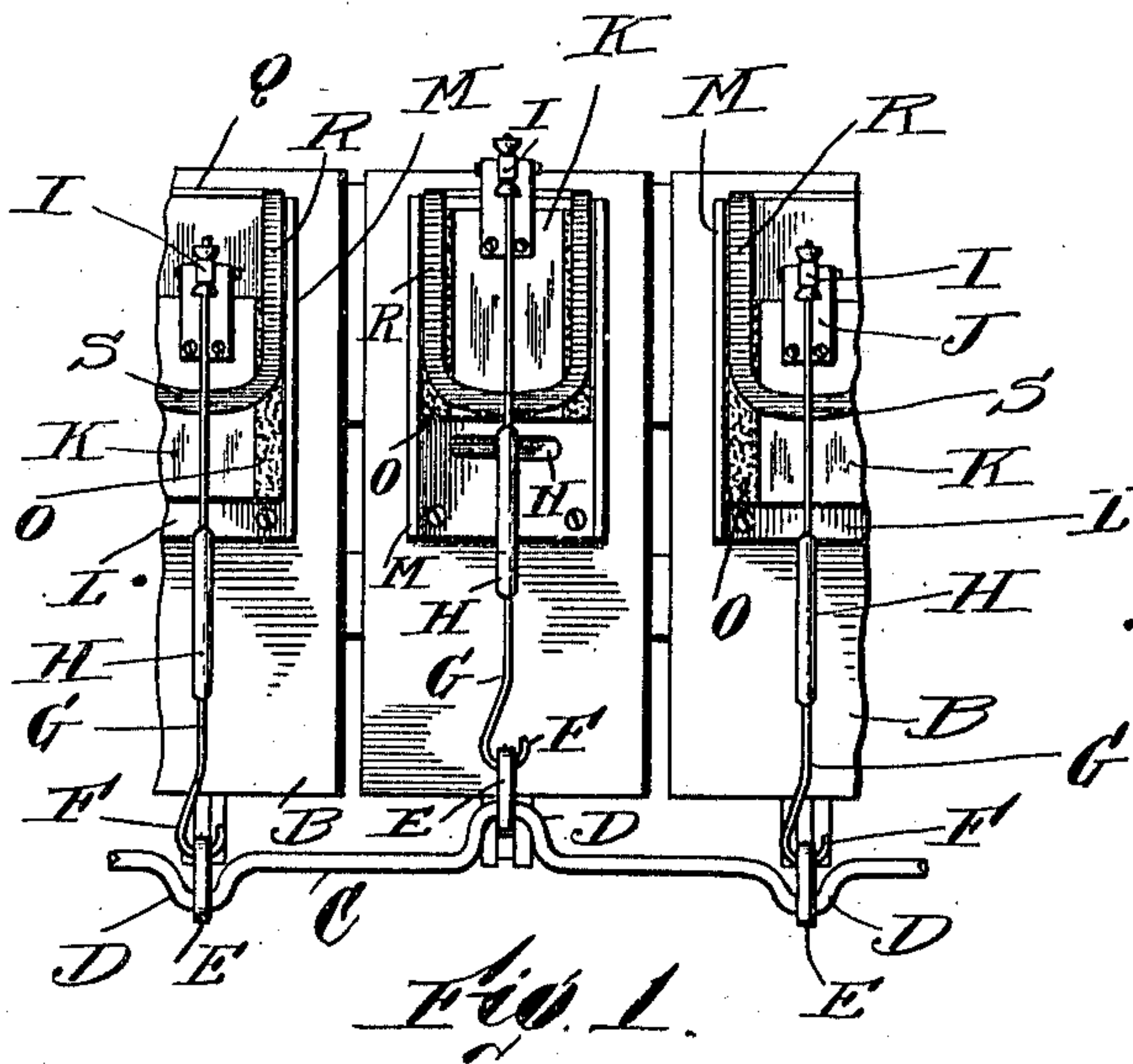
P. WELIN.

VALVE MECHANISM FOR PNEUMATIC MUSICAL INSTRUMENTS.

APPLICATION FILED SEPT. 12, 1907.

990,177.

Patented Apr. 18, 1911.



Witnesses:

C. F. Mason  
E. M. Allen.

Inventor:  
Peter Welin  
By Attorneys  
Southgate & Southgate.



# UNITED STATES PATENT OFFICE.

PETER WELIN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS,  
TO KRELL AUTO-GRAND PIANO CO. OF AMERICA, OF CONNERSVILLE, INDIANA, A  
CORPORATION OF INDIANA.

## VALVE MECHANISM FOR PNEUMATIC MUSICAL INSTRUMENTS.

990,177.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Original application filed May 16, 1905, Serial No. 260,616. Divided and this application filed September 12, 1907. Serial No. 392,536.

*To all whom it may concern:*

Be it known that I, PETER WELIN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Valve Mechanism for Pneumatic Musical Instruments, of which the following is a specification.

This is a division of my application for patent, Serial No. 260,616 for paper winding mechanism for musical instruments, filed May 16, 1905. In that application there was shown means for connecting the motor to the winding rolls in such a way that the entire motor was movably mounted so that it could be shifted to change the connections from the motor for winding or rewinding the paper over the tracker bar. The motor was shown as provided with slide valves which were moved in the ordinary operation of the motor from connections with the crank-shaft.

