

C. L. DAVIS.
ADJUSTABLE VALVE FOR PIANO PLAYER ACTIONS.
APPLICATION FILED JAN. 25, 1907.

961,939.

Patented June 21, 1910.

Fig. 2.

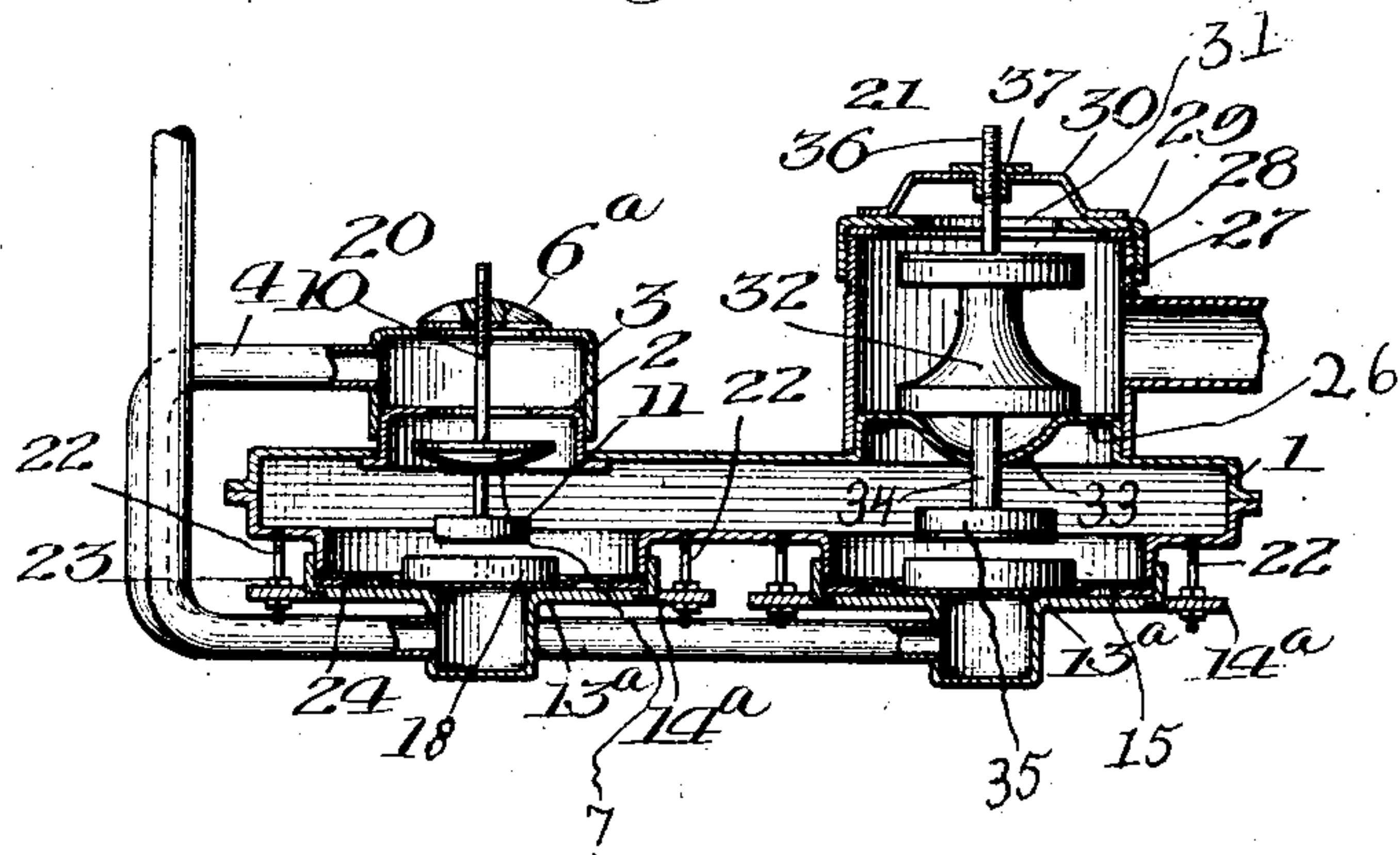
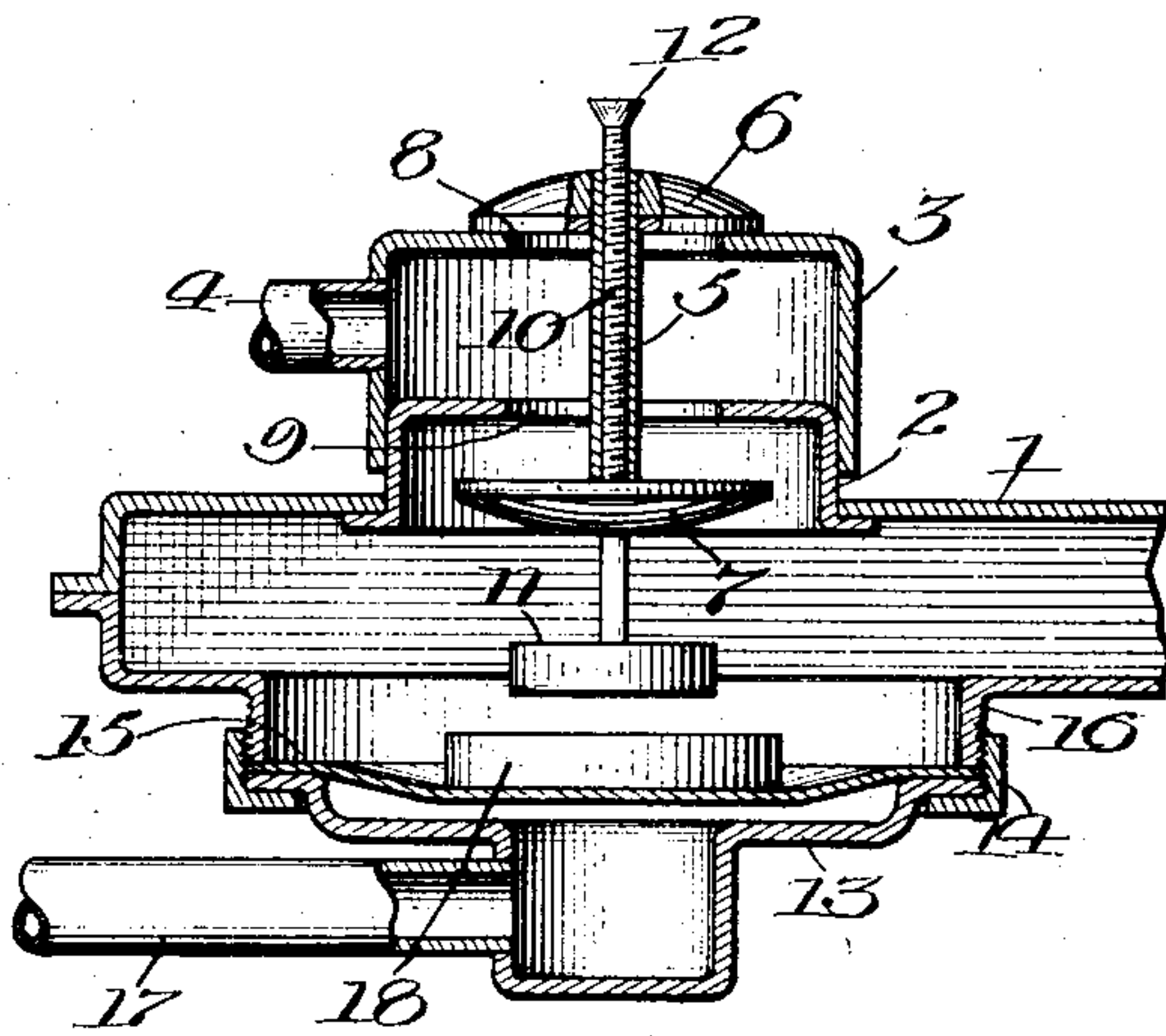


