No. 676.053. Patented June 11, 1901.

M. SPORLEDER.

CHISEL.

(Application filed Dec. 24, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

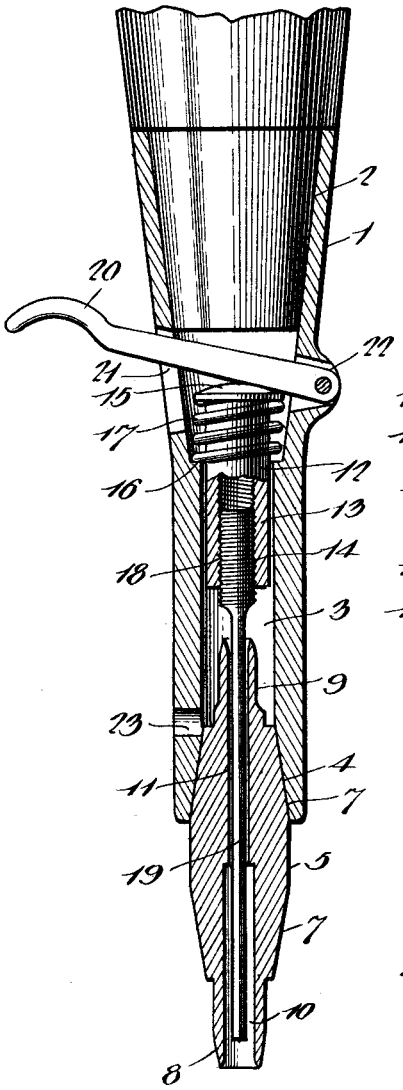


Fig. 3.

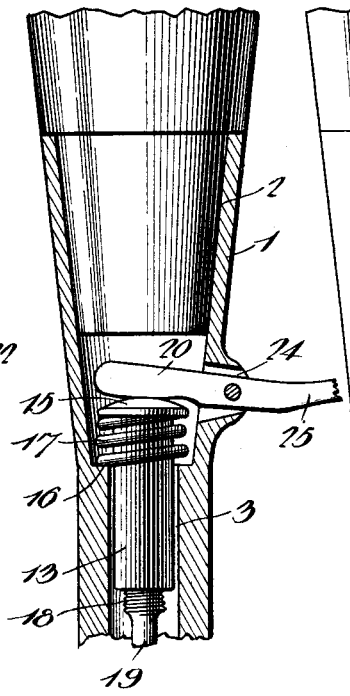


Fig. 2.

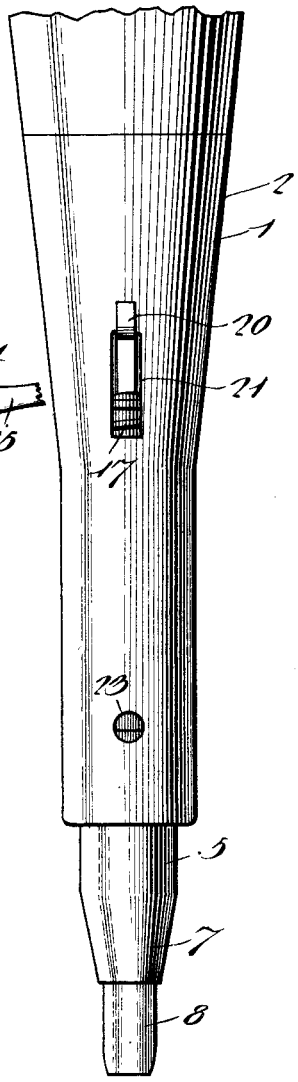
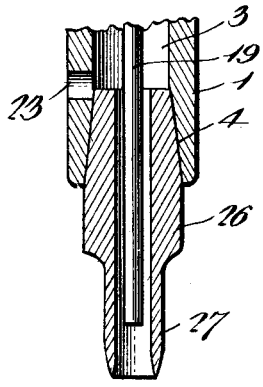


Fig. 4.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 5.

