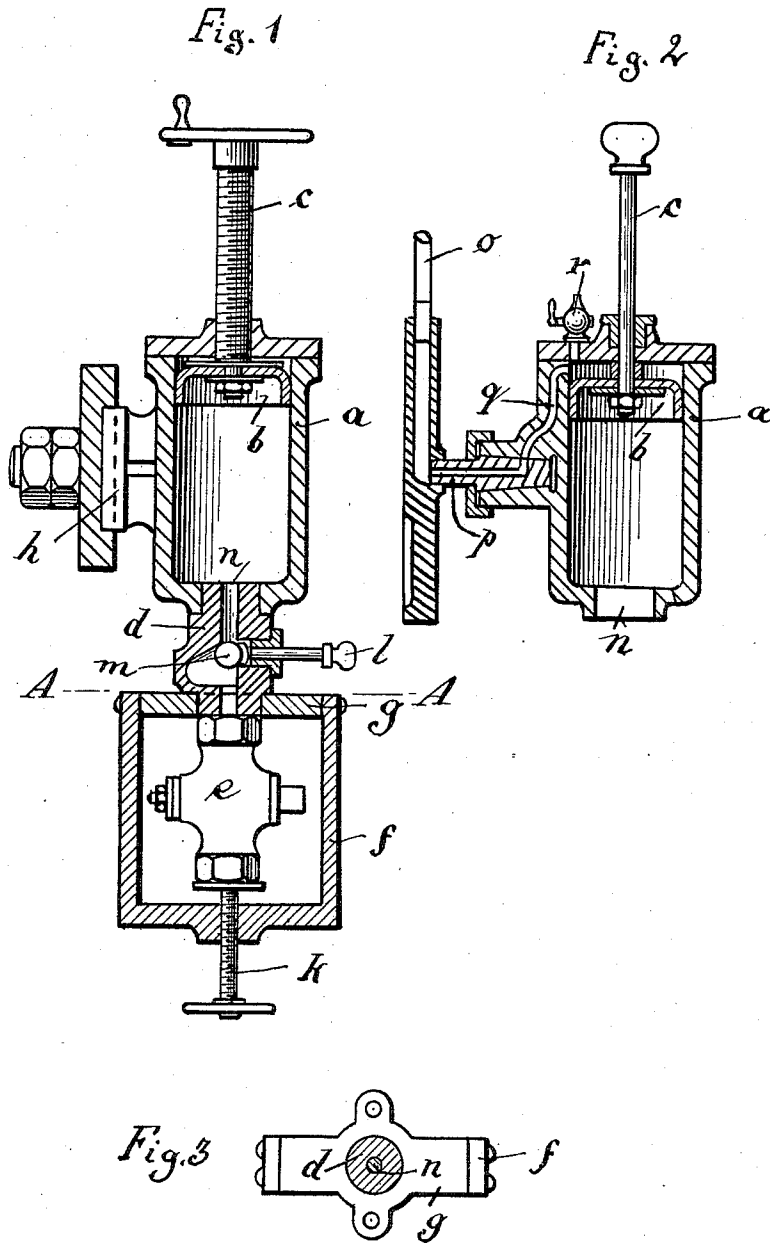


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 APPARATUS FOR MAKING TIGHT THE PORES OF CASTINGS.
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1,019,532.

Patented Mar. 5, 1912.



Witnesses.
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APPARATUS FOR MAKING TIGHT THE PORES OF CASTINGS.

1,019,532.

Specification of Letters Patent.

Patented Mar. 5, 1912.

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To all whom it may concern:

Be it known that I, SALI SALM, a subject of the King of Prussia, residing at Cologne-Ehrenfeld, Germany, have invented certain new and useful Improvements in Apparatus for Making Tight the Pores of Castings, of which the following is a specification.

This invention relates to an apparatus for making tight porous and untight parts of castings, said porous parts being cemented with liquid metal or with any other liquid cement which quickly hardens when exposed to the air. The cement used preferably is water-glass which, after hardening, is very resistant.

