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PIVOTED ACTUATOR FOR BOTH FLUID INLET AND PRESSURE RELIEF VALVES

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Fig. 1.

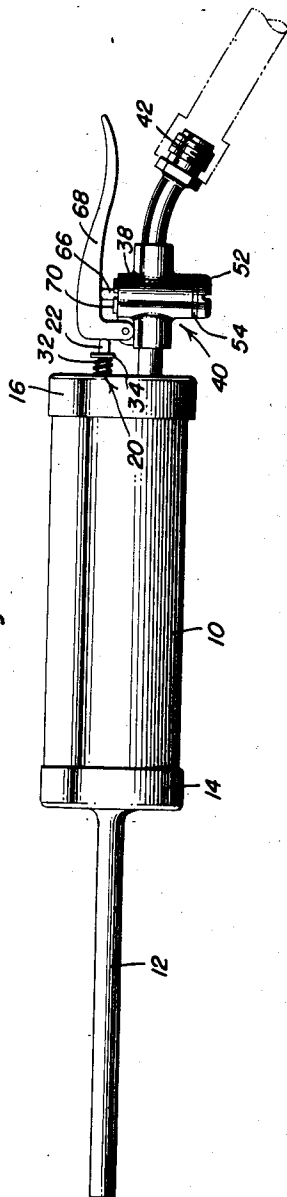


Fig. 2.

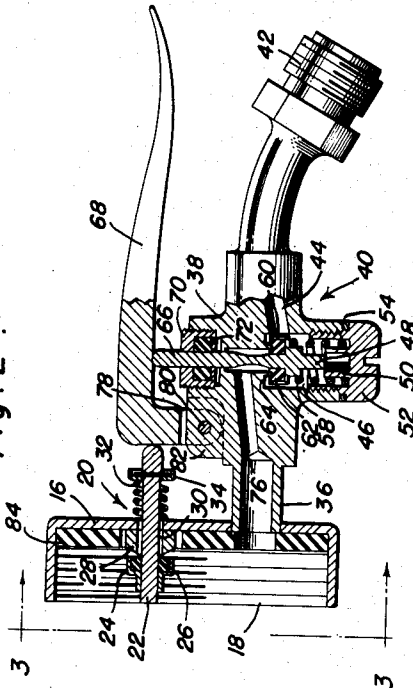
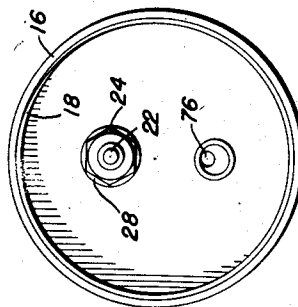


Fig. 3.



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PIVOTED ACTUATOR FOR BOTH FLUID IN-
LET AND PRESSURE RELIEF VALVESWayne B. Watkins and Karl W. Erge,
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2 Claims. (Cl. 222-397)

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This invention relates to novel and useful improvements in apparatus for use in association with glazing and caulking.

An object of this invention is to provide an improved device for use in glazing or caulking, characterized by a valve structure which will permit selected ingress of compressed air or the like and relief of residual pressure within the caulking device housing in order to prevent overflow and creep of the plastic material from the device when it is desired to halt or stop caulking and glazing operations.

Another object of this invention is to provide a simplified device of the character to be described which is practical and which renders glazing and caulking operations easier, more economical in that substantially no caulking material is wasted and simplified as trimming and cleaning is reduced to a minimum.

Other objects and features of novelty will become apparent to those skilled in the art, in following the description of the preferred form of the invention, illustrated in the accompanying drawings, wherein:

Figure 1 is an elevational side view of the preferred form of the invention;

Figure 2 is a sectional view illustrating a valve structure forming a major portion of the invention, and;

Figure 3 is an elevational view taken substantially on the line 3-3 of Figure 2 and in the direction of the arrows.

This invention has been developed in order to provide a device for more efficaciously applying a viscous material in glazing or caulking operations. As is well-known in the trade, portable caulking guns are commonplace. However, an inherent difficulty in the utility of one of these portable guns is the overflow of plastic material after closing the air circuit when a particular job is completed. There is a residual air or mechanical pressure applied to the viscous material which invariably forces a small amount of the viscous material from the egress conduit or tube. The result of such residual pressure is the loss of material as well as additional cleansing operations, trimming operations and the like. Therefore, it is one of the prime purposes of the present invention to eliminate this residual air pressure in a substantially conventional caulking gun housing.

A substantially conventional housing 10 is provided of any suitable configuration and has an egress conduit 12 attached thereto through the medium of a conventional collar 14. Any type

of head may be supplied for the conduit 12 as dictated by the type of job to be performed.

A collar 16 is provided with internal threads 18 for ready attachment and detachment to the housing 10. It is seen from Figure 2 that a pair of spaced openings (unnumbered) are supplied in this collar 16, one of which accommodates a relief valve structure, generally indicated at 20.