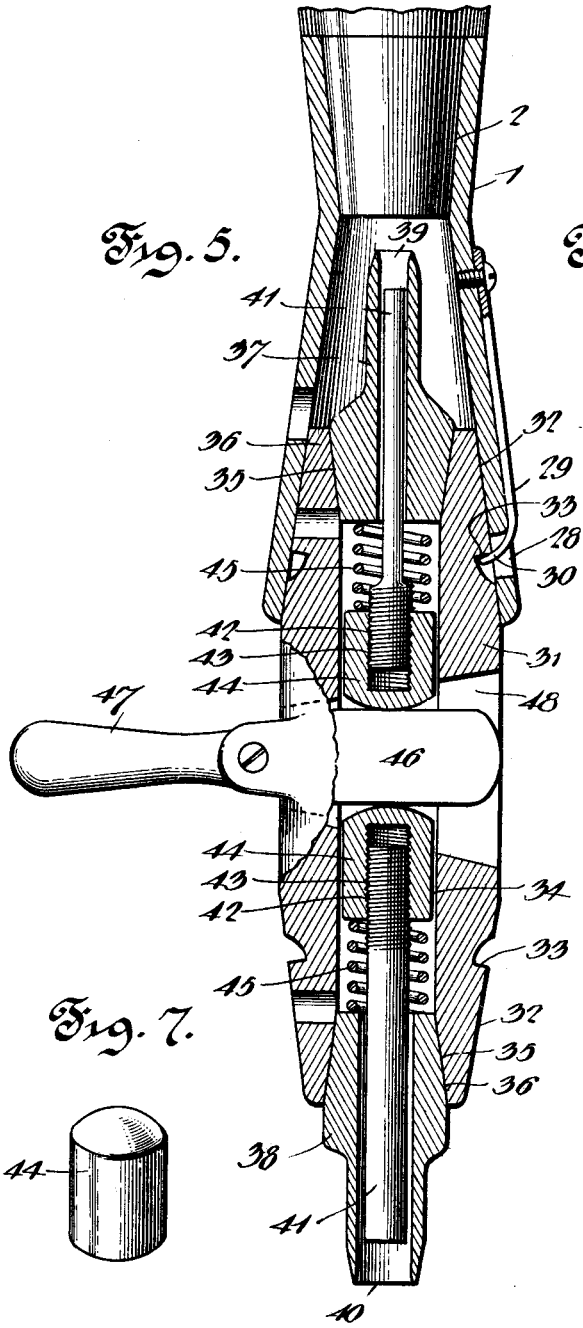

Fig. 6.

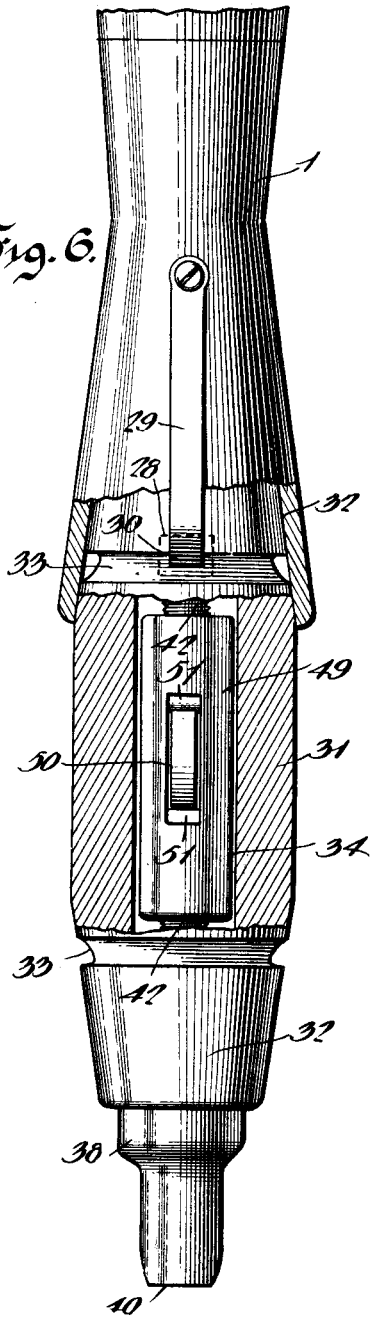

Fig. 7.

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(No Model.) 3 Sheets—Sheet 3.

