

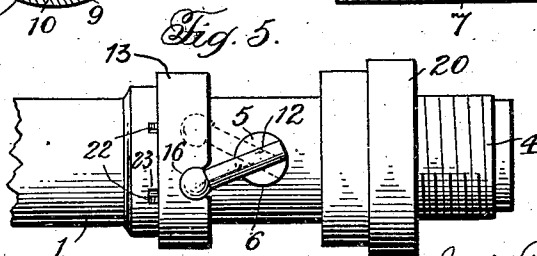
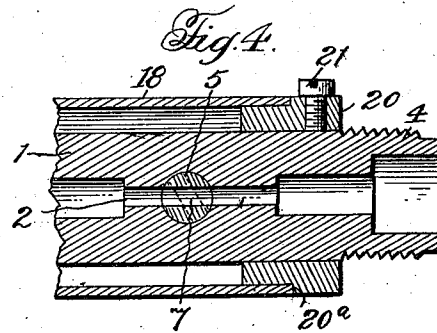
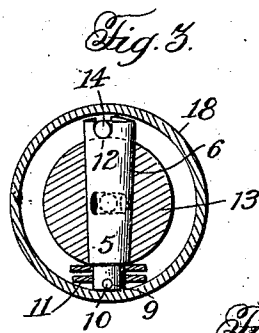
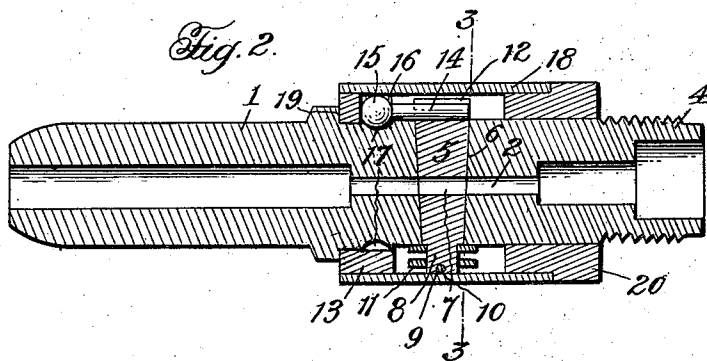
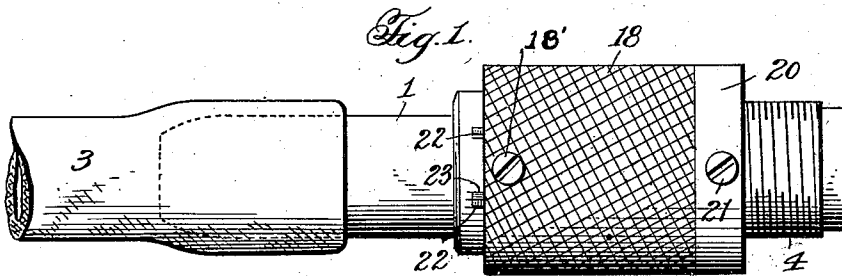
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J. P. RICHMOND

1,646,708

VALVE

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UNITED STATES PATENT OFFICE.

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VALVE.

Application filed November 16, 1925. Serial No. 69,402.

This invention relates to improvements in valves adapted for the nozzles of grease gun apparatus, for hose nozzles, beverage dispensing apparatus and like purposes.

5 The object of the invention is to provide an improved valve device of simple, durable, inexpensive construction, that will be efficient in operation, that can be easily operated under high fluid pressure conditions within the valve passage, and in which the operating means is compactly arranged entirely exterior of the valve passage so that the same offers no obstruction to the free passage of fluid through the valve and is not subjected to the fluid passing through the valve whereby clogging and deterioration of the parts is avoided and leakage is prevented.

The invention, with other objects and advantages thereof, and the particular construction, combination and arrangements of parts comprising the same, will be understood from the hereinafter contained detailed description, when considered in connection with the accompanying drawings, forming part hereof and illustrating one embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of a valve device constructed in accordance with the present invention.

Fig. 2 is a longitudinal section.

Fig. 3 is a transverse section on the line 3—3 of Figure 2.

35 Fig. 4 is a longitudinal section taken at right angles to Figure 2 the rotary valve being shown in open position in full lines and in closed position in dotted lines.

Fig. 5 is a top plan view with the outer sleeve member removed.

