April 28, 1931. H. S. LEE 1,802,920

DEVICE USEFUL IN CASTING OR MOLDING

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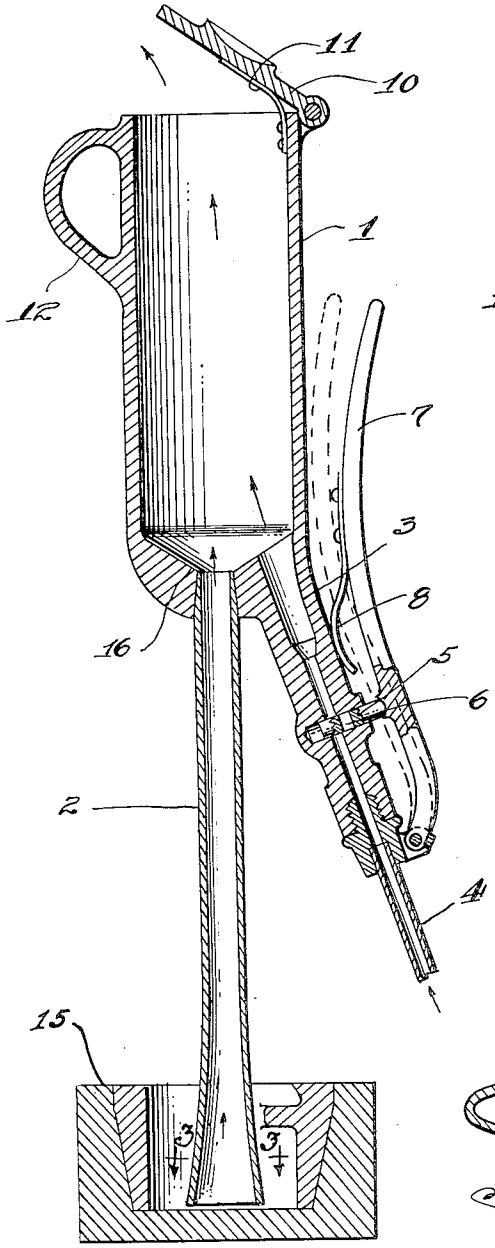


Fig. 1

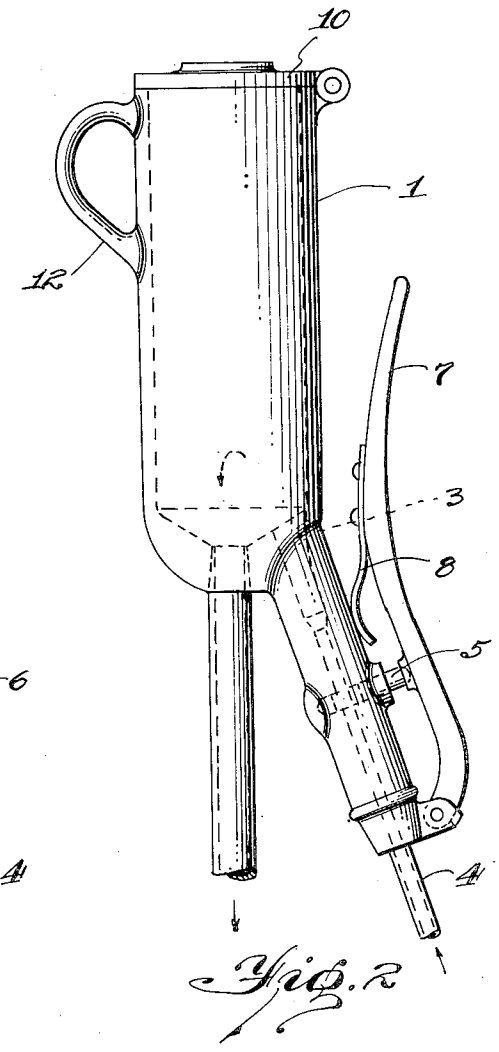


Fig. 2

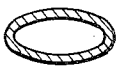


Fig. 3

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DEVICE USEFUL IN CASTING OR MOLDING

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This invention relates to a device useful in casting or molding, and it has to do especially with a device for cleaning molds and patterns or the like.

An object of the invention is the provision of a device by means of which crevices or other places which are hard to reach in a mold can be cleaned of extraneous matter, such as chips of material or dirt which may become lodged therein. It is also an object of the invention to provide a device for cleaning off the faces of molds, patterns, or other fixtures, such as jigs or the like.

In the accompanying drawings:

Fig. 1 is a sectional view taken of the device showing the same in conjunction with a mold, and indicating how crevices of the mold may be cleaned.