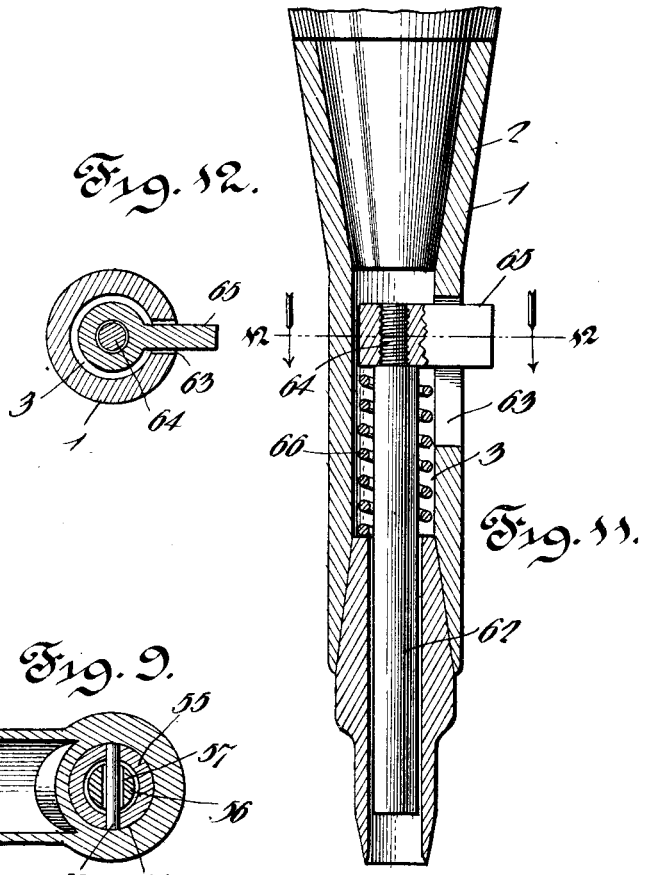

Fig. 11.

Fig. 12.

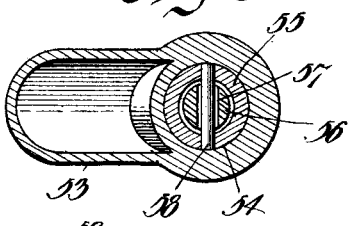

Fig. 9.

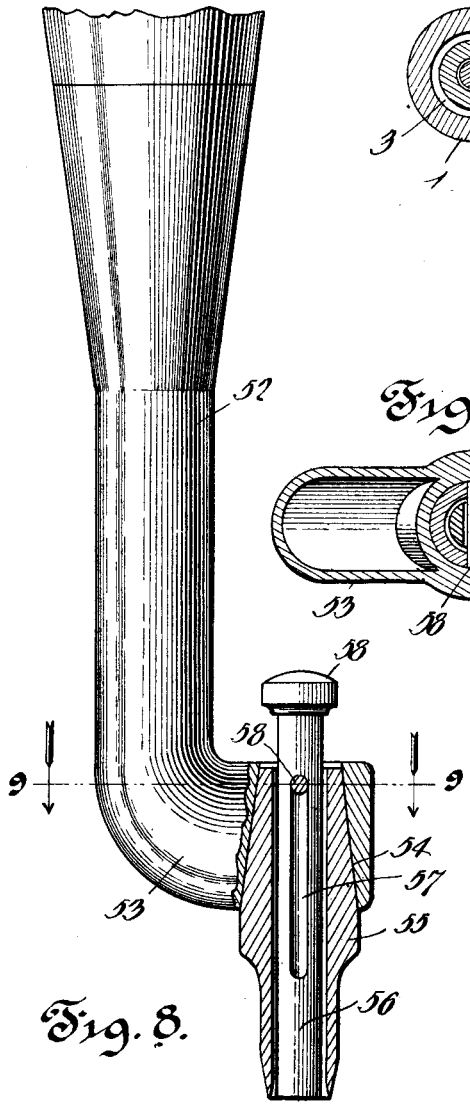

Fig. 8.

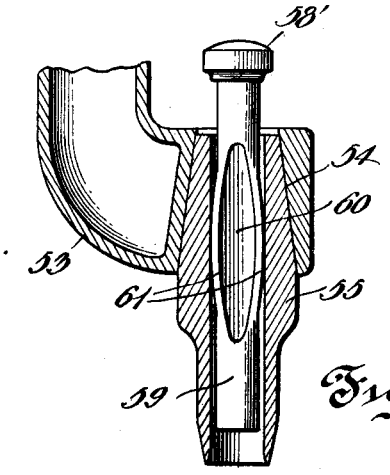

Fig. 10.

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UNITED STATES PATENT OFFICE.

MICHAEL SPORLEDER, OF COLORADO CITY, COLORADO, ASSIGNOR OF ONE-HALF TO THOMAS M. MAHON, OF SAME PLACE.

CHISEL.

SPECIFICATION forming part of Letters Patent No. 676,053, dated June 11, 1901.

Application filed December 24, 1900. Serial No. 40,967. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL SPORLEDER, a citizen of the United States, residing at Colorado City, in the county of El Paso and State of Colorado, have invented a new and useful Chisel, of which the following is a specification.

