Feb. 11, 1958 R. M. SOEHNLEN ET AL 2,822,959

COMPOUND INJECTOR

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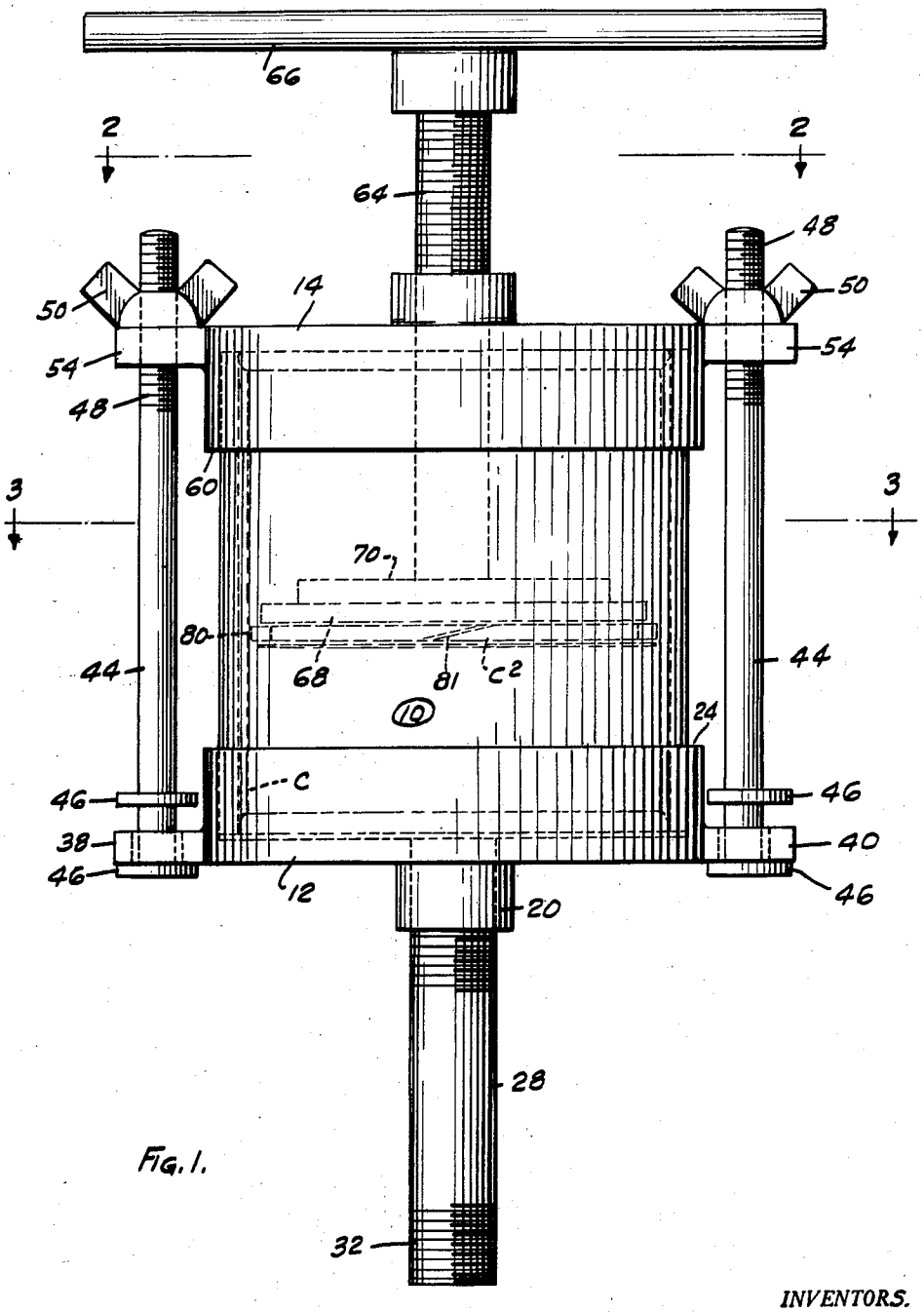

FIG. 1.