Fig. 1.



Witnesses
Chas. W. Manning
J. C. Lee

Inventor
Charles L. Davis.
By A. Miller Reelfield
Att'y

UNITED STATES PATENT OFFICE.

CHARLES L. DAVIS, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
A. MILLER BELFIELD AND JOHN P. MENTZER, TRUSTEES, OF CHICAGO, ILLINOIS.

ADJUSTABLE VALVE FOR PIANO-PLAYER ACTIONS.

961,939.

Specification of Letters Patent.

Patented June 21, 1910.

Application filed January 25, 1907. Serial No. 353,995.

To all whom it may concern:

Be it known that I, CHARLES L. DAVIS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a certain new and useful Improvement in Adjustable Valves for Piano-Player Actions, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to actions for mechanical piano players, and especially to the valve devices for opening and closing the vacuum and air ports in such actions.

The principal object of the invention is to arrange for the perfect adjustment of such valves to their seats, and to the coöperating actuating mechanisms usually in the form of leather pouches.

In an application filed by me November 27, 1905, Serial No. 289,148, I have shown and described an adjustable valve for piano player actions, and in the present application I show, describe and claim such valve and modifications thereof, so that this application becomes in effect a division of my said other application.

In the accompanying drawings, Figure 1 is a view of a section of a piano player action showing an adjustable valve embodying my invention, such valve construction being the one shown in my said other application; Fig. 2 is a sectional view of a different form of player action having a modified construction of adjustable valve.

