

(No Model.)

I. I. SMITH.

MACHINE FOR ATTACHING KNOBS TO SHANKS.

No. 473,091.

Patented Apr. 19, 1892.

Fig. 1

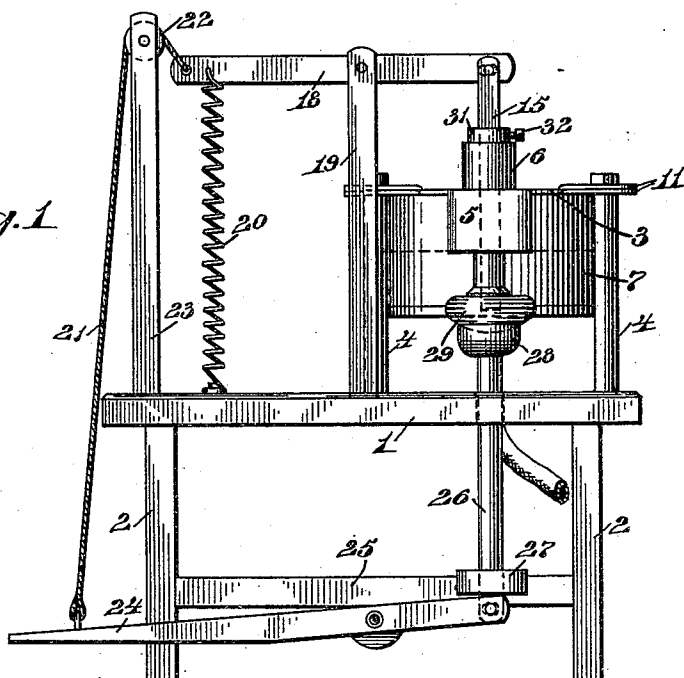
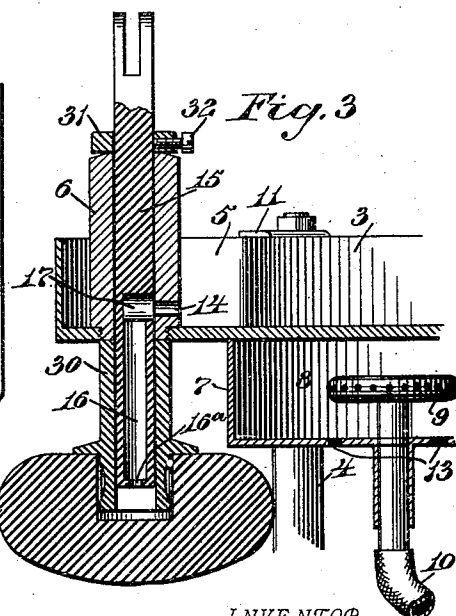
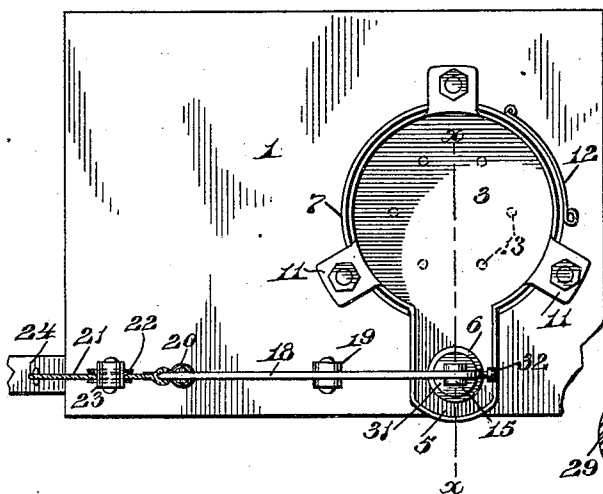


Fig. 2



WITNESSES

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MACHINE FOR ATTACHING KNOBS TO SHANKS.

SPECIFICATION forming part of Letters Patent No. 473,091, dated April 19, 1892.

Application filed September 11, 1891. Serial No. 405,382. (No model.)

To all whom it may concern:

Be it known that I, ISAAC I. SMITH, a citizen of the United States, residing at Setauket, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Machines for Attaching Knobs to Shanks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to produce a machine for rapidly and securely attaching porcelain and similar knobs to their shanks by means of lead, it being desirable to attach the knobs as rapidly as possible to fill the spaces between the knobs and the shanks full of lead, and to use no more than the actual amount of lead required in attaching each knob.

With these ends in view I have devised the simple and novel machine which I will now describe, referring by numbers to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the machine complete and in operative position; Fig. 2, a plan view thereof; and Fig. 3 is an enlarged sectional view on the line *xx* in Fig. 2.

1 denotes a suitable table, and 2 legs by which it is supported.

3 denotes the melting-pot, which is supported by standards 4, extending upward from the table. The melting-pot is provided on one side with an extension 5, having an opening through the bottom thereof, in which is rigidly secured an upwardly-extending tube 6. The melting-pot is preferably placed in an outer case or jacket 7, which is considerably deeper than the melting-pot itself, so as to form a heating-chamber 8 underneath the melting-pot. Heat may be applied to melt the lead and keep it in a molten condition in any suitable manner. I preferably use gas and place a burner 9 within the heating-chamber, to which gas is supplied by a pipe 10. The jacket of the melting-pot may be secured to the standards in any ordinary or preferred manner. I preferably provide both pot and jacket with ears 11, which are rigidly secured to and are supported by the standards.

