J. N. WHITEHOUSE.

APPLICATOR.

APPLICATION FILED JULY 11, 1919.

1,382,397.

Patented June 21, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

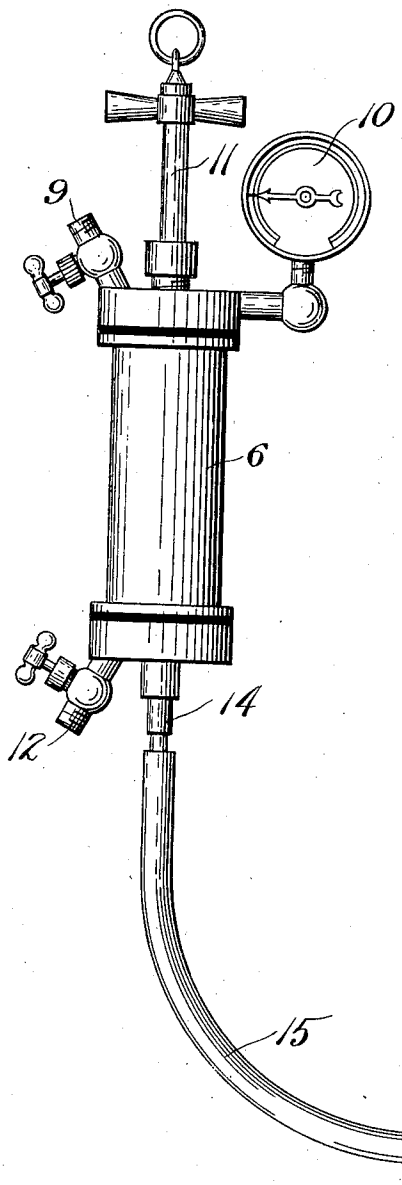
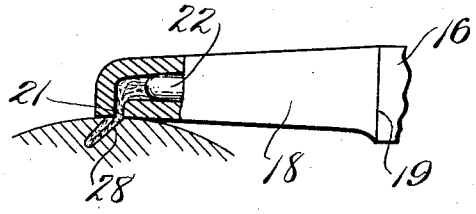
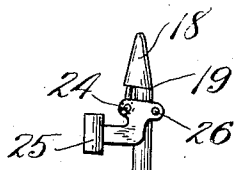


Fig. 2.





John N. Whitehouse INVENTOR

BY

Frank J. Kent ATTORNEY

J. N. WHITEHOUSE.

APPLICATOR.

APPLICATION FILED JULY 11, 1919.

1,382,397. Patented June 21, 1921.

2 SHEETS—SHEET 2.

Fig. 3.

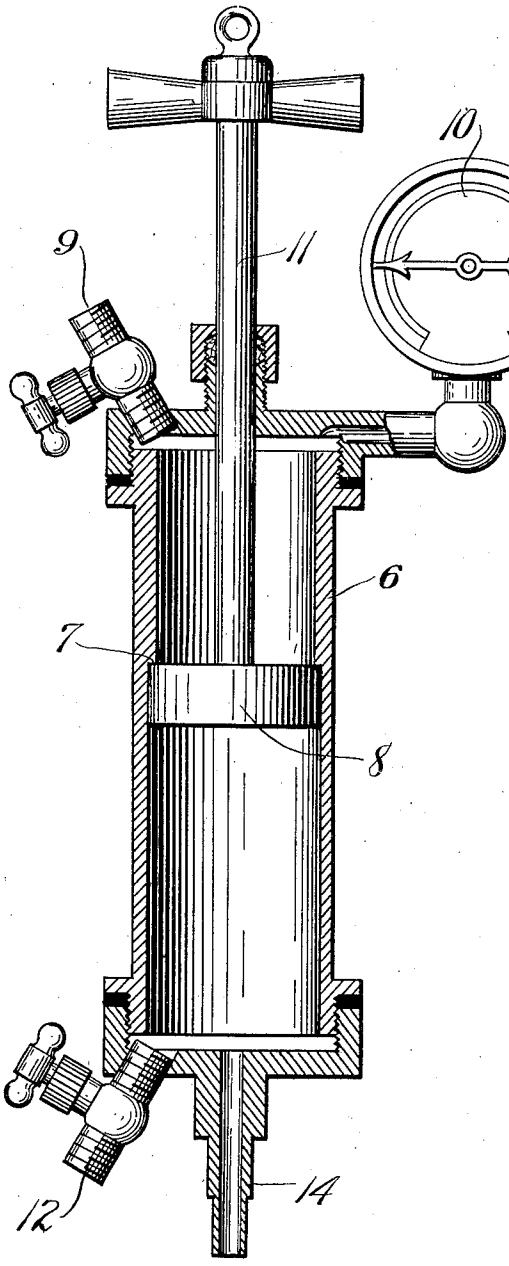


Fig. 4.

