

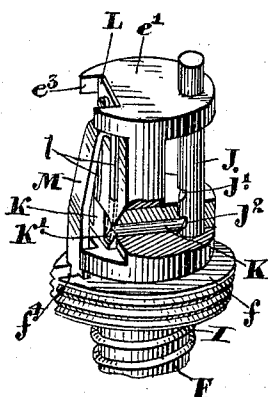
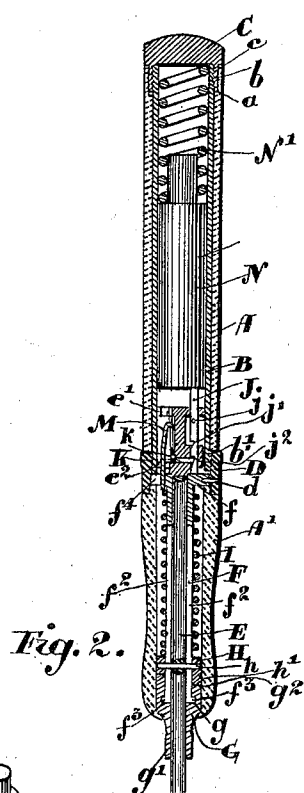
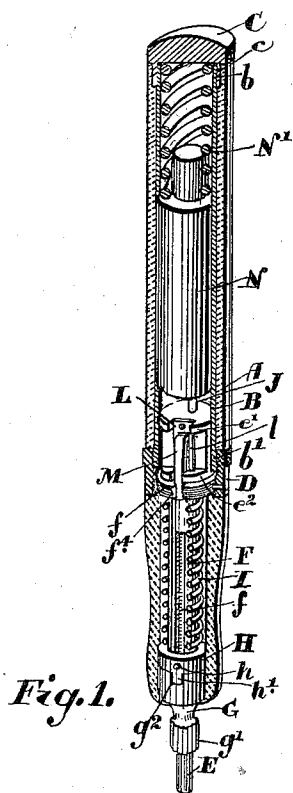
(No Model.)

R. H. BOOTY.

AUTOMATIC PLUGGER FOR FILLING TEETH.

No. 584,847.

Patented June 22, 1897.



Witnesses.

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Fig.3.

UNITED STATES PATENT OFFICE.

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AUTOMATIC PLUGGER FOR FILLING TEETH.

SPECIFICATION forming part of Letters Patent No. 584,847, dated June 22, 1897.

Application filed February 25, 1897. Serial No. 825,000. (No model.)

To all whom it may concern:

Be it known that I, ROBERT HENRY BOOTY, machinist, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Automatic Pluggers for Filling Teeth, of which the following is a specification.

My invention relates to improvements in automatic pluggers for filling teeth; and the object of the invention is to design a cheap, simple, effective, and positive direct-acting plugger and one in which the operating parts may be easily gotten at for repairing, if necessary; and it consists, essentially, of a suitable casing provided at the lower end with the operating plugger-rod, the upper end of which rod is enlarged and has supported in it a plunger with two ratchet-notches designed to be engaged by a spring-pressed pin, which is released by a pawl attached to a sleeve controlled by a spiral spring extending between the top flange of the sleeve and a collar connected by a pin through slots in the sleeve to the central rod, the release of the plunger being designed to permit of the spring-pressed hammer giving the desired blow to the plugger-rod when such rod is raised, the various parts being arranged and constructed in detail, as hereinafter more particularly explained.

Figure 1 is a sectional perspective view showing the various parts in operative position. Fig. 2 is a longitudinal section through the plugger at right angles to Fig. 1. Fig. 3 is a perspective detail, partially in section, of the top of the plugger-rod.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the outer upper portion of the casing, and B the inner cylindrical casing, which fits within the casing A and is exteriorly threaded at b at its upper end and at b' at the lower end.

a is an annular groove formed in the interior of the outer cylindrical casing A, and C is a cap which is provided with a downwardly-extending flange c , which is interiorly threaded, so that it may be screwed upon the exterior thread a in the top of the casing B.

D is a collar which is internally threaded

and is fitted onto the lower threaded end b' of the casing B.

E is the plugger-rod, which is hollow at the lower end, so as to permit of the holding of the instrument.

E' is an enlarged upper end provided with top guiding-flanges e' and bottom flanges e^2 .

F is a sleeve provided with an upper flange f , which is externally threaded and screwed into the collar D, in which it is held from rotation by the screw-pin d . The sleeve F is provided with diametrically opposite slots f^2 , extending to the bottom of the sleeve, which has an outwardly-turned flange f^3 . The flange f^3 fits within an annular groove g in the sleeve G, which is provided with a suitable knurl g' for turning it.

H is a collar which is slidably held on the sleeve F and is rigidly connected to the rod E by the pin h , which extends through the collar H and the slots f^2 in the sleeve F and the rod E. The collar H is provided with a projection h' , which fits into a corresponding recess g^2 in the top of the sleeve G.