The invention comprehends an improved valve device including a casing having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior passage, and operating means for the valve including an outer rotatable ring member on the casing, a transverse channel or guideway on the valve; a lever slidably engaging said channel or guideway of the valve, and a connection between one end of the lever and said rotatable ring member providing for pivotal movement and axial rotation of the lever relatively to said rotatable ring member, whereby upon partial rotation of the rotatable ring mem-

ber rotary movement will be transmitted through the lever to the valve.

While a specific embodiment of the invention is illustrated in the drawings, it will of course be understood that minor changes and variations in the particular construction may be made, and the invention may be embodied in other forms, as will appear to those skilled in the art and falling within the scope of the appended claims without departing from the spirit of the invention.

Referring to a detail description of the particular embodiment of the invention illustrated in the drawing, 1 designates a casing having an interior passage 2, the casing in this particular exemplification of the invention, taking the form of a nozzle adapted to be connected at one end to the hose 3 of a grease gun apparatus (not shown), the outer end 4 of the nozzle being shown provided with a threaded portion to receive a coupling member. 5 designates a rotary plug valve adapted to control the interior passage 2, said valve, which is of tapering form, being disposed transversely of the casing 1, seated for rotation in a transverse tapering chamber 6 of the casing 1, and having a port or passage 7 of a size corresponding to the size of the interior passage 2 of the casing 1. The valve 5 at its smaller end has an extension 8 provided with an aperture 9 engaged by a cotter pin 10, and on the extension 8 between the cotter pin 10 and the casing 1 is a spring washer 11.

The operating means for the valve includes a transverse channel or guideway 12 on the valve 5, an outer ring member 13 rotatable on the casing and held fixed against longitudinal movement, a lever 14 slidably engaging the transverse channel or guideway 12 of the valve 5, and a freely movable connection between one end of the lever 14 and the rotatable ring member 13, said freely movable connection being shown as comprising a ball shaped part 15 on one end of the lever 14 engaging a cylindrical socket 16 on the rotatable ring member 13, the construction and arrangement of parts being such that upon a partial rotation of the outer rotatable ring member 13 clockwise looking from the rear of the casing toward the nozzle end or in the reverse direction, rotary movement will be transmitted to the valve 5 to open or close the interior passage, a swinging or pivotal movement being im-

parted to the lever 14, and the lever rotating axially and sliding in the channel or guideway 12 of the valve 5, the position of the parts when the valve is in open and closed positions being indicated in full and dotted lines respectively in Figure 5 of the drawing. The length of the lever 14 in the construction shown is in accordance with a construction which has proven satisfactory in practice. As will be understood by increasing the length of the lever 14 the leverage may be increased.

The cylindrical socket 16 of the rotatable ring member 13, as shown, is open to the outer face and one side of said rotatable ring member, and the channel or guideway 12 of the valve is formed by a transverse groove or slot in the outer face of the larger end portion of the valve 5, said larger portion projecting beyond the outer face of the casing 1, this construction providing for the ready engagement of the lever 14 with the cylindrical socket 16 of the rotatable ring member 13 and with the transverse channel or guideway 12 of the valve 5. The cylindrical socket 16 of the rotatable ring member 13 is also open at the inner face of said rotatable ring member, a portion of the ball shaped part 15 of the lever 14 projecting beyond the inner face of the rotatable ring member 13 into an annular groove 17 provided in the outer face of the casing 1. 18 designates an outer sleeve member fitting over and detachably secured by a screw 18' to the rotatable ring member 13 to rotate therewith. The outer sleeve member 18 encloses the rotatable ring member 13, the lever 14 and the ends of the valve 5, said outer sleeve member serving as means for retaining the lever 14 in engagement with the socket of the rotatable ring member 13 and the transverse channel 12 of the valve 5, and also as a handle or grip for turning the rotatable ring member 13, the outer face of said outer sleeve member being knurled or ribbed, as shown, for this purpose.

The rotatable ring member 13 and the outer sleeve member 18 are held in position from longitudinal movement relatively to the casing 1 by an annular shoulder 19 on the casing 1 and a collar 20 detachably secured to the casing 1 by a screw 21, the rotatable ring member 13 fitting against the annular shoulder 19 and the detachable collar 20 having a shoulder 20^a fitting against one end of the outer sleeve member 18.

22 designates spaced stop shoulders projecting from the outer face of the shoulder 19 to cooperate with a lug 23 on the rotatable ring member 13 to limit the extent of rotary movement of said ring member.

