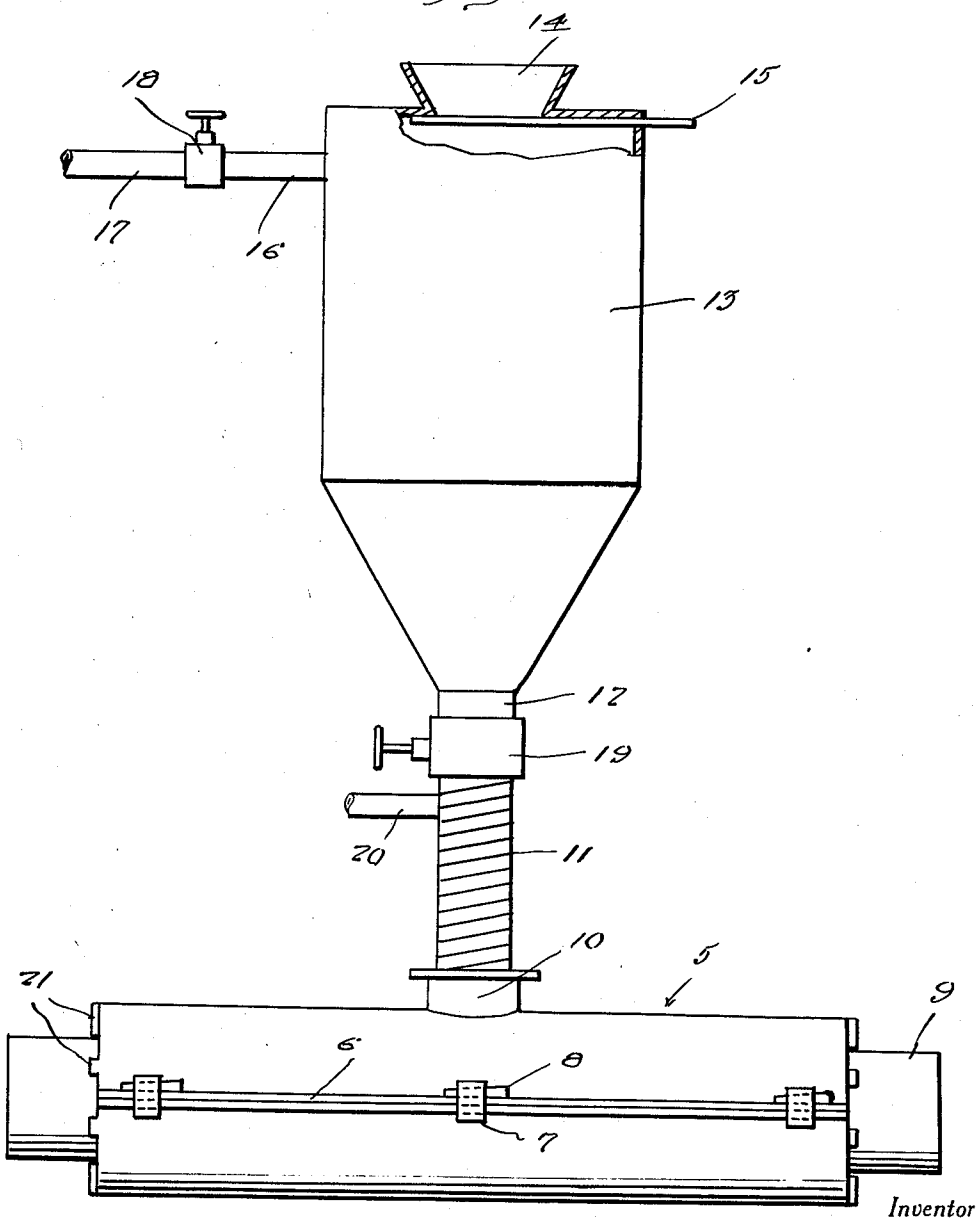
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APPARATUS FOR PLACING PROTECTIVE COVERING AROUND PIPES

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Fig. 1.



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Fig. 2.