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FIG. 2.

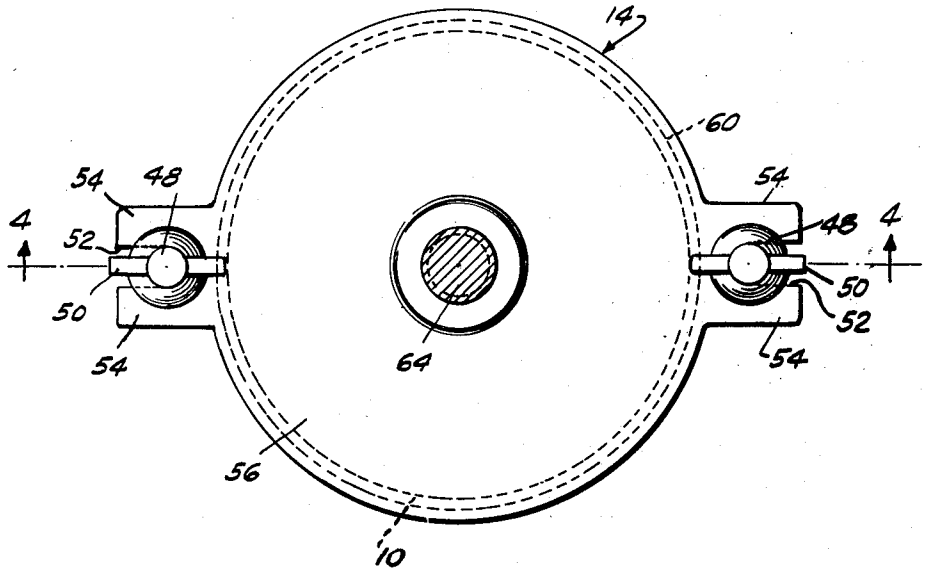

FIG. 3.