This relief valve structure includes a plunger 22 having a casing 24 attached thereto. This casing carries a resilient bushing 26 which is engageable with an enlarged stop 28 having a passage 30 therein.

The said passage 30 receives the plunger 22 reciprocally and permits air to escape from the housing 10 to the atmosphere. Means for resiliently biasing the plunger 22 is provided and consists preferably of a conventional coil spring 32 which seats on the collar 16 and also on a stop 34, the said spring 32 reacting on the collar 16 and the stop 34 constantly biasing the bushing 26 against the member 28 thereby closing the passage 30.

The other opening in the collar 16 has a small length of conduit 36 communicated therewith and a valve body 38 is integrally formed or attached to the small length of conduit.

A valve structure generally indicated at 40 is provided in the valve cage or body 38 and includes a conventional coupling 42 for attachment to a compressed air inlet hose. An inclined passage 44 extends from the coupling 42 and terminates in a valve chamber 46. This valve chamber has a piston 48 reciprocally received therein, the piston having a reduced terminal portion reciprocally received in a cylinder 50. This last mentioned cylinder is formed substantially centrally of a detachable cap 52 which is received in the lower portion of the said valve chamber 46. A conventional gasket or other seal 54 may be supplied between the adjustable and detachable cap 52 and the lower portion of the body 38.

Means for resiliently biasing the said piston 48 is supplied in the said valve body 46 and is preferably a conventional spring 58 which seats not only on the plug 52 but also on a channel shaped cage 60 formed integral with the said piston 48. This channel-shaped cage also receives and carries a bushing 62 which is cooperable with a peripheral flange 64 projecting inwardly of the valve chamber 46.

The upper end of the piston 48 terminates in a shank 66 which projects exteriorly of the said valve body member 38 for cooperation with a

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pivoted handle 68. An air seal in the form of a plug 70 having bushings 72 therein is supplied around the said shank 66 and is threadedly received within the valve cage or body member 38.

A second angularly inclined passage 76 communicates with a reduced portion of the said chamber 46 in order to conduct compressed air from the passage 44 to the interior of the housing 10. In order to permit free flow of compressed air through the reduced portion of the valve chamber 46, the said shank 66 may be reduced substantially centrally thereof as is seen in Figure 2.

The said handle 68 may be formed with bifurcations 78 at one end thereof and is preferably attached to the valve body member 38 by means of a conventional pin 80 penetrating a suitable ear 82. As seen in Figure 2, the said handle 68 serves a dual function, one of which is to press the shank 66 against the biasing force of the spring 58, while the other function is to press the plunger 22 against the resilient force of the spring 32.

In operation, compressed air is conducted to the valve chamber 46 and upon application of a force to the handle 68, the compressed air is permitted access to the interior of the housing 10. Then, when it is desired to stop the caulking material from leaving the conduit 12, the handle 68 is urged pivotally in the opposite direction, thereby releasing the check valve structure 20 to allow residual pressure to be vented to the atmosphere.

In attaching the collar 16 to the housing 10 a conventional gasket 84 having suitable apertures therein for accommodation of the various elements may be applied to not only serve the purpose of a seal but also to bind the collar 16 firmly in place during the operation of the invention.

While there has been described and illustrated but a preferred form of the invention, it is apparent that variations may be made without departing from the spirit thereof.

Having described the invention what is claimed as new is:

1. A glazing and caulking device comprising a housing and an outlet member communicating with one end of said housing for conducting viscous material from said housing, a valve body member attached to the opposite end of said housing by means of a collar, said valve body

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member having a passage therethrough, a valve chamber in said body member in communication with said passage, said valve chamber having a piston reciprocatively received therein, said piston terminating exteriorly of said valve chamber, and means for actuating said piston to unseat said valve piston, a relief valve in said collar and arranged for operation by said valve piston actuating means, said piston and relief valve actuating means comprising a handle pivoted to said valve body member, a spring in said valve chamber reacting on said valve body member and seated on said piston for urging said valve piston to the closed position, means for adjusting selectively the compression of said spring comprising a plug threadedly disposed in said valve body member, and a spring seated on said collar and acting on said relief valve to normally bias said relief valve in the closed position until acted upon by said handle.

2. In a caulking and glazing apparatus including a housing, a collar having means associated therewith for attachment to said housing, means communicating with said housing for selectively conducting air to said housing and for relieving residual pressure from said housing including a valve cage, a valve in said cage, and an arm pivoted to said cage for actuating said valve, a relief valve including a plunger in said collar disposed in the path of travel of said arm so as to be actuated by said handle, a stop secured to said plunger, and a compression spring coaxially mounted on said plunger and operatively engaging said stop and said collar and constantly urging said plunger toward said arm.

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