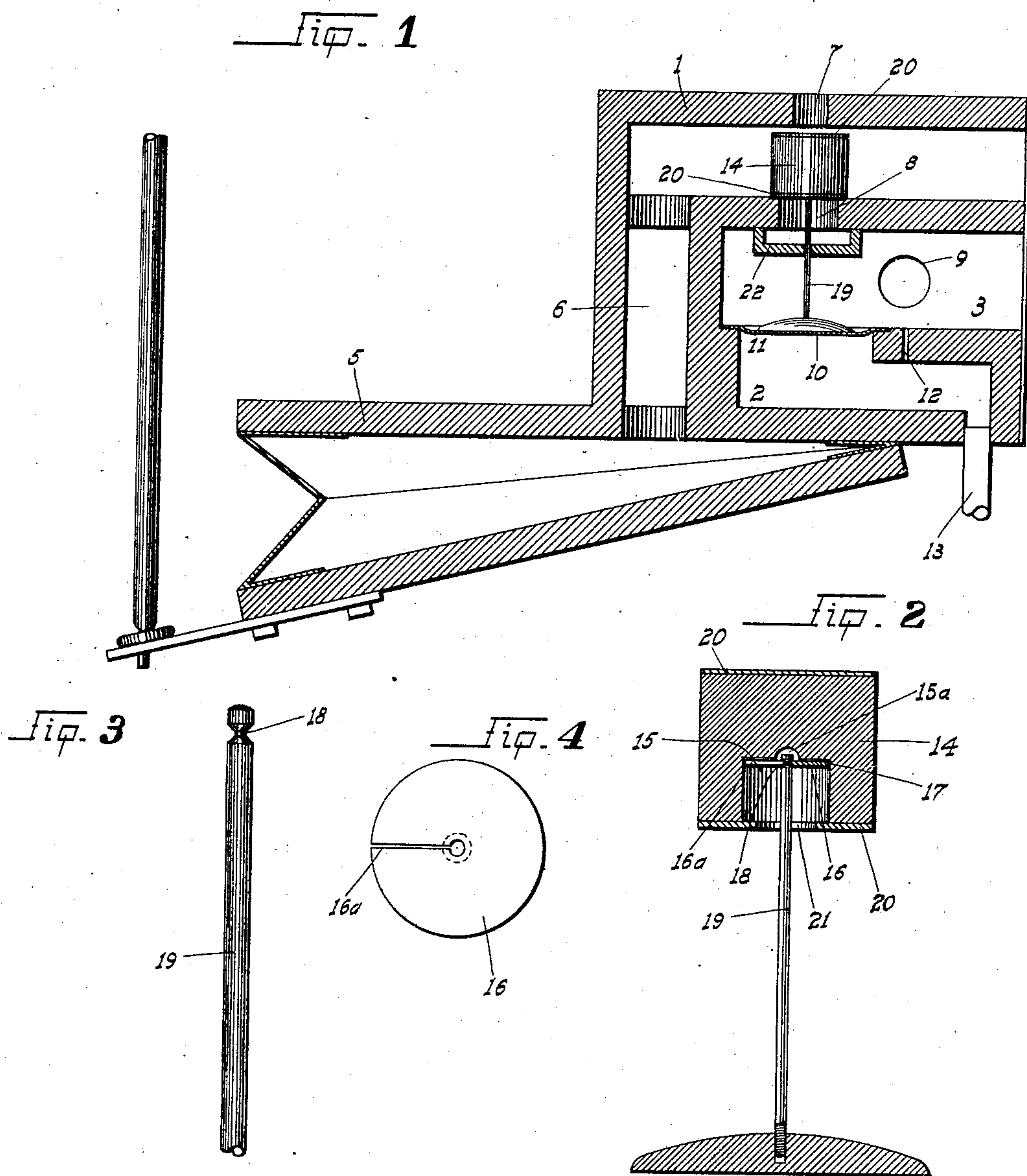


E. B. HOUGH.
 AUTOMATIC SELF ADJUSTING PNEUMATIC MUSIC PLAYER ACTION VALVE.
 APPLICATION FILED JUNE 29, 1908.

930,476.

Patented Aug. 10, 1909.



Witnesses
Frank H. Carter
[Signature]

Inventor
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UNITED STATES PATENT OFFICE.

EARL B. HOUGH, OF STOCKTON, CALIFORNIA.

AUTOMATIC SELF-ADJUSTING PNEUMATIC-MUSIC-PLAYER ACTION-VALVE.

No. 930,476.

Specification of Letters Patent.