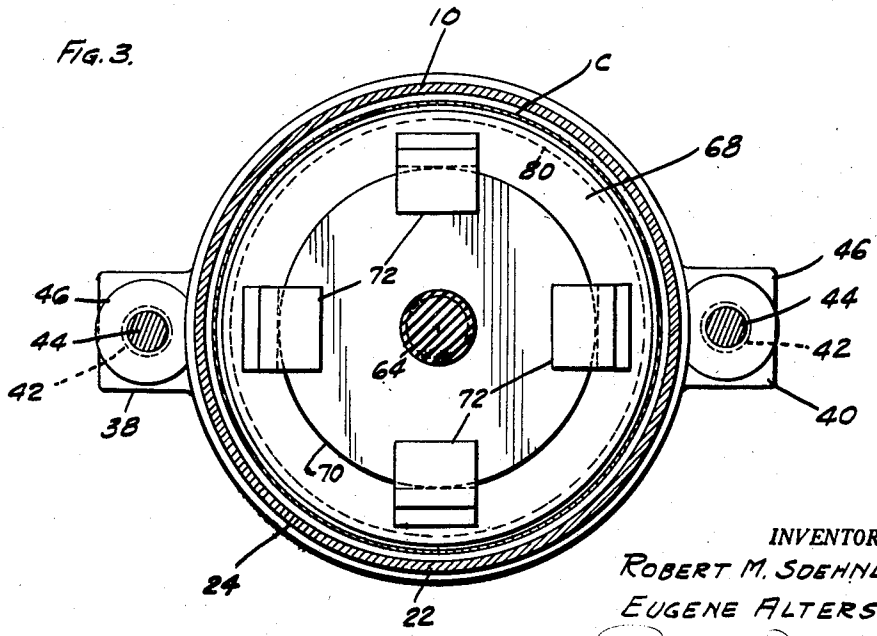

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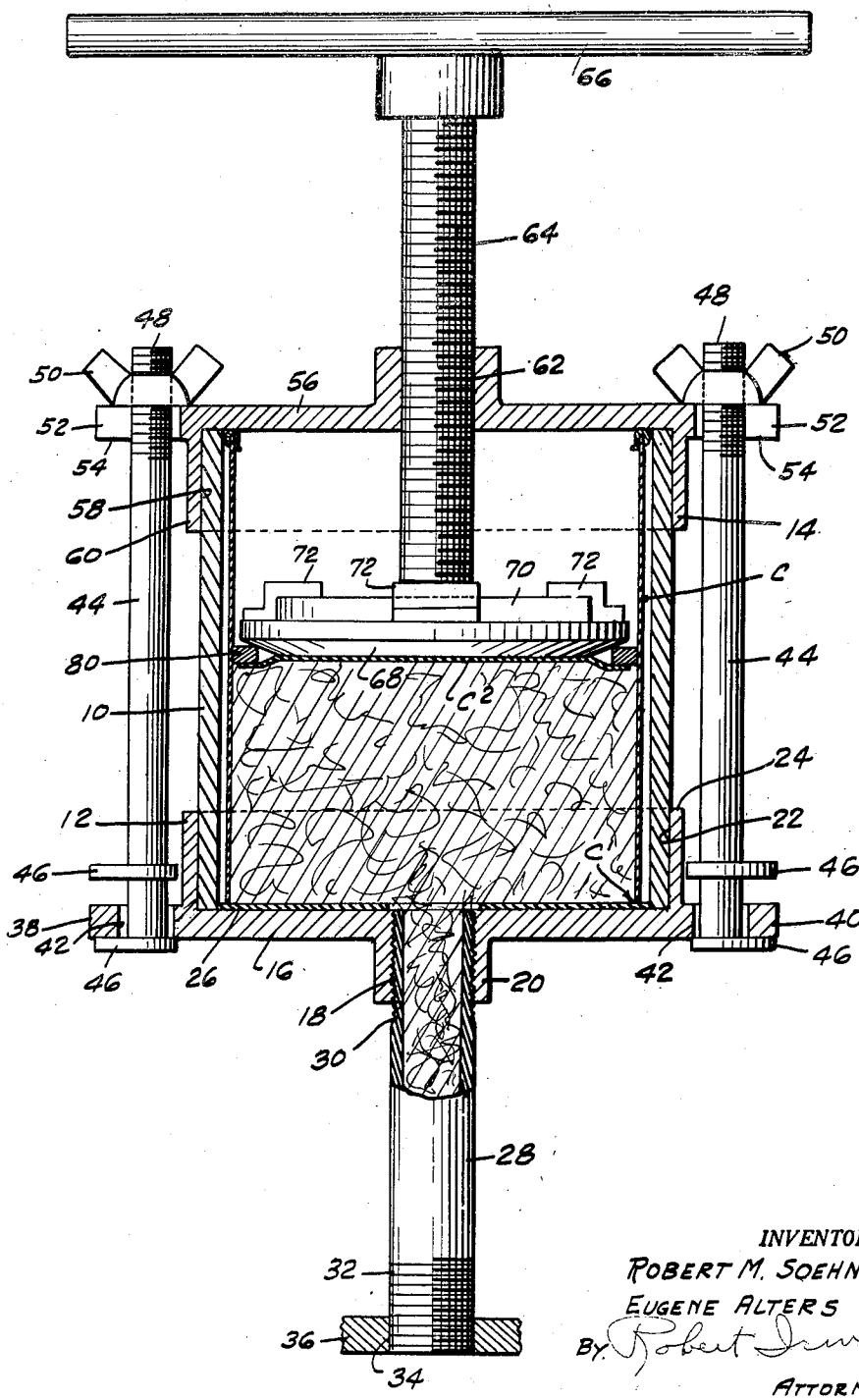
FIG. 4.



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2,822,959

COMPOUND INJECTOR

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Application June 10, 1954, Serial No. 435,726

3 Claims. (Cl. 222—327)

Our invention relates to injectors for forcing compound into bell joint seals between aligned piping.

Our invention relates more particularly to an injector or gun which is capable of receiving a container of sealing compound, and by manual manipulation extruding or expelling the compound under pressure into an arcuate or circular area created at the end of a bell joint by clamp members applied thereto.