The principal objects of the present invention are to provide a simple, convenient and efficient construction of slide valve, guide, and retaining frame or spring therefor to hold the valve on its seat, and to construct this retaining frame or spring in such a manner that it can be connected with the operating pitman without interfering with its operation or with its effectiveness to hold the valve.

Further objects and advantages will appear hereinafter.

Reference is to be had to the accompanying drawings which show a preferred form of this invention and in which—

Figure 1 is a front view of sufficient parts of the motor to illustrate the application of this invention thereto, and Fig. 2 is a perspective view of one of the valves showing this guide-way and spring-retaining frame.

While this invention was shown in said original application as applied to a movable motor, it is to be understood that it is equally applicable to stationary ones.

In the present case, it is shown as applied to a motor of an ordinary type comprising a plurality of bellows or pneumatics B and a crank-shaft C provided with a plurality of off-sets D located as usual at angles to each other. Each of these off-sets is provided with a link E connected with a hook F

which forms a part of a valve rod G. This valve rod is preferably provided with a turn buckle H so it may be adjusted and is connected by means of an adjustable connection I with a plate J mounted on a slide valve K. This slide valve is adapted to reciprocate in a guide-way L which has a flange M at its sides and wind perforations N which are adapted to be controlled or covered by the valve. The guide-way is secured in place on the motor pneumatic or bellows and its perforations may be connected up with the interior thereof in any desired way, as is well known in the art. It serves to guide the valve and keep it in proper position laterally with respect to the perforations which it is to control.

In order that the valve may be held down on its seat in all positions thereof and that the connection of the valve with the crank may be of such a nature that its adjustment and operation will not be interfered with, the valve is provided with a pair of bearing strips O of felt or similar material located parallel with the direction of motion of the valve and an open-centered retaining frame or spring P is provided to bear upon said strips. This frame consists of a downwardly extending portion Q which is secured to the end of the guide-way valve box, or bellows if desired, and with a pair of parallel arms R extending forward of the same and parallel with the felt strips which they engage, these arms being connected by a bow-shaped front portion S. It will be seen that this constitutes an open-centered frame through the open center of which the connection of the valve rod with the valve can be made. With this, the connection can be adjusted without interfering with the reciprocation of the valve, as is indicated by the several positions of the valve in Fig. 1. Moreover, the frame bears on the valve throughout its length in most positions thereof and through more than one-half its length in the extreme position. In this way the valve is securely held down on its seat throughout its travel and the connection with the crank is facilitated without greatly adding to the expense of the construction or to the weight thereof. The construction is light and inexpensive and admirably constituted for the purpose for which it is de-



signed. It holds the valve to its seat with light spring pressure.

Even when the invention is applied to movable motors, as in my above mentioned original application, the device works with efficiency, its operation not being interfered with at all by the motion of the motor.

This invention is ordinarily employed in connection with a musical instrument in which there are winding rolls, a tracker bar, and movably mounted means for tipping or tilting the motor to change its connection with the winding rolls in connection with the valves and open-centered resilient metal retaining frame above described. But it may be employed with any other form of musical instrument or pneumatic motor for any purpose and therefore, I have not illustrated herein any special part of the musical instrument.

While I have illustrated and described a particular form of the invention, I am aware that many modifications may 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 the particular form of the invention shown, but

What I do claim is:—

1. In a musical instrument, the combination with a motor, of a plurality of flat valves, means for reciprocating each of said valves in its own plane, and an open-centered resilient metal retaining frame for each valve parallel with the plane of reciprocation thereof bearing on the valve near the opposite edges thereof.

2. The combination with a pneumatic motor comprising a plurality of bellows or pneumatics, of a crank-shaft, a plurality of sliding valves, means connected with the crank-shaft for operating said valves, and an open-centered resilient metal retaining frame for holding each valve on its seat.

3. The combination with a slide valve, of an open-centered resilient metal retaining frame to hold it on its seat, said frame having two parallel arms adapted to engage the outer surface of said valve and located parallel with the direction of motion thereof.

4. The combination with a slide valve having a pair of strips of soft material on its upper surface located parallel with its direc-

tion of motion, of an open-centered resilient metal retaining frame for said valve comprising a pair of arms located in position to engage said strips and connected at one end with a bow-portion, and means connected with the opposite end of said valve for reciprocating it.

5. A retaining frame for a slide valve, comprising a pair of parallel arms connected at one end by a bow-portion and having at the other end a member bent at substantially right angles to the plane of said members by which said frame can be secured in position, said members and bow-portion constituting resilient means for engaging the valve.

6. The combination with a slide valve having a bracket thereon at one end, of a valve rod connected with said bracket and passing over the valve, a crank-shaft located on the opposite side of the valve over said bracket and connected with said valve rod, and a retaining frame for said valve comprising a pair of arms parallel with the valve and engaging its surface and a bow-shaped portion located between the valve and said valve rod, said retaining frame being open in the center and at the end of the valve on which said bracket is located and having a member bent at an angle by which said frame is secured in position.

7. The combination with a pneumatic or bellows, of a guiding frame located thereon and having side flanges constituting a guide and provided with perforations in its central portion, a slide valve fitting between said flanges and adapted to move longitudinally of said guide member, and open-centered retaining frame for engaging the top of said valve, said frame having a bent portion at the end of the guiding frame by which it is secured in position, its other end being free, and means passing through the open center of said frame for operating the valve.

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

PETER WELIN.

Witnesses:

C. FORREST WESSON,  
ALBERT E. FAY.