12 denotes a door in the side of the jacket,

through which entrance may be had to the heating-chamber.

13 (see dotted lines Fig. 2) denotes openings in the bottom of the jacket for supplying air to promote combustion of the gas.

14 denotes an opening through the side of tube 6 near the bottom of the pot, which intersects the longitudinal opening, the latter being preferably made square and just the required size to receive an ordinary knob-spindle freely.

15 denotes a plunger adapted to slide freely in the opening in the tube. This plunger is provided with a longitudinal opening 16, which is contracted at the bottom, as at 16^a.

17 denotes a lateral opening in the plunger, which intersects with opening 16 and is adapted to register with opening 14 in tube 6. The plunger is operated by means of a lever 18, which has its fulcrum on a standard 19. A spring 20, one end of which is connected with the lever and the other to the table, acts to draw the rear end of the lever downward and consequently to raise the plunger. A cord or wire 21 extends from the rear end of the lever over a pulley 22 in a standard 23, and thence downward to a foot-lever 24, which is pivoted to a cross 25 or to any suitable portion of the machine.

26 denotes a plunger extending upward from the foot-lever 24 through a guide 27 and through the table. At the upper end of this plunger is a cup-shaped holder 28, which is made of suitable shape and size to receive the outer face of a knob.

29 denotes a knob, and 30 the shank, which is to be secured thereto by lead.

The operation is as follows: The operator places the knob in holder 28, with the opening upward, and places the shank in the opening, as clearly shown in Fig. 3. He then presses downward upon the foot-lever, which raises the plunger 26 and the holder upward until the end of the knob-shank rests against the under side of extension 5. As plunger 15 projects below the bottom of the extension, the operator of course places the knob-shank so that plunger 15 will register with the usual square opening therein. At the same time that plunger 26 raises the knob and its shank upward the rear end of lever 18 is raised by means of the cord or wire connected

to the foot-lever, which forces plunger 15 downward until opening 17 in the plunger registers with opening 14 in tube 6, which permits the molten lead to pass through openings 14 and 17 and down longitudinal opening 16 into the opening at the base of the knob-shank, the opening in the knob and the opening at the base of the shank being entirely filled with lead.

31 denotes a sliding collar on plunger 15, which is locked at any desired adjustment by a set-screw 32. This stop acts to limit the downward movement of plunger 15 and may be adjusted whenever required to regulate the downward movement of the plunger to correspond with different sizes and styles of knobs and shanks. In practice the operator quickly learns the length of time required to permit the necessary amount of lead to flow down into the shank. As soon as sufficient lead has flowed into the shank the operator removes his foot from the foot-lever and spring 20 will act instantly to draw down the rear end of lever 18, thus raising plunger 15 and cutting off the flow of lead and also lowering plunger 26. The operator then removes the finished knob and places another knob and shank in position in the manner already described, the operation being repeated so fast that cooling of the lead in the plunger does not take place, even should a little surplus lead be allowed to run in. Should too much lead be allowed to run into the plunger, it will be readily broken off, even though in a partially-cooled condition, by the contraction 16^a at the lower end of opening 16.

Having thus described my invention, I claim—

1. The combination, with the melting-pot and tube 6, leading therefrom and having an opening in its side, of a plunger within said tube, having a longitudinal opening and a lateral opening intersecting therewith, which receives molten metal from the pot, said longitudinal opening being contracted at its lower end, as and for the purpose set forth.

2. The melting-pot having an extension 5, with an opening through the bottom and a tube 6, extending upward therefrom, said tube having an opening in its side near the bottom of the pot, in combination with plunger 15,

having a longitudinal opening and a lateral opening intersecting therewith, and a plunger 26, having a holder by which a knob and shank are held in position under the extension.

3. The combination, with the melting-pot, tube 6, extending upward therefrom, and plunger 15 lying within the tube and provided with longitudinal and lateral openings, of jacket 7 outside the melting-pot, having openings 13, and suitable gas connections whereby a heating-chamber is formed within the jacket and under the melting-pot.

4. The combination, with standards 4 and the melting-pot and jacket having ears 11, by which they are connected with the standards, of tube 6, extending upward from the melting-pot and having an opening communicating therewith, plunger 15 within said tube, having longitudinal and lateral openings, and suitable gas connections within the jacket, substantially as described.

5. The combination, with the melting-pot, tube 6, extending upward from the melting-pot and having an opening connecting therewith, and the jacket, of plunger 15 within tube 6, plunger 26 for holding the knobs, lever 18, connected to plunger 15, foot-lever 24, a spring acting to draw the the outer end of lever 18 downward, and a cord extending upward from the outer end of lever 18 and connecting with the foot-lever, whereby plunger 15 is lowered and plunger 26 raised simultaneously, as and for the purpose set forth.

6. The melting-pot having an extension 5, with an opening in the bottom and a tube 6, extending upward therefrom, said tube having an opening 14, and a plunger within said tube, having a longitudinal opening, and a lateral opening intersecting with the opening in the tube, in combination with plunger 26, directly under tube 6 and having a cup-shaped holder 18, foot-lever 24, spring 20, and a cord extending upward from the rear end of lever 18 and connecting with the foot-lever.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC I. SMITH.

Witnesses:

MELVILL H. BRYANT,
ROSA B. SCHIRMER.