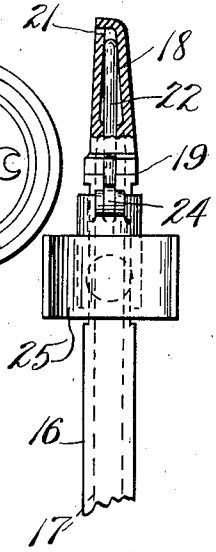
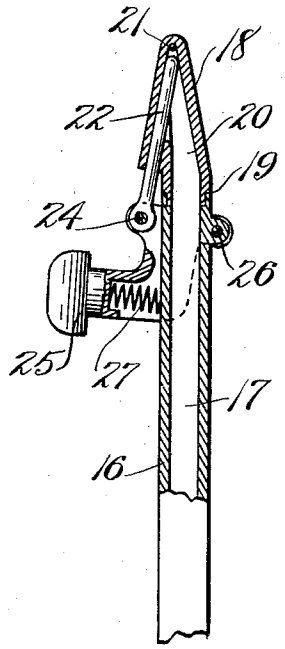


Fig. 5.



John N. Whitehouse INVENTOR

BY

Frank J. Kent ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN N. WHITEHOUSE, OF NEW YORK, N. Y.

APPLICATOR.

1,382,397. Specification of Letters Patent. Patented June 21, 1921.

Application filed July 11, 1919. Serial No. 310,039.

To all whom it may concern:

Be it known that I, JOHN N. WHITEHOUSE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Applicators, of which the following is a specification.

This invention relates to a method of filling holes in wooden pipe blanks or the like with plastic or semi-liquid quick-drying putty or the like material and to a pneumatically operated device for applying the filling material.

In connection with the manufacture of briar pipes and the like it is necessary that cavities in the wood, occasioned by defects, appearing after the blank has been turned shall be filled up so that the blank will present a smooth surface exteriorly. Heretofore so far as I am aware, these holes have been filled by pressing a bit of putty or the like into the hole and ordinarily the operation is performed by hand, that is the bit of putty is pressed into the hole and any surplus removed by the finger. The result is that the hole is never filled to the bottom, because a certain amount of air is entrapped within the hole beneath the putty plug and after a short time the plug is apt to fall out of the cavity. Furthermore, by reason of the fact that the plug when applied is almost dry, and because it does not fill up the cavity to the bottom does not have the maximum surface contact, and is more apt to fall out when the pipe is jarred or knocked in use.

I propose to employ as a filling material a semi-liquid quick-drying putty or similar material, one which will flow when put under pressure, as distinguished from the merely fictile and almost dry putty heretofore used, and I propose further to introduce this semi-liquid filler into the cavity in a novel manner and so that the cavity will in every case be filled full. Accordingly, I introduce the material at one side of the cavity under pressure so that it runs down into the bottom and then rises on the other side. And I am enabled to do this by the use of a device which includes a container for the semi-liquid material, a plunger operated by compressed air for forcing the material out of the container and a valve-controlled applicator for directing the issuing stream of material into the cavity in the most effective manner. I have found in the practice of this method and with the use of a device such as described that if the apparatus is laid aside for a time the material in the applicator, which must be a quick-drying material, is apt to harden by reason of leakage of air past the controlling valve, so that in a brief time the applicator will be clogged up and the instrument disabled until the hardened material is removed in some way. Accordingly, in view of this condition I have provided the applicator with a plunger which may be manually operated to soften and dislodge the hardened material so that the air pressure back of the main supply of material may again become effective to send out the material; and I have preferred to make this plunger at the same time the valve for controlling the exit orifices of the applicator.

Other objects and aims of the invention, more or less broad than those stated above, together with the advantages inherent, will be in part obvious and in part specifically referred to in the course of the following description of the elements, combinations, arrangements of parts, and applications of principles constituting the invention; and the scope of protection contemplated will appear from the claims.