Patented Aug. 10, 1909.

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To all whom it may concern:

Be it known that I, EARL B. HOUGH, a citizen of the United States, residing at Stockton, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Automatic Self-Adjusting Pneumatic-Music-Player Action-Valves; and I do declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in music players and particularly to that class known as pneumatic players, the main object of the invention being to produce a valve action for pneumatic music players whereby the valve head will automatically and absolutely reseal and adjust itself in such manner as to prevent any undesired escape of air as it is very necessary in a pneumatic player to insure perfect action. Also to produce a simple and effective valve for the purpose and one having a head capable of freely oscillating on its stem without loss of motion. This object I accomplish by means of a head having a recess in its under side, there being a disk secured in said recess, a valve stem having an annular groove in its end, said disk being secured in said groove, the sides of said groove being conical in shape whereby is permitted a free oscillation of said disk and incidentally of said valve head on said stem. Also I employ such other and further construction and relative arrangement of parts as will appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a sectional view of a pneumatic action mechanism showing my improved valve seated therein. Fig. 2 is a sectional view of the valve head and stem. Fig. 3 is a fragmentary side view of the valve stem. Fig. 4 is a top plan view of the valve disk.

Referring now more particularly to the characters of reference on the drawings 1 designates the pneumatic structure comprising three chambers 2, 3 and 4 disposed one

above the other as shown, there being the usual bellows 5 connected by a passage 6 to the chamber 4, an air inlet 7 into said chamber 4, a valve passage 8 from said chamber 4 into said chamber 3, a suction pipe 9 in said chamber 3, a diaphragm 10 covering a passage 11 from said chamber 3 into said chamber 2, a bleed hole 12 from said chamber 3 to said chamber 2, and a pipe 13 from said chamber 2 leading to the usual tracker board, all of which structure is disclosed in other applications for patent, hence no claim is made thereto in this case.

Normally seated over the valve passage 8 is a valve head 14 provided with a recess 15 in its under side into which recess is forced a disk 16, said disk being maintained rigid within said recess by means of friction and a thin coating 17 of shellac or similar material against the top of the recess 15. Said disk is normally disposed in an annular groove 18 near the top of a valve stem 19, the sides of said groove 18 being substantially conically shaped to permit of a free oscillation of said disk 16 and incidentally said head 14 with respect to said stem, said head 14 having a further small circular recess 15^a above said disk 16 to allow of free play to the head of the valve stem 19. In order to facilitate the assemblage of parts of the valve the disk 16 may be provided with a radial slit 16^a whereby said disk may be readily inserted into said groove.

In practice the head 14 is preferably made of wood and on its upper and lower ends is secured felt or other similar material the lower piece having an orifice 21 of sufficient size to permit the stem 19 plenty of play.

In practice when the pneumatic action has been brought into play by reason of an orifice in the music sheet passing over the tracker board and has ceased such action the head 14 reseats itself over the passage 8 by means of the usual suction through the suction port 9, the free oscillation of the head 14 on the stem 19 permitting such reseating to be absolutely accurate and without possibility of untrue movement thereby occasioning leakage of air which is now the objectionable feature of so many pneumatic players. The feature of the disk 16 being closely connected with the stem permits a perfect action of the valve without any undue friction or loss of motion.

If desired, the stem 19 may operate in a guide 22 disposed below the passage 8 or in any other suitable guide member.

From the foregoing description it will be seen that I have provided a valve mechanism which substantially fulfils the objects of the invention, as set forth, viz.—a valve being capable of free and accurate operation and yet one which automatically re-
 10 seats itself in an accurate manner in order to shut off any possible leakage of air.

While this specification sets forth in detail the present and preferred embodiment of my invention still in practice, such deviations from such detail may be resorted to as
 15 do not form a departure from the spirit of the invention.

Having thus described my invention what I claim as new and useful and desire to se-
 20 cure by Letters Patent is:—

1. A valve action for pneumatic music players comprising a valve having a head,

said head having a recess in its end, a disk disposed in said recess, a stem mounted in said disk, such disk having a free oscillatory movement on said stem.

2. In a music player a valve comprising a stem provided with an annular groove, a disk disposed in said groove and having a free oscillatory action upon said stem, and
 30 a valve head disposed on said disk, as set forth.

3. In a music player a valve comprising a stem having an annular groove, the sides of said groove being conical in shape, a disk
 35 mounted in said groove, and a head mounted on said disk, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EARL B. HOUGH.

Witnesses:

PERCY S. WEBSTER,
 FRANK H. CARTER.