Features of the invention reside in the fact that containers of sealing compound may be placed in the housing of the unit, the bottom cut out by a can opener, and the bottom then used in the container as a plunger for forcing compound out through the discharge nozzle of the gun.

Other features include the provision of an easily removable cap or cover for the unit to permit the introduction of a container of compound, a threaded plunger rod extended through said cover and the novel arrangement of housing and end cover members and fastening therefor.

Other features and advantages will be more apparent from the following description wherein reference is had to the accompanying drawings, in which

Fig. 1 is a side elevational view of an injector or gun embodying the invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is also a sectional view and is taken on the line 3—3 of Fig. 1; and

Fig. 4 is a sectional view through the unit taken on the line 4—4 of Fig. 2.

In the embodiment of the invention which we have chosen to illustrate and describe the same, we have provided a unit which may include a housing **10** which is in the form of a cylindrical or tubular member open at both ends, and a pair of caps, holders, or clamping members **12** and **14** adapted to be fastened over the two open ends of the housing, as will be hereinafter described.

The cap **12** located at the front end of the unit may have an end wall **16** with a medial tapped bore **18** extending through a boss **20** on the outside of the cap, the cap also having a cylindrical bore **22** provided by the peripheral flange **24** to receive the front end of the cylindrical housing member **10**. A suitable gasket or washer **26** may be provided in the end of the housing.

We provide a discharge nozzle **28** having the screw-threaded end **30** received in the threaded bore **18**, and a screw-threaded end **32** adapted to be received in the bore **34** of a suitable opening in one of the clamp members **36** at the bell joint of aligned piping.

Clamps of the type to which we refer and which are filled with a compound, such as the plastic base compound known as polysulfide elastomer, after connection to pipes, may be of the type shown and described in our co-pending application for patent on improvements in "Leak Clamps for Bell Joint Pipe Seals," filed June 10, 1954, Serial No. 435,727. It suffices to say that each of the collar members has a tapped opening to receive the threaded end **32** of the discharge nozzle **28** so that compound in the injector may be forcibly introduced into the area confined by the clamp members. The compound employed readily adheres to all surfaces that it comes into contact with, which is desirable from a sealing standpoint, but makes the compound itself somewhat difficult to handle.

The cap member **12** may be provided with a pair of outwardly extending lug members **38** and **40** upon opposite sides of the flange **24**. Each of the lug members may have an enlarged opening **42** therethrough to receive a bolt **44** which has a pair of spaced collars **46** adjacent its end, as shown. Each of the bolts **44** is also provided with a threaded portion **48** to receive the wing nut **50**. The ends of the bolts **44** may extend through a pair of slots **52** in peripheral lug members **54** extending outwardly from the wall **56** of the cap **14**. The cap **14**, which is similar to the cap **12**, also has a circular bore **58** to receive the end of cylindrical housing member **10** and an upstanding flange **60** formed thereon.

The cap **14** has a medial tapped bore **62** to receive a screw-threaded rod **64** provided with a handle **66** at one end and a loosely mounted plunger **68** at the other end. The plunger **68** is loosely fastened to a collar **70** rigid with the rod **64** by means of four angle-shaped brackets **72** which keep the plunger **68** adjacent the end of the rod **64** but permit the same to keep from rotating with the rod **64** while it is rotated when the device is operated.

In using the injector which we have provided, it is preferable to loosen the wing nuts **50** so that the bolt members **44** may be tilted outwardly at an angle to remove the cap **14** together with assembly of piston rod and plunger. A container C which is filled with a plastic compound to be forced between the clamp members of the bell joint is now opened and placed with its opened end C^1 against the washer **26** in the cap **12**. A can opener is used to sever the container cover and mouth portion from the container, thus leaving an open end disposed against the gasket **26**. The can opener may now be used to cut the bottom C^2 to separate the same from the container C, permitting the bottom, however, to remain in place on the end of the container. In this condition, a compressible ring such as the piston ring **80**, split as at **81**, may be placed within the container C against the bottom C^2 of the same, directly below the bevelled edge of plunger **68**. The cap **14** may now be rigidly fastened on the end of the housing **10**, and by rotation of the handle **66** the flat working surface of the plunger is brought into contact with the detached bottom and the plastic compound is forcibly ejected outwardly through the discharge nozzle **28**. The tapered surface or bevelled edge of plunger **68** urges the ring against the side wall of the container, which, as shown in Fig. 4, effectively prevents the compound from pushing upwardly through the annular space between the detached container bottom and the container side wall.

