Mar. 27, 1923. 1,449,672.

P. W. HALLVARSON.

TOOL FOR MAKING AND REPAIRING CASINGS FOR WELLS, BOREHOLES, OR THE LIKE.

FILED MAY 17, 1922.

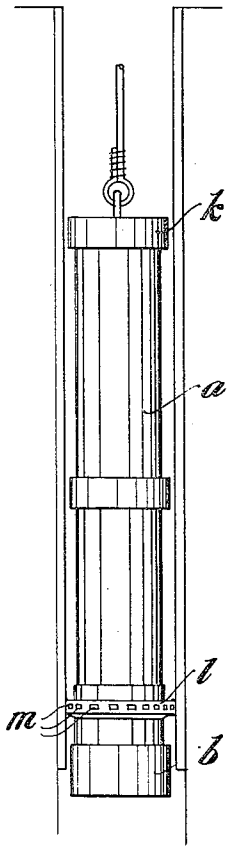


FIG 1

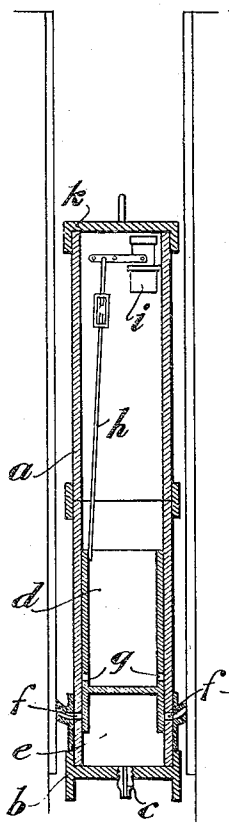


FIG 2

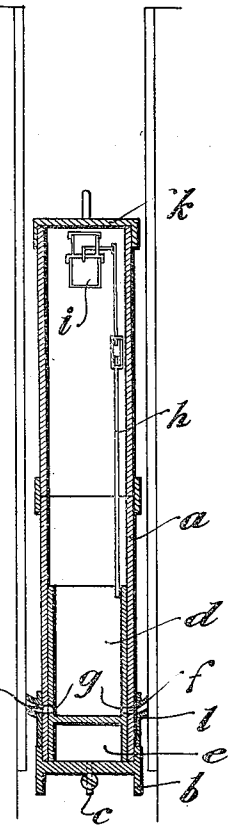


FIG 3

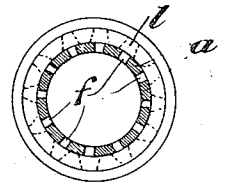


FIG 4

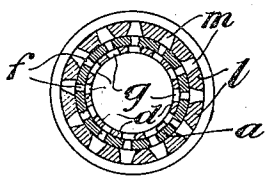


FIG 5

Witnesses:
Wilfrid J. Gray
Ernest Harris

Peter William Hallvarson
Inventor

Patented Mar. 27, 1923. 1,449,672

UNITED STATES PATENT OFFICE.

PETER WILLIAM HALLVARSON, OF CALGARY, ALBERTA, CANADA.

TOOL FOR MAKING AND REPAIRING CASINGS FOR WELLS, BOREHOLES, OR THE LIKE.

Application filed May 17, 1922. Serial No. 561,772.

To all whom it may concern:

Be it known that I, PETER WILLIAM HALLVARSON, a subject of the King of Great Britain and Ireland, and residing at 207 Alberta Corner, in the city of Calgary, Province of Alberta, Dominion of Canada, have invented a certain new and useful Tool for Making and Repairing Casings for Wells, Boreholes, or the like, of which the following is a specification.

My invention relates to a certain new and useful tool that will encase the wall of a well, bore hole or the like, with a plastic material which plastic material will bind the natural material in the walls of the well or bore hole so as to prevent collapse.

My device is clearly illustrated in the accompanying drawings, in which—

Fig. 1 is a vertical elevation showing the device in a well or bore hole.

Fig. 2 is a vertical section showing the device ready for lowering into position.

Fig. 3 is a vertical section showing the device in operation of making the wall.

Fig. 4 is a horizontal cross section through the outer cylinder only showing the orifices through which the case forming material is delivered.

Fig. 5 is a horizontal cross section showing the interior piston in its relation to the outer or main casing.

Similar characters refer to similar parts throughout the several views,—

a is a cylindrical container, within which plastic material is placed. *b*, is a base secured to the lower end of the said cylinder in which base a valve *c*, is secured. *d*, is a hollow piston fitted to the inside of the cylindrical container *a*, and between the underside of the said piston and the cap *b*, is a water cushion *e*. Ports *f* are provided in the side walls of the cylinder *a*, through which the plastic material is forced from the container. Ports *g*, are provided in the side walls of the piston *d*, which correspond with the ports *f* after the water forming the water cushion *e* has escaped through the valve *c*, in the base *b*. *h*, is a connecting rod between the top of the piston and a pressure exerting device *i*, mounted in the upper part of the cylinder *a*, to force the plastic mixture through the ports *f*, and *g*. *k*, is a cap member secured upon and enclosing the top of the cylinder *a* to which cap is secured a cable or other suitable suspending means. *l*, is a flexible washer upon the outside of the container *a*, adjacent the port *f* which is provided with ducts *m* radiating from the container to the extremity through the said washer which ducts direct the placing of the plastic material from the cylindrical container.

In operation a water cushion *e* is provided in the base of the container, the water cushion raising the piston *d* and closing the ports *f*. The valve *c* in the base of the container is then closed and the cap *k* removed. Plastic material is placed in the cylinder *a*, until it is nearly filled. The pressure producer *i* is then charged and the cap *k* is secured in place. The pressure producer may be a chemical cartridge or may be a jet of compressed air or steam. The valve *c* in the base of the container is opened to allow of the escape of the water cushion *e* and while this water cushion *e* is escaping the apparatus is lowered to the desired depth. As the water escapes the piston *d* drops within the container until the ports *f* and *g* correspond and during the dropping of the piston the rod *n*, connected between the piston and the pressure producer, opens a valve and allows a pressure to be exerted upon the plastic material within the container and forces the said material through the ports *f* and *g*. The flexible collar *i*, due to pressure of the plastic material, expands and delivers the said material to the wall of the well or bore hole with the minimum loss of pressure and continuous oscillating of the apparatus within the well or bore hole insures a smooth surface.

What I claim is:—

1. A tool for making and repairing casings for wells, bore holes or the like, comprising a cylindrical container, an outlet at the lower end of the said container controlled through a hydraulic timing valve, and a means of exerting pressure within the said container, all substantially as and for the purposes described.

2. A tool for making and repairing cas-

ings for wells, bore holes or the like, comprising a cylindrical container, a piston mounted therein, a hydraulic chamber between the base of the cylinder and the base of the piston, ports within the walls of the cylinder near its base, ports in the side walls near the base of the said piston, and means of exerting pressure within the container to force materials therefrom through the said ports.

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Witnesses:

ERIC L. HARVIE,

G. A. CORTIGAN.