This invention relates to a plug-cutting chisel for use in general carpentry, car-building, and other work to which it may be applicable; and the object of the same is to provide a tool that will readily cut or form a recess to receive the head of a screw, nail, bolt, or the like and preserve the removed plug of wood intact in the tool or form it by a separate tool and reset it in the recess to make a flush fitting with the body or remaining portion of the material operated upon and fully cover and conceal the head of the screw, nail, bolt, or the like in a more durable and satisfactory manner than by the ordinary filling operation with putty or other similar substance.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a transverse vertical section of a tool or chisel and a portion of the handle therefor embodying the features of the invention. Fig. 2 is an elevation of the parts shown by Fig. 1. Fig. 3 is a transverse vertical section of a portion of the improved device, showing a slight modification. Fig. 4 is a transverse vertical section of the lower extremity of the improved device, showing a further modification wherein a single cutter is employed. Fig. 5 is a transverse vertical section of a further-modified form of the improved device, showing a double reversible construction. Fig. 6 is a sectional elevation of a device similar to that shown by Fig. 5 and embodying a further modification in the construction shown by the latter figure. Fig. 7 is a detail perspective view of one of the plunger pressure-heads used in the two forms shown by Figs. 5 and 6. Fig. 8 is a sectional elevation of a further-modified and simple form of the improved device embodying the same principle of operation. Fig. 9 is a horizontal section taken in the plane of the line 9 9, Fig. 8. Fig. 10 is a transverse vertical section of the form of the device shown by Fig. 8, showing a further modification. Fig. 11 is a transverse vertical section of the improved device, showing a still further modification. Fig. 12 is a horizontal section taken in the plane of the line 12 12, Fig. 11.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1, Figs. 1 and 2, designates a stock having an upper downwardly-converged socket 2 in which is fitted a chisel or other tooth handle. The precise form of the socket and the handle is not essential to the practical operation of the invention; but the forms shown are believed to be the simplest. The stock has a bore 3 extending therethrough and has its lower extremity flared outwardly to form an upwardly-converged seat 4, to frictionally receive a reversible cutter 5, having an intermediate body portion 6 of a diameter equal to the maximum diameter of the said seat, and from said body the cutter tapers toward opposite ends to provide opposite engaging portions 7 to fit into the said seat and capable of removal from the latter. At opposite extremities of the cutter are tubular cutting-terminals 8 and 9, the terminal 8 being larger in diameter than the terminal 9. The said terminals both have straight bores 10 and 11 extending therefrom and communicate at an intermediate point and provide an opening entirely through the cutter, the bore 10 having a diametrical extent approximately equal to the outside diameter of the terminal 9, so that a plug cut by the terminal 8 will snugly fit and fill a recess formed by the terminal 9. In the upper portion of the bore of the stock is a presser 12, having a cylindrical body 13, with a screw-socket 14 extending longitudinally thereof, and an upper convex head 15, forming a shoulder in relation to said body. Surrounding the body 13, between a shoulder 16 of the bore of the stock and the said head 15, is a spring 17, which operates to hold the presser at an elevated position in accordance with a preliminary adjustment and to always return said presser to its normal position when the latter is freed of applied force. In the socket

14 the upper enlarged screw-threaded end 18 of a plunger 19 is adjustably mounted and extends through the bores 10 and 11 of the cutter 5, the adjustment of the plunger being such that when a full downward stroke thereof has terminated the lower end will be in direct alinement with the surrounding cutting edge of either one of the tubular cutting-terminals 8 or 9 and in accordance with the arrangement of the said terminals in relation to the stock. A lever 20 extends transversely through suitable slots 21 and 22 in the stock, above the inner shoulder 16 of the latter, the said lever being fulcrumed at one end in the slot 22 and freely movable in the other slot 21. The lever 20 intermediately bears on the head 15 of the presser, and by exerting a downward force thereon the said presser and plunger carried thereby will be driven downwardly for expelling a plug against the action of the spring 17, and as soon as the lever is released the parts will be automatically returned to normal position. The stock is also formed with an aperture 23 to give access to the interior thereof for the insertion of a suitable implement to start the cutter in the event that it sticks, and the terminals 8 and 9 can be exteriorly shouldered, as shown, to control the depth of penetration of the same, the degree of penetration being changeable at will to suit different classes of work or in proportion to the general dimensions of the cutter as an entirety.