I is a spiral spring encircling the sleeve F and extending between the flanged top f of such sleeve and the collar H.

J is the plunger, which extends through holes in the flanges e' and e^2 , and is provided with a cross-pin j to limit its upward movement and ratchet-notches j' and j^2 .

K is a pin having a dog-shaped end which is designed to engage with the ratchet-teeth j' and j^2 . The opposite end of the pin K has attached to it a plate k , which is beveled at its inner side, as indicated, and has lateral projections k' .

L is a double spring, the members l of which are designed to exert a pressure upon the lateral extensions k' of the plate k . The spring L is held in the notch e^3 in the top flange e' .

M is a dog provided with a hooked upper end which is designed to come in contact with the beveled inner side of the plate k . The lower end of the dog M is secured in the notch f^4 .

N is the hammer, which is substantially cylindrical in form, and N' is a spiral spring which is designed to press the hammer downwardly. The cap C, hereinbefore mentioned,

may be screwed up or down to any desired position, so as to vary the force of the blow of the hammer.

Having now described the principal parts involved in my invention, I shall briefly describe its operation.

Upon pressing down upon the rod E it ascends, carrying with it the collar II, which compresses the spring I. The rod E in ascending brings the beveled inner side of the plate *k* against the hooked end of the dog M, thereby withdrawing the pin K from engagement with the lower notch *j*² of the plunger J, which to this period has been holding the hammer N up against the pressure of the spring N'. Immediately upon the release of the pin K the spring-pressed hammer N follows the now released plunger J downwardly and strikes the top *e'* of the plugger-rod E, giving it a sharp blow. The notch *j'* of the plunger J, coming in contact with the spring-pressed pin K, serves to limit the downward movement of such plunger. Immediately the pressure is released from the bottom of the plugger-rod E the spring I forces the rod E downwardly, carrying with it the pin K, which becomes again engaged with the lower ratchet-notch *j*². The plunger J, coming against the top flange *f* of the sleeve F, is thereby held from moving any farther down, and consequently serves to again separate the hammer from the top E' of the plugger-rod E, thus restoring the parts to their normal position, when the operation above described is again repeated.

In order to vary the force of the blow, the plugger-rod E may be pushed up so as to remove the projection *h'* at the bottom of the collar II from the recess *g*² in the sleeve G, when the sleeve may be turned around so that the top of the projection *h'* rests on the top of the sleeve.

The supplemental tapered sleeve A' is provided at the lower end of the instrument, which sleeve has a reduced upper end. This upper end is threaded and screwed into a corresponding thread formed in the interior of the collar D. The sleeves A' and F are made of hard rubber, and it will thus be understood that the plugger is mostly incased in this material, rendering it more convenient and less tiresome to handle. The construction of the plugger in other respects is much lighter and smaller than those at present in use, and it may be more easily adjusted.

What I claim as my invention is—

1. In combination the plugger-rod, the collar connected thereto by a pin, the slotted sleeve having the upper end secured to the

case, the spiral spring on the sleeve, the plunger in the upper rod, means to release such plunger upon each upward movement of the plugger-rod and the spring-pressed hammer designed to impart a longitudinal movement to such rod as and for the purpose specified.

2. In combination the plugger-rod, the collar connected thereto by a pin, the slotted sleeve having the upper end secured to the case, the spiral spring on the sleeve, the plunger in the upper portion of the rod, notches in the plunger, spring-pressed pin designed to engage with the notches, means for withdrawing such pin from the notch in the plunger and the spring-pressed hammer designed to impart a longitudinal movement to such rod as and for the purpose specified.

3. In combination the plugger-rod, the collar connected thereto by a pin, the slotted sleeve having the upper end secured to the case, the spiral spring on the sleeve, the plunger in the upper portion of the rod, notches in the plunger, spring-pressed pin designed to engage with the notches, a beveled plate on the upper end of the pin, the spring-dog connected at the upper end of the slotted sleeve and having a hooked end designed to engage with the beveled plate on the spring-pressed pin and the spring-pressed hammer designed to impart a longitudinal movement to such rod as and for the purpose specified.

4. In combination the plugger-rod, the slotted sleeve having an upper flange, the lower sleeve with a knurl connected to the slotted sleeve, the collar surrounding the slotted sleeve and connected by a pin, extending through the slots in the sleeve, to the plugger-rod, the internal casing having a threaded lower end, the collar D screwed onto such casing and designed to hold the threaded flange at the top of the slotted sleeve, the plunger-rod, and means for releasing such plunger-rod, and the spring-pressed hammer in the upper portion of the casing as and for the purpose specified.

5. In combination the plugger-rod and means for operating the same, the collar secured to such rod and having a downward projection, a sleeve secured from longitudinal movement in the bottom end of the casing provided with a suitable knurl and a recess in the top of such sleeve to receive the projection of the collar attached to the plugger-rod as and for the purpose specified.

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Witnesses:

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