It will be noted that by the special construction and arrangement of parts hereinbefore set forth a valve device of a simple

efficient nature is afforded. The construction provides for the easy operation of the valve under high pressure fluid conditions within the valve passage. The construction is one that can be quickly and easily assembled and can be produced at low cost, and the operating means is compactly arranged exteriorly of the valve passage, so that the same is not subject to the influence of the fluid passing through the valve nor does it interfere with the passage of the fluid, clogging and deterioration of the parts being thus avoided and leakage prevented.

What I claim is:

1. A device of the class described including a casing having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior fluid passage, and operating means including a transverse way on the valve, a rotatable ring member on the casing, a lever slidably engaging the transverse way of the valve, and a connection between one end of the lever and said rotatable ring member providing for pivotal movement and axial rotation of the lever relatively to the rotatable ring member, whereby upon rotation of the rotatable ring member rotary movement will be transmitted to the valve.

2. A device of the class described, including a casing having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior fluid passage, and operating means including a transverse way on the valve, a rotatable ring member on the casing, a lever slidably engaging the transverse way of the valve, and a freely movable connection between one end of the lever and said rotatable ring member.

3. A device of the class described, including a casing having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior fluid passage, and operating means including a transverse way on the valve, a rotatable ring member on the casing, a lever slidably engaging the transverse way of the valve, and a ball and socket joint connection between one end of the lever and said rotatable ring member.

4. A device of the class described including a casing having an interior fluid passage, a transversely disposed rotary plug valve mounted in the casing to control the interior fluid passage, and operating means including a transverse channel in one end of the rotary plug valve, an outer rotatable ring member on the casing, a lever slidably engaging the transverse channel of the valve, and a connection between one end of the lever and said rotatable ring member providing for pivotal movement and axial rotation of the lever relatively to the rotatable ring member, whereby upon rotation of the

ring member rotary movement will be imparted to the valve.

5. A device of the class described including a casing, having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior fluid passage and provided with a transverse groove in one end face thereof, and operating means including an outer rotatable ring member on the casing, a lever slidably engaging the groove of the valve, and a freely movable connection between one end of the lever and the rotatable ring member, said freely movable connection comprising a cylindrical shaped socket on the rotatable ring member and a ball shaped part on one end of the lever engaging the socket of the rotatable ring member, the cylindrical shaped socket of the ring member being open at the outer face of the ring member to provide for the insertion of the ball shaped part of the lever within said socket, and an outer sleeve member fitting over and detachably secured to said rotatable ring member for rotation therewith, said outer sleeve member enclosing and serving to retain the ball shaped part of the lever within the cylindrical socket, and said outer sleeve member being adapted to be turned by hand to rotate the rotatable ring member.

6. A device of the class described including a casing having an interior fluid passage, a rotary valve disposed transversely of the casing to control the interior fluid passage and provided with a transverse groove in one end face thereof, and operating means including an outer rotatable ring member on the casing, a lever slidably engaging the groove of the valve, and a freely movable connection between one end of the lever and the rotatable ring member, said freely movable connection comprising a socket on the rotatable ring member and a ball shaped part on one end of the lever engaging the socket of the rotatable ring member, the

socket of the rotatable ring member being open at the outer face of the ring member to provide for the insertion of the ball shaped part of the lever within said socket, and an outer sleeve member fitting over and detachably secured to the rotatable ring member for rotation therewith, said outer sleeve member enclosing and serving to retain the ball shaped part of the lever within the said socket, and said outer sleeve member being adapted to be turned to rotate the rotatable ring member.

7. A device of the class described including a casing having an interior fluid passage and provided with an annular channel in its outer face, a rotary valve disposed transversely of the casing to control the interior fluid passage and provided with a transverse groove in one end face thereof, and operating means including an outer rotatable ring member on the casing, a lever slidably engaging the groove of the valve, and a freely movable connection between one end of the lever and the rotatable ring member, said freely movable connection comprising a cylindrical shaped socket on the rotatable ring member and a ball shaped part on one end of the lever engaging the socket of the rotatable ring member and the annular channel in the outer face of the casing, the cylindrical shaped socket being open at the outer face of the ring member to provide for the insertion of the ball shaped part of the lever within said socket, and an annular sleeve member fitting over and detachably secured to said rotatable ring member for rotation therewith, said outer sleeve member enclosing and serving to retain the ball shaped part of the lever within the cylindrical socket, and said outer sleeve member being adapted to be turned to rotate the rotatable ring member.

In testimony whereof I hereunto affix my signature.

JESSE P. RICHMOND.