The modified form of the device shown by Fig. 3 is in all respects and details similar to the tool just described, except that only one slot 24 is formed in the upper portion of the stock and the operating-lever 25 is intermediately fulcrumed in said slot and has its inner extremity bearing on the head of the presser, so that the latter and the plunger connected thereto may be pressed downwardly by an upward pull on the lever.

The modification shown by Fig. 4 will have the same features in general of the forms heretofore set forth, except that the cutter 26 has a single tubular cutting-terminal 27, and illustrating the intent to also have a tool or chisel of the class described wherein one stock will be supplied with a plurality of cutters having cutting-terminals of different dimensions and one easily substituted for another in forming recesses having different sizes, the cutting-terminals of the several cutters being graded in accordance with a scale of measurement. The forms illustrated by Figs. 5 and 6 embody the same principle, that disclosed by Fig. 6 being a slight modification of the construction shown by Fig. 5. In this instance the stock 1 has an opening 28 therein near its lower end and has thereon a catch-spring 29, with an inwardly-deflected lower end 30 freely movable through the said opening; but in other respects the structure of the said stock is the same as that heretofore set forth, except that it is flared toward its lower end. In the said stock a reversible holder 31 is removably held and has opposite terminal-engaging portions 32, which are tapered correspondingly to and adapted to frictionally fit in the lower extremity of the stock, and as an additional means of securement and safeguard against accidental disengagement of the holder from the stock each tapered portion 32 is formed with shouldered recesses 33 to receive the inwardly-deflected lower end 30 of the catch-spring 29. The holder has a bore 34 extending longitudinally therethrough and formed with terminal flares 35 to frictionally receive the tapered head ends 36 of cutters 37 and 38, having tubular cutting-terminals 39 and 40, which have the same proportionate relation as to size as the cutting-terminals shown by Fig. 1 and for precisely the same purpose. The bores of the cutters extend completely therethrough, and in each cutter a plunger 41 is movably mounted and of a dimension proportionate thereto. The inner extremities of the plungers are formed with screw-threads 42 and adjustably fitted in screw-threaded sockets 43 of pressers 44, between which and the inner ends of the cutters springs 45 are located and surround the plungers in a free manner. It will be understood that the springs operate to retract the plungers to normal indrawn position in the holder, and the inner opposed ends of the pressers 44 are convexed and have projected between them and in contact therewith the broadened end or extremity 46 of an operating-lever 47, fulcrumed at one side of the holder and extended outwardly far enough to provide a convenient grip for operating the lever. The lever is operated by an upward pull to force either of the plungers downwardly into expelling position, and to accommodate the operation thereof the holder has a slot 48 formed therein, which is flared toward one side. As shown by Fig. 6, the recesses 33 are formed by circumferentially grooving the holder, so that an engagement with the catch-spring can be obtained at any circumferential point without requiring a precise disposition of the parts to accomplish this end. When it is desired to separate the engaged end of the holder, the catch-spring is drawn outwardly to release the lower deflected end thereof from the adjacent recess. The construction shown by Fig. 6 embodies a single form of presser 49 of elongated form, having the inner screw-threaded ends of the plungers adjustably attached to the opposite extremities thereof, and through a slot 50 in the said presser the lever, similar to the lever 47, extends and has operative contact with the upper and lower centrally-extending or curved end walls 51. The operation of this modified device is in all respects similar to that shown by Fig. 5.

Figs. 8 and 9 show a simplified form of a device embodying the same principle, and in this instance the stock 52 is of elongated form and has a lower terminal lateral deflection 53, having a seat-opening 54 vertically disposed therein and flaring toward its lower portion.

Removably mounted in the said seat is a cutter 55, similar to that shown by Fig. 5, and in said cutter a plunger 56 is loosely mounted and is provided with an elongated slot 57, through which extends a pin 58 to prevent separation of the plunger from the cutter, but permits free movement of the plunger downwardly to a complete operative position.

The upper end of the plunger is provided with a head 58 to receive the blow or impact of a hammer or other implement to dislodge the plug from the cutter-terminal. The form shown by Fig. 10 is similar to that shown by Figs. 8 and 9; but the plunger 59 is formed with an elongated elliptical slot 60 to provide laterally-projecting spring members 61 to frictionally bear on the bore of the cutter and prevent too loose movement of the plunger in the latter, but easily operated to perform its expelling operation by a blow or pressure delivered or applied to the head end thereof.