According to this invention the pressure cylinder filled with the liquid cement is connected with the casting by means of an automatic acting valve, said casting being fixed to the pressure cylinder in such a manner that both parts together can be pivoted around a horizontal axis. After the pressure cylinder with the casting have been tilted over, the valve opens automatically so that the liquid cement is pressed into the casting, the surplus of cement flowing back into the pressure cylinder when the device is being returned to the original position. The horizontal axle on which the device is pivotally mounted can further serve as a channel for the admission of the pressure fluid, said channel opening and closing automatically when the device is being tilted in the one or in the other direction.

In the accompanying drawing the invention is shown by way of example and in two forms of construction.

Figure 1 is an elevation partly in section of the first form of construction; Fig. 2 is a similar view of the second form of construction; Fig. 3 is a section on line A—A of Fig. 1.

The apparatus essentially consists of the cylinder *a* filled with water-glass and containing a pressure piston *b*. According to Fig. 1, this pressure piston is moved by means of the screw-spindle *c*. According to Fig. 2 the spindle *c* is smooth and simply serves as a rod for guiding the piston, the pressure being obtained from compressed air.

In the bottom plate of the cylinder *a* the valve casing *d* is mounted to which the device is connected which serves for holding the casting. This device consists of a cross rod *g* fixed in the valve casing *d* (Figs. 1

and 3), on which the two ends of a U-shaped frame *f* are mounted.

The cylinder *a* has a lateral flange *h* by means of which the apparatus can be mounted on a wall or in any suitable fixed support in such a manner that it can be tilted around the axis *i*.

To make tight a casting, for example a valve casing *e*, the apparatus is brought to such a position that the clamping frame for the casting is above the pressure cylinder. After the casting *e* has been placed in the frame *f* and secured in its position by means of the spindle *k* the apparatus is turned upside down so that its parts adopt the position shown in Fig. 1, the valve pin *l* being simultaneously pushed inward whereby the ball-shaped valve *m* is pushed away from its seat adopting the position indicated in dotted lines. The orifice of the channel *n* leading from the cylinder *a* is thus made free. By screwing down the spindle *c* (Fig. 1) the pressure piston *b* is moved downward in the cylinder *a* whereby the water-glass is forced out of the cylinder and penetrates under pressure into the casting *e* filling all the porous parts of the latter.

According to Fig. 2 the pivot *p* of the apparatus is hollow and connected with the upper end of the cylinder above the piston by a channel *q*. Air under pressure is supplied to the hollow pivot *p* from the conduit *o*.

After the porous parts of the casting *e* have been well filled with water-glass, the apparatus is again turned upside down.

In the apparatus according to Fig. 2 the admission of air under pressure to the cylinder is shut off automatically.

The pressure piston *b* is moved back to its original position either by the unscrewing of the spindle *c* or (Fig. 2) by the escape of the compressed air from the cylinder through the outlet valve *v* which has to be opened. The inner pressure in the cylinder being thus removed the surplus of liquid cement can flow back from the casting *e* into the cylinder *a*, the water-glass which has penetrated into the pores of the casting being retained. This water-glass hardens very quickly particularly if the casting is exposed to the air. If, owing to the pressure in the cylinder, the water-glass should penetrate through the walls of the casting, it will be simply removed from the outer surfaces of the casting by being wiped off.

Before the casting is removed from the apparatus the valve pin *l* has to be pulled out so that the ball shaped valve *m* can roll back upon the inclined path and close the channel *n*. Thus air cannot penetrate into the cylinder during the removal of the casting *e*.

I claim:—

10 An apparatus for making tight porous parts of castings, comprising in combination a pressure cylinder adapted to hold water-glass and having an outlet channel in its bottom plate, a pressure piston guided in said cylinder, a fixed support in which said
15 cylinder is pivotably mounted, a valve casing fixed to the lower part of the cylinder

and having an inclined path, a ball-shaped valve in said valve casing on said inclined path, and means for pushing the valve away from its seat, a cross bar fixed at the end of the valve casing, a U-shaped frame fixed to said cross-bar, a clamping spindle guided in the arch of said frame and adapted to hold a casting against the end of the valve casing, substantially as described and shown and
25 for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

SALI SALM.

Witnesses:

EDWARD THIEBES,
LOUIS VANDORY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."