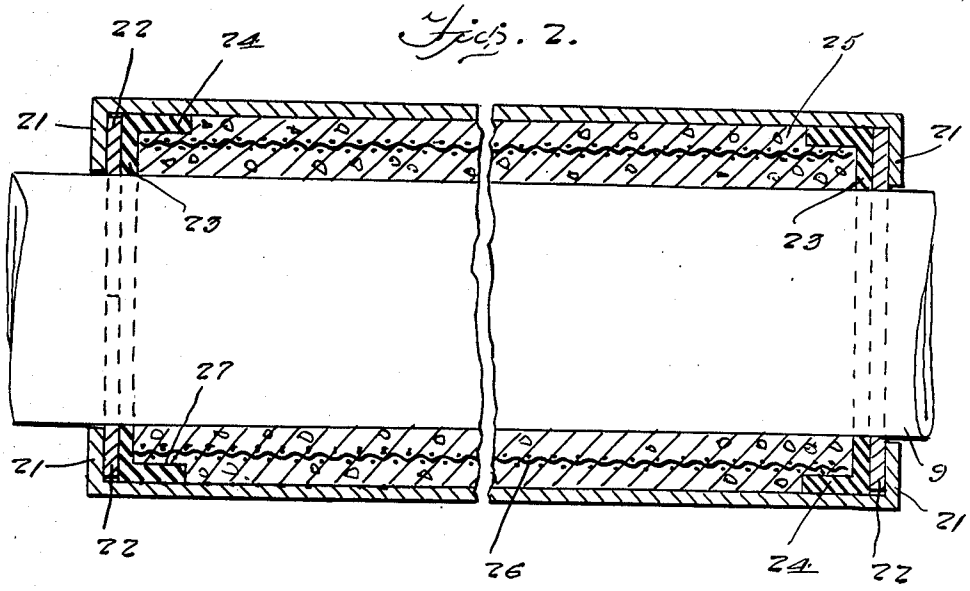


Fig. 4.

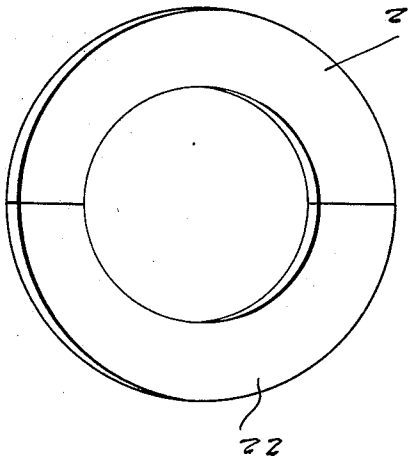


Fig. 5.

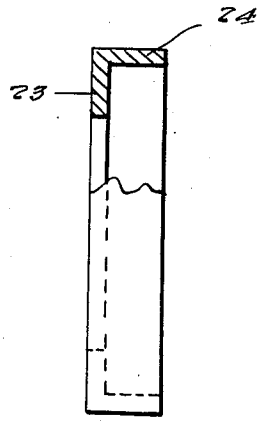
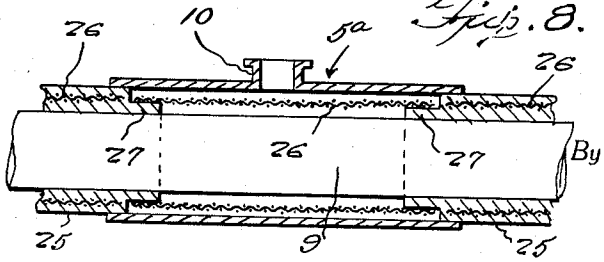


Fig. 8.



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APPARATUS FOR PLACING PROTECTIVE COVERING AROUND PIPES

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Fig. 3.

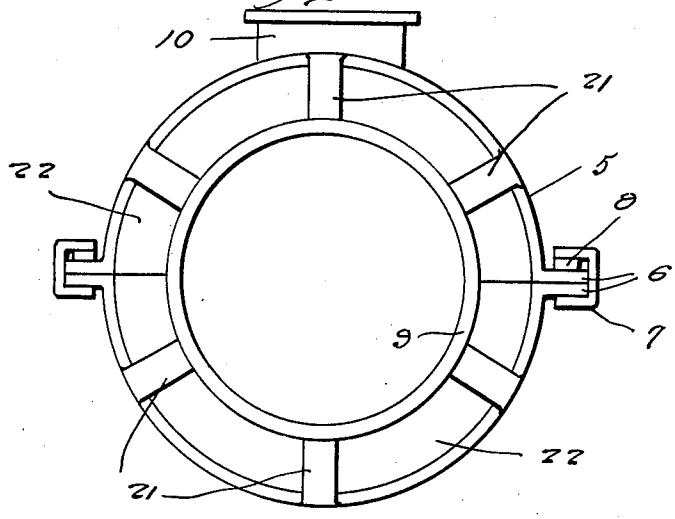


Fig. 7.

