Dec. 25, 1923. 1,478,584

M. C. SCHWEINERT

INFLATING DEVICE

Filed Feb. 4, 1918

Fig. 2.

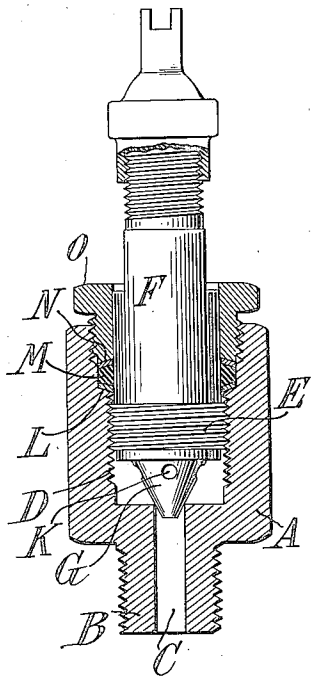


Fig. 3.

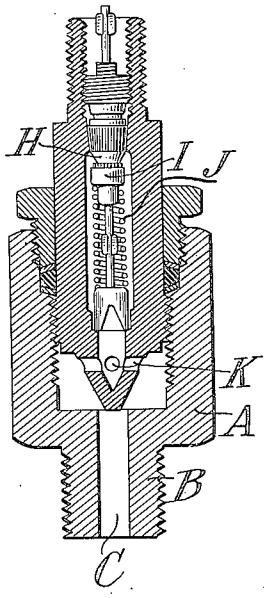
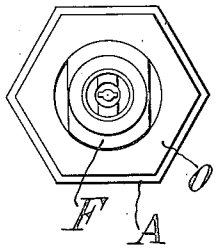


Fig. 1.



Fig. 4.



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Patented Dec. 25, 1923. 1,478,584

UNITED STATES PATENT OFFICE.

MAXIMILIAN CHARLES SCHWEINERT, OF WEST HOBOKEN, NEW JERSEY.

INFLATING DEVICE.

Application filed February 4, 1918. Serial No. 215,269.

To all whom it may concern:

Be it known that I, MAXIMILIAN CHARLES SCHWEINERT, a citizen of the United States of America, residing in West Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Inflating Devices, of which the following is a specification.

My invention relates to a valve structure and its object is to provide a valve-controlled passage which can be readily shut off independently of the valve with a view to protecting the latter. In a more specific consideration, the invention is designed to afford a relatively movable casing and a valve housing, and these parts have such co-operation as to permit of entirely shutting off communication between the casing and the housing while the latter at the same time carries an interior valve which governs the fluid passage when the casing and housing are in normal communication. To these and other ends, the invention consists in certain improvements and combinations of parts, as will be described more fully hereinafter and pointed out in the following claims.

In the drawings,—

Figure 1 is a side elevation showing a possible embodiment of the invention;

Fig. 2 is a longitudinal sectional view, partially in elevation;

Fig. 3 is a longitudinal, central, sectional view taken transversely of Fig. 2, and

Fig. 4 is a plan view.

The invention may be adapted practically in a variety of ways and includes briefly an outer casing and an inner relatively movable housing. The outer casing is provided with a passage at one end and the inner housing has a suitable opening to permit of communication with the casing. The inner housing carries a valve which is controlled by a spring or otherwise to govern fluid travel between the housing and the casing, and when it is desired to completely shut off such communication, a bodily relative movement between the casing and housing is permitted, preferably by moving the housing within the casing whereby it is brought into such a relationship with the passage in the casing as to entirely close the latter. It is to be understood that the invention is not to be restricted to the precise embodiment shown, as this is intended merely as an illustration, and the apparatus may be equally effective, either by having the housing movable within a stationary casing or the casing movable about a stationary housing, and other changes are likewise within the province of the invention.

One instance of the practical application of the invention is in the manufacture of pneumatic tires or where it is desirable to force air into the tire up to a certain point and thereafter to provide a positive closure and prevent an excessive pressure within the tire from reacting upon the usual tire valve, which is of comparatively light character and readily subject to rupture. In such an operation the air is permitted to enter the tire through the housing and casing, and under ordinary conditions is prevented from discharging from the tire by the valve in the housing. When, however, an excessive pressure is likely to arise, as in the manufacturing treatment of pneumatic tubes, the housing is moved within the casing until the passage in the latter is closed by a fixed portion of the housing, thus relieving the valve within the latter from back pressures.