With this construction it can be seen that as soon as the container is emptied the container may be disposed of, a new container treated by cutting the bottom end off as described, this container placed in the housing **10**, and the operator is ready to eject more compound into bell type joints as required.

The gasket **26**, which of necessity comes into contact with the compound, may be disposed of after each container has been emptied, the gasket protecting the end wall **16** of the cap against contact with the compound. This element may be shaped from a readily disposable material such as cardboard.

It will thus be seen that the device provides a novel and expeditious manner of handling the aforementioned surface adhering sealing compound. It will be noted that the only elements of the device that actually come into contact with this compound are the disposable gasket **26**,

the split ring **80**, and the nozzle **28**. After a container of the compound has been completely emptied, and the cap **14** and plunger **68** removed, the empty container, the detached bottom thereof and the gasket **26** may be removed as a whole, leaving the inside of the injector free from the compound. The only element which must be cleaned before reuse, other than nozzle **28**, is the ring **80**. This leaves the interior and the working elements of the device substantially free from the compound, thereby insuring ease of operation and eliminating time wasting cleaning operations formerly required.

While in the embodiment shown and described the device has been applied to introduction of compound into bell pipe joints or similar locations, it will be understood that the invention is directed to an injector for general application wherein material in containers is positioned in the housing and then directed therefrom.

From the above and foregoing description it will be apparent to those skilled in the art that changes and modifications may be made in the exact details shown, and we do not wish to be limited in any particular; rather what we desire to secure and protect by Letters Patent of the United States is:

1. A device for removing a plastic material from its container comprising a cylindrical housing having an outlet formed in one end wall thereof and a plunger operably mounted in the other end wall thereof, said other end wall being removably mounted, a gasket covering the inside surface of said one end wall, said gasket being perforated to provide communication through said outlet, said housing being formed to receive the container with the top thereof removed and the open end thereof positioned against said gasket, said plunger being formed with a flat working surface merging into a bevelled edge, a split ring adapted to be engaged by said bevelled edge of said plunger, said plunger and said ring being proportioned to fit inside the container side wall when the bottom thereof is separated from the container side wall and said one end wall is secured in place over the container with said working surface of said plunger positioned adjacent the detached bottom, said ring being positioned between the detached container bottom and said plunger, and means for forcing said plunger against the detached container bottom to force the bottom toward said one end of said housing, said bevelled edge forcing said ring against the inside surface of the side wall of the container and over the space between the detached container bottom and the container side wall.

2. The device set forth in claim 1 wherein said plunger is rotatably mounted on a rod screw-threadedly mounted in said other end wall.

3. A device for removing a plastic material from its container comprising a pair of clamping members positioned adjacent each end of the container, means for clamping said members against the respective ends of the container, one of said members being formed with an outlet aligned with one end of the container and the other of said members carrying a plunger operably mounted therein, said members being formed to receive the respective ends of the container with the top of the container being removed and positioned adjacent said one member, said plunger being formed with a flat working surface merging into a bevelled edge, a split ring adapted to be engaged by said bevelled edge of said plunger, said plunger and said ring being proportioned to fit inside the container sidewall when the bottom thereof is separated from the container sidewall and said other member is secured in place over the container with said working surface of said plunger positioned adjacent the detached bottom, said ring being positioned between the detached container bottom and said plunger, and means for forcing said plunger against the detached container bottom to force the bottom toward said one member, said bevelled edge forcing said ring against the inside surface of the sidewall of the container and over the space between the detached container bottom and the container sidewall.

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