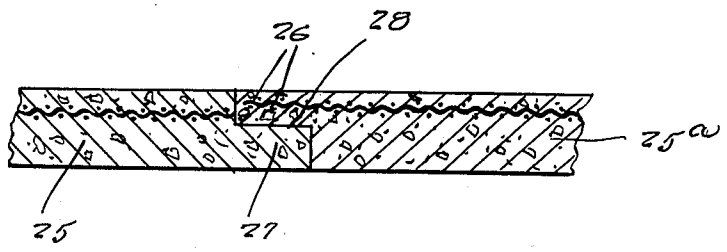
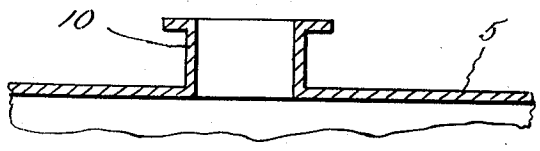


Fig. 6.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR PLACING PROTECTIVE COVERING AROUND PIPES

Charles H. Mull, Vista, Calif.

Application October 12, 1937, Serial No. 168,674

2 Claims. (Cl. 25—38)

This invention is an apparatus for applying to, or placing around pipes a protective covering of cementitious material, and particularly a protective covering of reinforced concrete.

An object of this invention is to provide an apparatus whereby the covering of pipes with concrete or analogous cementitious material may be accomplished in a quick, efficient, practical manner.

The invention, together with its objects and advantages, will be best understood from a study of the following description taken in connection with the accompanying drawings, wherein:

Figure 1 is an elevational view illustrating the application of the apparatus and with parts broken away and shown in section.

Figure 2 is a longitudinal sectional view through a form forming part of the apparatus and further illustrating the application of the invention.

Figure 3 is an elevational view of one end of the form.

Figure 4 is a perspective view of a retaining annulus or plate.

Figure 5 is an edge elevational view of a gasket with certain parts broken away and shown in section.

Figure 6 is a fragmentary sectional view through the form in the region of the filling neck of the form.

Figure 7 is a fragmentary detail sectional view showing the joints formed between adjacent sections of the pipe covering.

Figure 8 is a fragmentary detail sectional view illustrating the application of a second form also forming part of the invention.

Referring to the drawings more in detail it will be seen that in the preferred embodiment thereof the invention comprises a pair of forms, 5, 5*a*, respectively, and each of said forms consists of a pair of elongated semi-cylindrical members, formed of metal or the like, and provided at their longitudinal meeting edges with outstanding flanges 6 whereby through the medium of U-shaped clips 7 and wedges 8 the sections of the tubular form are secured about and concentric to the pipe 9 to which the covering is to be applied.

The top section of each form, intermediate its ends, is provided with a filling or intake neck 10 that accommodates the lower end of a flexible tube 11 that extends from the outlet 12 of a hopper or charging chamber 13.

The hopper or charging chamber 13 is adapted to receive the concrete to be used in covering the pipe 9 and is provided at its top with a charging neck 14 for which a closure valve 15 is provided.

The charging hopper or chamber 13 is also provided with a lateral compressed air inlet 16 to which is suitably connected a conduit 17 leading from a suitable source of compressed air.

Between the inlet 16 and conduit 17 there is provided a control valve 18.

The outlet 12 of the hopper or chamber 13 is also provided with a manually operable control valve 19 of any suitable construction.

Also, tapped into the flexible conduit 11 is one end of a conduit 20 which leads from a suitable source of compressed air, whereby air under pressure may be utilized for placing the concrete within the form under pressure.

At the end thereof the sections of the form 5 are provided with inwardly directed lugs 21 that serve to retain within said ends of the form 5 annular closure plates 22, each of which is divided into a pair of complemental half-sections as shown in Figure 4.