The form of the improved device shown by Figs. 11 and 12 embodies means of a modified nature for operating the plunger 62, the remaining parts being the same as those heretofore described, except that the stock is provided with an upper vertically-disposed slot 63. On the upper screw-threaded end 64 of the plunger a laterally-projecting head 65 is adjustably mounted and moves in and is extended through and beyond the outer margin of the slot 63, so that it can be struck or pressed downwardly against the action or resistance of a coiled spring 66, surrounding the plunger and interposed between the inner end of the cutter and the lower face of the head 65.

In all the forms of the device set forth the tubular cutting-terminals can be sharpened from the outside and inside, one mode being preferable in some constructions and the other mode in the remaining constructions. It will be obvious, however, that the operation of sharpening will be preferably carried on from the exterior or on the exterior surfaces of the tubular cutting-terminals, and the several forms of adjustment for the plungers are to compensate for the shortening of the tubular cutting extremities of the cutters and always maintain the same relation between the cutters and the plungers and to have the said plungers move through the cutters to such an extent as to fully expel the plug, particularly when returning the plugs to the recesses as fillings therefor.

The salient features and advantages derived from the present construction of device and its various modifications are that when the plug is cut by any one of the same it is compressed and can be retained in the cutter ready for resetting in the recess and accurately positioned in the latter by expelling the same regularly by means of the plunger to form a flush surface with the material in which the nail, screw, bolt, or the like has been placed and countersunk through the medium of the recess formed. Thus the grain of the wood can be better continued to receive a polish or finish on the exterior and have the points of introduction of the said fastening devices less apparent from the exterior and a more durable than putty or analogous filling material ordinarily used. Another advantage is that the recess may be formed by one tool and the plug cut from a separate piece of material of a similar nature by another tool of complementary dimensions to accurately fit in the said recess. Another advantage is the ease of removing and substituting different tools or of quickly bringing tools of different dimensions into operative position in the same stock to accommodate different sizes of fastening-heads embedded in the recesses formed. The comparative simplicity of the several devices is also essentially important, not only from a standpoint of economical manufacture, but also from the important consideration of expeditiously accomplishing the work. Instead of having the cutters frictionally engage the stock or holder terminals the correlative engaging surfaces may be formed with screw-threads, or other separable means of connection with a similar end in view may be adopted. In addition to the modifications fully disclosed further changes in the proportions, size, form, and minor details may be resorted to without departing from the principle of the invention.

In the use of the single cutter heretofore set forth in common work the recess for the plug is made by the nail-head when driven under the surface or can be made uniform by the nail set employed in countersinking the nail-head, and the cutter in this instance is adapted to form the plugs to fill the recesses where a number of nails are driven.

Having thus described the invention, what is claimed as new is—

1. The combination with a stock, of multiple cutters adapted to be mounted in changeable relation to the lower extremity of the stock for forming a recess adapted to have a removable plug compressed into one expelled therefrom into a recess made by the other, the outer surface of the cutting-terminal of the cutter being beveled, and a plunger wholly inclosed within the stock and movable through the cutters.

2. A chisel of the class described having a reversible cutter with tubular extremities of different diameters and adapted to have a plug cut by one of the latter compressed and retained therein, and a plunger movable through said tubular extremities for expelling said plug and causing it to fit a recess of a corresponding size formed by the other extremity of the cutter as a filling for the said recess.

3. A tool comprising a portable stock, tubular cutting devices mounted in changeable relation to one extremity thereof, and a single plunger carried by the stock for operation through either of the cutting devices, the cut-

ting ends of said devices having different diameters.

4. A tool comprising a stock, a reversible cutter having tubular cutting-terminals, and an adjustable plunger movable in the said terminals.

5. A tool comprising a portable stock, a holder reversibly mounted in said stock, tubular cutters removably mounted in the opposite extremities of the holder, and a single plunger to operate as an expelling means for both cutters.

6. A tool comprising a portable stock, a holder, reversibly mounted in said stock, tubular cutters removably mounted in the opposite extremities of the holder, the cutting-terminal of one cutter having an inside diameter equal to the outside diameter of the other, and a single plunger to operate as an expelling means for both cutters.

7. A tool comprising a stock, a tubular cutter mounted in said stock, an expelling device for coöperation with said cutter, and a presser to receive the operating pressure for the plunger to which the latter is adjustably connected, said expelling device and presser being within the stock.

8. A tool comprising a stock, a tubular cutter therein, a plunger movably mounted in relation to the cutter, a presser adjustably connected to the plunger, said plunger and presser being inclosed within the stock and a lever for engaging the presser.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MICHAEL SPORLEDER.

Witnesses:

CHAS. L. CUNNINGHAM,

E. ANTHONY BOTT.