In the accompanying drawings, which are to be taken as part of this specification, and in which I have shown merely a preferred form of embodiment of invention, Figure 1 is a view in elevation of an apparatus designed for the carrying out of my process; Fig. 2 is a view partly in elevation and partly in section with parts broken away showing how the filling material is applied to a cavity in a pipe blank or the like with a device like that of Fig. 1 used in accordance with my process; Fig. 3 is a view mainly in central vertical section, with parts in elevation, of the container shown in Fig. 1; Fig. 4 is a detail of the applicator, with the nozzle portion thereof broken away and in section; Fig. 5 is a view similar to Fig. 4 but taken at right angles to the subject-matter of Fig. 4.

Referring to the numerals on the drawings, there is shown at 6 a cylindrical casing divided internally into two parts by means of a shoulder 7. That part of the casing above the shoulder (Fig. 3) is a compressed air space, and in the portion of the cylinder below the shoulder there is slidable a piston

or plunger 8 whose upward limit of movement is determined by the shoulder 7. Compressed air is introduced into the upper end of the casing through an inlet 9, and 10 indicates a pressure gage. A piston rod 11 is provided so that after the plunger has been driven downwardly to the full limit of its stroke in the cylinder it may be retracted by hand so as to allow of the refilling of the lower portion of the cylinder with the semi-liquid filling material, which is introduced by way of the inlet 12. 14 indicates an outlet at the lower end of the cylinder through which the filling material contained in the lower portion of the casing is discharged into a flexible conduit 15, and at the end of this conduit 15 there is an applicator which preferably takes the form shown in Figs. 1, 2, 4 and 5. As shown it comprises a tube 16, with a longitudinal bore 17 and a tip 18 detachable from the tube 16, the connection between the tip and the main part of the tube being shown at 19. This tip 18 has a bore 20 in continuation of the bore 17 but at a slight angle to the latter, and at the end of the tip there is an exit opening 21 which is disposed at right angles or at any rate at an angle to the bore 20. Extending through an opening in the side wall of the tube is a plunger valve 22, the end of which is adapted to close off the end of the bore 20 adjacent the exit opening 21, so that when the plunger 22 is in the Fig. 5 position material cannot pass out of the exit opening 21. The other end of this plunger 22 is pivoted as indicated at 24 to a finger-operated lever 25 which is pivotally connected at 26 to the tube 16. This finger lever 25 is normally maintained in the Fig. 5 position by means of a compression spring 27, but when the lever 25 is depressed by rocking the lever on its pivot 26 the result is to move the plunger 22 downwardly (having reference now to Fig. 5), so that the end of the plunger 22 no longer obstructs communication between the bore 20 and exit opening 21. When the finger lever 25 is so depressed the semi-liquid material flows out of the exit opening 21 under pressure of the compressed air in the upper part of the cylinder 6. If the material in the tip should become hardened it may be softened up and dislodged by repeatedly depressing the lever 25, which results in a kind of pumping action which will in a short time restore normal conditions so that material will flow freely again from the opening 21.

In use the tool is applied to the surface of the pipe blank or other article as shown in Fig. 2, and the stream of material is directed into one side of the cavity 28 and the pressure of the stream causes it to flow to the very bottom of the cavity and then up out of the cavity on the other side thereof, filling the cavity completely. With this method of application there is no possibility of any air being occluded in the bottom of the cavity below the filling material and the plug on drying is in surface contact with all of the surface of the cavity and therefore remains in position.

I claim:—

1. In a device of the kind described comprising a casing, a piston within the casing, means for introducing fluid under pressure into the casing at one side of the piston, means for introducing semi-liquid or plastic material into the casing at the other side of the piston, an exit opening from the casing at the last-named side of the piston, means for moving the piston in the opposite direction to that in which the fluid pressure drives the piston, a conduit connected to the exit opening aforesaid, an applicator at the end of said conduit, said applicator having a discharge opening, and a plunger valve controlling said opening.

2. A device of the kind described comprising a casing, a piston within the casing, means for introducing fluid under pressure into the casing at one side of the piston, means for introducing semi-liquid or plastic material into the casing at the other side of the piston, an exit opening from the casing at the last-named side of the piston, means for moving the piston in the opposite direction to that in which the fluid pressure drives the piston, a conduit connected to the exit opening aforesaid, an applicator at the end of said conduit, said applicator having a discharge opening, and a plunger valve controlling said opening, said plunger valve extending through the side wall of the applicator at an acute angle to the bore thereof.

In testimony whereof I affix my signature.

JOHN N. WHITEHOUSE.