Also disposed within each end of the form 5 and abuttting the adjacent plate 22 is an annular gasket 23 of rubber, and at its outer edge the gasket 23 is provided with an annular flange 24 that fits against the inner surface of the form 5 as shown in Figure 2.

In using the device the reinforced concrete covering 25 for the pipe 9 is applied in sections, the apparatus described being successively used in the forming and applying of each successive section of the covering 25.

In using the apparatus, form 5 is successively used in forming alternate covering sections 25 while form 5*a* is successively used for forming intermediate forms 25*a* as will presently appear. Thus, the form 5 is first secured about the pipe 9 with the elements 22, 23 arranged within the respective opposite ends of the form and the reinforcing wires 26 located within the form and extending from one end to the other thereof between the elements 23, the reinforcing wires being disposed in a circular series about the pipe 9.

The concrete or other material to be used in making the reinforced covering 25 is placed in the hopper 13 and with valve 18 open air under pressure is introduced into the hopper 13 for forcing the concrete contents of the hopper through the open valve 9 of the conduit 11 into the form 5 to fill the space between the walls of the form and the pipe 9, with the reinforcing rods 26 becoming imbedded in the concrete, as is obvious. At the same time, air under pressure

is also admitted into the form through the conduit **11** and from the conduit **20** for placing the concrete under pressure as it is filling up the form **5** about the pipe **9**.

In connection with the above, it will be noted that through the medium of the flange-equipped gasket **23** the section of the reinforced covering thus formed will be provided at each end thereof with a reduced extension **27** as and for a purpose hereinafter made manifest.

After one reinforced concrete cover section **25** has been formed in this manner the form **5** is removed from about the cover section thus formed and then repositioned about the pipe **9** at a point suitably spaced from the thus formed cover section **25** for the purpose of forming, in identically the same manner, a second cover section **25**.

After two sections **25** of the reinforced covering has been formed in this manner, resort is had to form **5***a* and this form is then placed about the portion of the pipe **9** intermediate the confronting ends of the previously formed cover sections **25** for the purpose of forming an intermediate reinforced concrete covering section **25***a*. Thus referring to Figure 8 it will be seen that the form **5***a* is so positioned as to bridge the space between the confronting ends of the cover sections **25***a* with said ends of the cover sections **25***a* extending inwardly of the form **5***a* and the reinforcing rods arranged in a circular series about the pipe **9** with the ends of the rods resting on the reduced portions **27** of the cover sections **25**. The filling neck **10** of form **5***a* is then connected with the hose or conduit **11** extending from the hopper **13**.

The concrete is then fed into the form **5***a* in a manner previously described and some of the concrete will flow around the confronting reduced ends **27** of the previously cast concrete cover sections **25**, thus forming, as it were, at the ends of the second section **25***a* of covering internal grooves or recesses **28** that receive the extensions **27** of the cover sections **25** whereby, as clearly shown in Figure 7, a reinforced interfitting of the sections of the covering at the joined ends thereof will result, to the end that a good and substantial joint will be formed between the successive sections of the concrete covering at the joined ends of said sections.

Manifestly, each successive intermediate section **25***a* of the concrete covering is applied in the same manner until the pipe **9** has been covered to the extent desired.

It is thought that a clear understanding of the construction, utility, and advantages of an apparatus of this character will be had without a more detailed description.

Having thus described the invention, what is claimed as new is:

1. A mold filling device comprising a vertically arranged hopper having a tapered lower portion terminating in a discharge neck, a filling neck at the upper end of the hopper, valves for controlling said necks, means for connecting an air pressure supply to the upper portion of the hopper for forcing material from the latter by way of said discharge neck and including a control valve, a flexible pipe connected to the discharge neck for directing the discharged material into a mold, and means for connecting said flexible pipe to the air pressure supply for driving the discharged material into the mold under pressure to bring about packing and complete filling of the mold with the material.

2. A mold filling device comprising a vertically arranged hopper having a tapered lower portion terminating in a discharge neck, a filling neck at the upper end of the hopper, valves for controlling said necks, a flexible pipe connected to the discharge neck for directing material from the hopper into a mold, and means for connecting an air pressure supply to the upper portion of the hopper for forcing material from the latter by way of said discharge neck and including a control valve.

CHARLES H. MULL.