Fig. 2 is a similar view showing how the device is used for cleaning off surfaces and articles such as molds or patterns.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

The device consists of a hollow body member 1 provided with a tube 2 which is connected to the bottom of the hollow body member.

This device is provided with a valve controlled air inlet 3 which is connected to a suitable supply of air under pressure by means of a conduit 4 which is preferably flexible and in the nature of a hose. The valve for controlling this inlet may be of any preferred construction, but as shown, consists of a plug 5 provided with an aperture 6. The plug is movable by a handle 7, and a spring 8 serves to normally position the handle so that the aperture 6 is out of alignment with the inlet channel and the valve closed.

One end of the hollow body member is open and is provided with a closure member 10 which may be hinged to the body member 1 and which is preferably held normally in open position by a suitable spring 11. The body member may also be provided with a handle 12 which is useful in aiding the handling and the manipulation of the device, and by means of which the device can be hung up when not in use.

This device can be made in various sizes, depending upon the use to which it is to be put, but preferably in all cases the device is one which can be easily lifted and manipulated by an operator. In the operation of the device the operator holds the tool and inserts the tube 2 in the mold, such as the mold 15 shown in Fig. 1. The operator then presses upon the handle 7 to operate the valve 6, thus permitting a flow of air from the supply tube in the conduit and through the hollow body member 1 and out the top thereof as indicated by the arrows in Fig. 1. This creates a suction which sets up a flow of air through the tube 2, also as indicated by the arrows.

The tube can now be manipulated within the mold to bring the end of the tube 2 in close proximity to the several crevices or places which are hard to reach within the mold, and the suction created removes particles of dirt or other extraneous matter from these crevices, and these particles are passed out through the body member. Such extraneous matter may fall into the mold upon removal of a pattern therefrom. Preferably the tube 2 is of suitable metal such as copper or brass, or of any other suitable material. This tube is preferably flared out and oval in cross section at its lower or inlet end, as shown in Fig. 3, while the area is substantially maintained to aid in placing the tube in relatively narrow places and to pick up particles to one side of the tube proper.

Experiments have shown that the efficiency of such an instrument depends largely upon the angle of the inlet for the air under pressure, with respect to the hollow body member, and also the size of the inlet opening with respect to the size of the hollow body member. The pressure of air required for use with this device is very low, and air pressure in the neighborhood of three or four pounds is sufficient to remove small particles of dirt or other extraneous matter which may happen to fall into the mold when the pattern is removed. It is not intended that the invention be limited to the above mentioned details as to size, angle, or air pressure, for it is to be understood that the relative sizes of the chamber in the body, the air inlet, and the pressure

of air, can be varied to meet varying conditions.

An advantageous arrangement is to provide the chamber of the body member with a dished bottom, as at 16, with the tube 2 entering substantially centrally and with the air inlet entering the chamber near the outer edge thereof and at an angle to the chamber. Thus, the air inlet is disposed a little above the point where the tube connects into the chamber.

When it is desirable to clean the surface of a pattern, or a surface of a mold, or other similar article, the operator merely closes the cap 11 against the action of the spring 10 while maintaining the valve open. This diverts the flow of air under pressure and causes the same to exhaust through the tube 2. This exhausted air can be directed upon any surface desired to be cleaned and extraneous particles of dirt or the like are blown from the surface.

The instrument is not only useful in cleaning the crevices in molds, but it is useful in removing chips of metal or particles of other material from a machined recess in a metal article, and particularly where there has been a deep machining operation. Such recesses in molds or a machined article have been cleaned by directing a stream of air in the recess, but this is objectionable because it blows the particles of grit, sand or chips of metal out of the mold and into the space above the mold and it is dangerous to the operator, especially inasmuch as the small particles may get into the eyes of the operator. In use, it is preferable for an operator to hold the tool so that he is on the right side of the tool, as viewed in Fig. 1, so that a draft of air passing out through the top of the chamber, and containing the particles removed from the crevice, is deflected away from the operator.

I claim:

A device substantially as described comprising a hollow body member adapted to be manually manipulated closed at one end, a tube communicating with the hollow body member through said end, a conduit for air under pressure, a projection carried by the body member having a passageway therethrough and communicating with the hollow body member with which the conduit connects, a valve carried by the projection, a valve control lever pivotally carried on the device, spring means acting upon said lever to normally position the valve to close the passageway, said lever having an engageable part positioned alongside of the hollow body member whereby it is adapted to be operated by an operator grasping the body member, and controllable means for opening and closing the end of the body member opposite its said closed end, the end of the tube and passageway which communicate with the hollow body member being juxta-positioned at the closed end thereof.

In testimony whereof I affix my signature.

HARRY S. LEE.