Referring first to Fig. 1, I have shown a section of a metal action for piano players disclosed in my said other application. This action has a metal casing 1 which is connected with the apparatus for inducing a current of air, and is provided with thimbles 2 carrying caps 3, the latter being connected by tubes 4 which extend to the pneumatics or to secondary valve mechanism, according as the action is a single or double primary. These parts 2 and 3 provide a valve-supporting arrangement for a valve which is shown consisting of a hollow stem 5 carrying valves 6 and 7, the former of which is adapted to open and close an air port 8 in the cap 3, and the latter of which is adapted to open and close a vacuum port 9 in the thimble 2. Through the bore of the hollow stem 5 is extended a spindle 10 whose lower end ex-

tends down below the valve 7 and is provided with a head 11. The upper end of this spindle 10 is conveniently flattened to form ears 12, and it is threaded so that it can be screwed up and down in the stem 5. Below the valve mechanism thus described, is the pouch mechanism, consisting of a metal disk 13 connected with the lower side of the casing 1 by a threaded ring 14 and a pouch 15 held in position between the edge of the disk 13 and the rim 16 formed on the metal casing. The disk 13 is connected with a tube 17 which is understood to run to the tracker board so that the air entering the tracker ports will actuate the pouch 15. The pouch 15 is provided with a pad 18 which is positioned below the head 11 on the valve spindle 10. By turning the spindle 10 the head 11 can be adjusted with reference to the pad 18 so that a proper adjustment between the valves 6 and 7, especially the valve 6 and the pouch 15, can be secured. This adjustment, it will be seen, can be made after the entire action is assembled, so that to adjust the action preparatory to its being sent out, it can first be constructed and completely assembled, and then adjusted as required. Also after the action has been shipped or used and has become somewhat out of adjustment, it can be readily adjusted in the same way without taking the action apart. In this way it will be seen that a great saving of time on the part of adjusters can be obtained, thereby greatly reducing the expense of assembling. At the same time the adjustment can be made perfect because it will be made when the action is completed and therefore nothing will be done to the action after adjustment is made to throw it out of adjustment.

In Fig. 2 I have shown a slightly modified form of action with a different form of adjustable valve arrangement embodying the arrangement heretofore set forth. This action comprises a metal casing 1 as before, and primary and secondary valve mechanisms 20, 21. The primary valve mechanism consists of the thimble 2 and cap 3 previously described, the latter being connected with the tube 4 as before. A valve 6^a is mounted upon the cap 3 to control the air port 8, and the valve spindle 10 is threaded directly into this valve 6^a, and the spindle itself carries the exhaust port valve 7 as well as the head 11. In this way, by turning the spindle 10,

the head 11 is adjusted with reference to the valve 6^a and at the same time the valve 7 is also adjusted with reference to the valve 6^a. Below this valve mechanism is the pouch mechanism, consisting of a disk 13^a held in place by a ring 14^a which is mounted upon pins 22, 22 and adjusted upon the same by nuts 23, 23. The pouch 15 provided with pad 18, is held in position by the disk 13^a and an intermediate washer 24.

The secondary valve mechanism comprises a valve seat 26 conveniently formed on the casing 1, and a tube section 27 mounted on the seat 26, and a cap 28 threaded to the upper end of the tube 27 and separated therefrom by a packing washer 29 to form an air-tight joint. On the cap 28 is secured a bridge 30 extending across the air opening 31 in the cap 28. A valve 32 is mounted upon the seat 26 and adapted to open and close vacuum ports 33, 33, and is provided with a stem 34 carrying a head 35. From the upper end of the valve 32 extends a threaded spindle 36 which is threaded in a wooden cap 37 mounted in and arranged to work in the bridge 30. Below this mechanism is the pouch disk 13^a supported by a ring 14^a as previously described. Thus by adjustment of the valve spindle 36 to the cap 37, the valve 32 is adjusted in place and the cap 37 serves to hold it and guide it in its proper operation.

In this action it will be seen that the primary valve can be adjusted with reference to its pouch, by turning the valve spindle 10 and that this adjustment can occur as described in previous mechanism after the action is completed, and at any time when it is in service. This arrangement is also

simple and inexpensive and has the advantageous points hereinbefore referred to.

With reference to the secondary valve mechanism, it will be seen that the valve spindle there is also adjustable to secure proper adjustment of the valve.

It will be understood that changes and modifications can be made without departing from the spirit of the invention.

What I claim is:—

1. The combination of a casing providing a valve chamber and having a port in its top, a bridge mounted upon the top of said casing, a valve confined in the casing and having a spindle which projects out through the top thereof and through said bridge and has its upper end threaded, and a bushing "37" threaded upon the threaded portion of said valve spindle.

2. The combination of a casing providing a pneumatic chamber, a valve spindle extending up through the top of said casing and having its upper end threaded and a valve carried by said spindle, an exposed member at the top of said casing which is accessible to be held so as to permit rotation of the spindle relatively to said member for the permanent adjustment of the valve, together with a pouch below the valve spindle with reference to which the valve with its spindle is adjusted.

In witness whereof, I hereunto subscribe my name this 15th day of December A. D. 1906.

CHARLES L. DAVIS.

Witnesses:

A. MILLER BELFIELD,
I. C. LEE.