May 19, 1925. 1,538,108

J. C. HAGEY

VALVE SEAT CONSTRUCTION

Filed Jan. 12, 1923

Fig. 1.

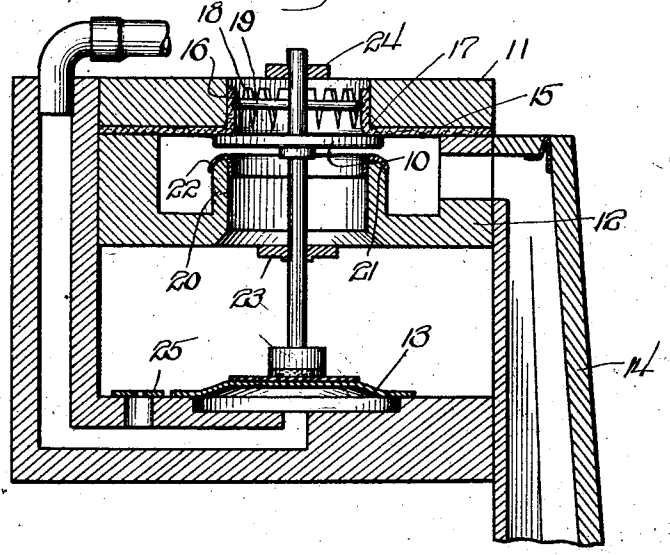


Fig. 3.

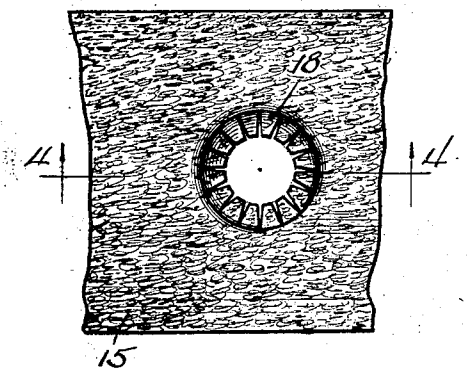


Fig. 5.

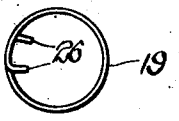


Fig. 2.

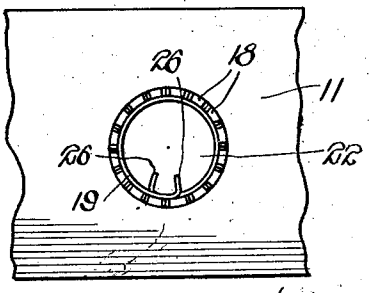
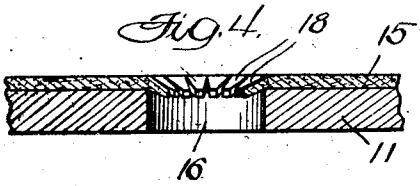


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES CLARKE HAGEY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CABLE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VALVE-SEAT CONSTRUCTION.

Application filed January 12, 1923. Serial No. 612,255.

To all whom it may concern:

Be it known that I, JAMES CLARKE HAGEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Valve-Seat Constructions, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to valve-construction, and more particularly to valve-constructions for use in automatic musical instruments.

One of the objects of my invention is to provide an improved valve-seat-construction which will insure quiet valve action and which will do away with the objectionable whistling or hissing noises attendant on the operation of valve-constructions now in use.

A further object of my invention is to provide improved means for holding a facing material against the walls of the valve-port.

A further object of my invention is to provide an improved valve-construction which will be durable and efficient in use and cheap to manufacture.

Further objects of my invention will appear from the detailed description to follow and from the appended claims.

In the drawings, in which two embodiments of my invention are shown—

Fig. 1 is a sectional view of a valve-construction;

Fig. 2 is a top plan view of a port-member and associated parts;

Fig. 3 is a bottom plan view of the port-member with the facing in position, showing the tongues before they have been pressed into engagement with the walls of the valve-port;

Fig. 4 is a sectional view, on the line 4—4 of Fig. 3; and

Fig. 5 is a detail view of a spring retaining-ring.

Referring to the drawings in detail, the construction shown therein comprises a double acting valve 10, an atmospheric port-member 11, a suction port-member 12, a diaphragm-pneumatic 13 for actuating the valve 10, and a bellows-pneumatic 14 controlled by the valve 10.

The atmospheric port-member 11 is provided with a facing 15 of soft sheet-material, such as soft leather, which provides a seating for the valve 10, and also provides a gasket between the port-members 11 and 12.

In order to prevent a whistling or hissing sound, the facing material 15 is made to extend up into the valve-port 16, thereby securing a rounded contour at 17 where the air flowing in has to change its direction to get past the valve 10. For this purpose, the facing 15 is shaped to provide a plurality of tapering tongues 18 which extend up into the valve-port 16. In order to hold these tongues 18 pressed against the wall of the valve-port 16, I provide a spring ring 19 which fits snugly against the tapering tongues 18 and holds them firmly pressed against the wall of the valve-port 16.

The suction port-member 12 is provided with an annular valve-seat portion or stool 20, the upper edge of which is rounded as indicated at 21 and covered with a facing 22 of soft sheet-material which forms a valve-seat.

The operation of the diaphragm-pneumatic 13, the valve 10, and the bellows-pneumatic 14 is the usual operation of these parts in automatic musical instruments, and need not be described. It is, however, stated that valve-stem guides 23 and 24 are provided and a "bleed" or "vent" 25.

The size of the spring ring 19 is such that it has to be contracted slightly to enable it to be inserted into the valve-port 16, so that the tension of the spring forces it outwardly and presses the tongues 18 snugly against the wall of the valve-port 16.

In order to facilitate the insertion and removal of the spring ring 19, the ends overlap each other somewhat, and extend inwardly as indicated at 26. In inserting or removing the ring, the ring may be contracted by inserting the jaws of a tool, such as a pair of pliers, between the inwardly bent portions of the ring, and operating the pliers to force these inwardly bent ends away from each other, thus contracting the ring and facilitating its insertion or removal.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. A valve-seat construction comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member, said facing having a valve-

seat portion outside and surrounding said valve-port and a plurality of tongues extending from said valve-seat portion into said valve-port, and means for holding said tongues pressed against the wall of said valve-port.

2. A valve-seat construction comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member, said facing having a valve-seat portion outside and surrounding said valve-port and a plurality of tongues extending from said valve-seat portion into said valve-port, and means for holding said tongues pressed against the wall of said valve-port, said means comprising a member having an annular portion for engaging said tongues.

3. A valve-seat comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member about and extending within said valve-port and spring means for pressing said facing against the wall of said valve-port.

4. A valve-seat comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member about and extending within said valve-port and a spring ring for pressing said facing against the wall of said valve-port.

5. A valve-seat construction comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member, said facing having a valve-seat portion outside and surrounding said valve-port and a portion extending from said valve-seat portion into said valve-port, and a spring ring within said valve-port for holding the last said portion pressed against the wall of said valve-port.

6. A valve-seat construction comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member, said facing having a valve-seat portion outside and surrounding said valve-port and a plurality of tongues extending from said valve-seat portion into said valve-port, and a spring ring for holding said tongues pressed against the wall of said valve-port.

7. A valve-seat comprising a port-member having a valve-port therein, a facing of sheet material secured to said port-member about and extending within said valve-port and a spring ring for pressing said facing against the wall of said valve-port, said spring ring having inwardly extending projections to facilitate its insertion and removal.

In witness whereof, I have hereunto subscribed my name.

J. CLARKE HAGEY.

Witnesses:
JANE M. NISBETT,
RALPH L. HUBBELL.