A practical form of the invention is disclosed in the present application and includes an outer casing A having a neck portion B and a reduced passage C therein. The neck portion B is threaded exteriorly to engage a suitable fitting in a tire or other fluid container, while the body portion of the casing is threaded interiorly at D to receive a threaded portion E on the inner housing F. The latter has a tapered closed end G which acts as a valve member when relative movement is caused between the housing and casing, and enters the passage C, entirely closing the same, as shown in Fig. 2.

Arranged within the housing F, is a valve seat H, and I is a valve controlled by the spring J and co-operating with the aforesaid seat H. This is the usual tire valve structure and is designed to permit passage of fluid from the exterior into the housing F and to prevent such movement outward. The housing F has one or more openings K arranged laterally, preferably in the closed tapered end portion G, and establishing communication between the interior of the housing F and the interior of the casing A. Thus when the parts are in the position shown in Fig. 1, air or other

fluid is free to enter, upon application of pressure, past the valve seat H, around the valve I, through the openings K and into the passage C, whence it travels into the tire or other container. When the latter is sufficiently filled, the housing F is turned or adjusted longitudinally with relation to the casing A, bringing the valve portion G into engagement with the passage C and entirely closing the latter, so that the valve I and its co-operating parts are relieved from any interior pressures which might otherwise weaken or fracture the valve parts.

In a structure of this general character, it is highly important that a fluid-tight joint be afforded between the relatively movable parts, such as the housing and casing specifically referred to above, and my invention provides means for accomplishing this result. In the construction shown, the outer end of the casing A is enlarged to form a recess, the wall of which is threaded for a part of its length to receive a collar O. Between the end of the collar and the bottom of the recess, I arrange a pair of oppositely-disposed dished plates or washers L, N, between which is located a packing ring M which may also be of tapered form in cross-section with its broader face next the housing F. The effect of this construction is that the plates act as anti-friction members so that distortion of the packing is avoided as the collar is screwed down, and the packing is squeezed mainly against the housing, this being the moving part and being more liable to wear. The latter is also better compensated for by the greater area of packing engaging the housing. At the same time the narrow outer edge of the packing makes a sufficiently tight joint with the stationary casing to avoid leakage, etc.

What I claim is:—

1. The combination of a casing having different sized passages extending therethrough, of a housing relatively adjustable within the casing to open and close communication between said passages and having an opening in communication with the larger passage, valve means within the housing controlling the passage of fluids into the casing, and means for limiting the outward movement of the housing with respect to the casing, said means comprising a collar adapted to be threaded into the casing over the housing.

2. The combination with a casing having passages of different diameter of a housing adjustable relatively within the casing to open and close the passage of smaller diameter and having an opening communicating with the casing, a valve within the housing, and a stuffing box for the housing including a shoulder on the casing, a ring of resilient material, anti-friction rings on opposite sides of said resilient ring, said rings resting on the shoulder, and a collar threaded in said casing and holding the rings in place, said stuffing box also serving to limit the outward movement of the housing.

3. The combination with a casing having passages of different diameter of a housing adjustable relatively within the casing to open and close the passage of smaller diameter and having an opening communicating with the casing, a valve within the housing, and a stuffing box for the housing, including a shoulder on the casing, a ring of resilient material, oppositely-dished anti-friction rings on opposite sides of said resilient ring, said rings resting on the shoulder, and a collar threaded in said casing and holding the rings in place, said stuffing box also serving to limit the outward movement of the housing.

4. A pneumatic tire valve structure, comprising an outer casing having a neck or reduced portion at one end which is exteriorly threaded, with a reduced opening therethrough, a housing having an exteriorly threaded portion for engagement with the interior of the casing, a closed tapered end on the housing for co-operation with said reduced opening in the neck, the housing having lateral openings establishing continuous communication between the interior of the casing and the interior of the housing, valve means arranged within the housing, a packing surrounding the housing and engaging a part of the casing, and a collar threaded in the casing for holding said packing in position, the exterior diameter of the housing beyond the collar being less than the interior diameter of the collar, whereby the latter can be removed or inserted over the housing.

In witness whereof, I have hereunto signed my name.

MAXIMILIAN CHARLES SCHWEINERT.