(No Model.)

# D. G. URQUHART.

## PUNCHING AND CUTTING TOOL.

No. 524,473. Patented Aug. 14, 1894.

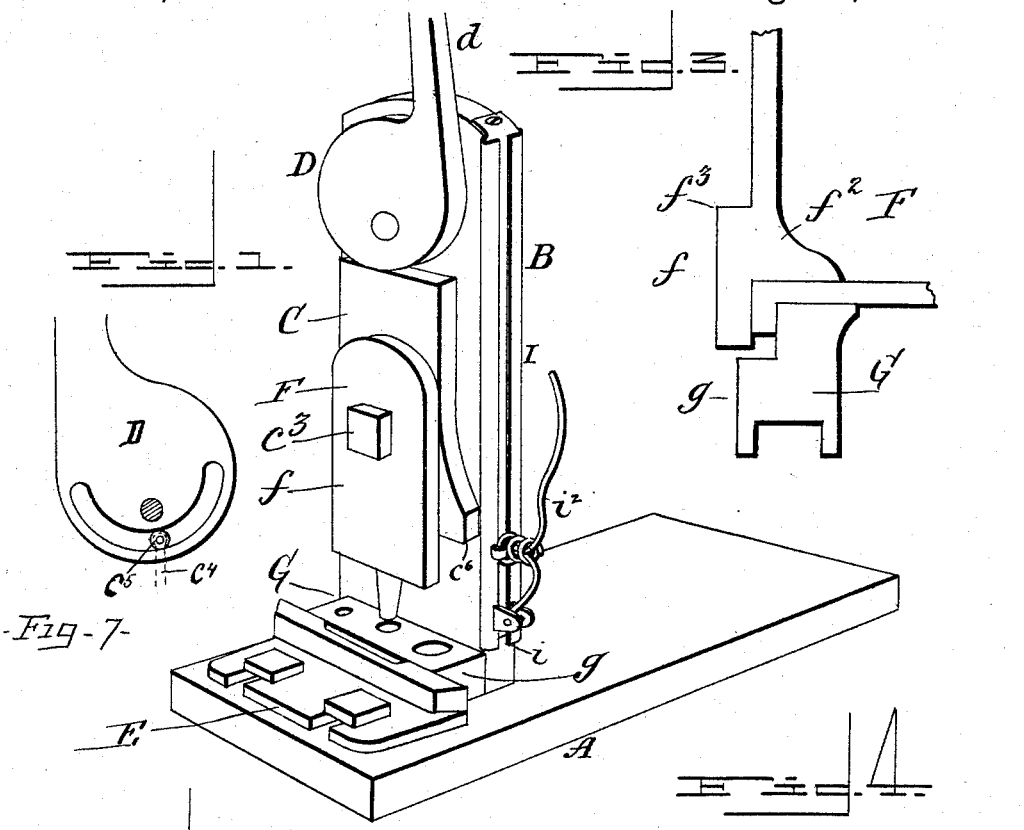
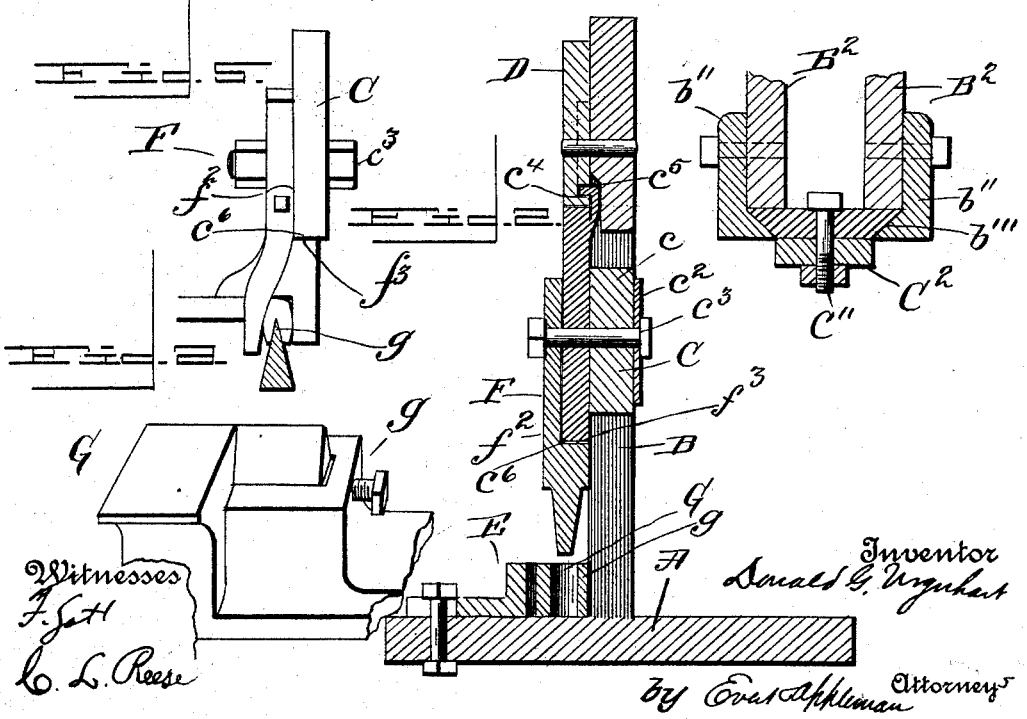



Fig. 7.



# UNITED STATES PATENT OFFICE.

DONALD G. URQUHART, OF HURON, SOUTH DAKOTA.

## PUNCHING AND CUTTING TOOL.

SPECIFICATION forming part of Letters Patent No. 524,473, dated August 14, 1894.

Application filed February 17, 1894. Serial No. 500,473. (No model.)

*To all whom it may concern:*

Be it known that I, DONALD G. URQUHART, a citizen of the United States of America, residing at Huron, in the county of Beadle and State of South Dakota, have invented certain new and useful Improvements in Vine Punching and Cutting Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and useful machine for steel plugging the calks of horse-shoes, shaping the heels, welding the toe calks, and plow lays, and punching and shearing, in which a series of interchangeable dies are employed.

The primary object is to provide an extremely simple and inexpensive construction in a machine of the class aforesaid, by which a maximum pressure may be obtained at a minimum expenditure of energy; furthermore, in combination with said machine a series of differential and interchangeable steel plugging, welding, shaping, punching and shearing dies which shall be capable of ready and convenient attachment to or detachment from the machine proper.

With these and other objects in view, various combinations and arrangements of parts are employed which will be hereinafter more fully set forth and specifically pointed out in the claims.

In describing the invention in detail reference is had to the drawings forming part of this specification and wherein like letters indicate corresponding parts in the several views, in which—

Figure 1. is a view in perspective of one form of machine arranged and constructed to embody my improvements. Fig. 2. is a vertical central sectional view of the same. Figs. 3, 5 and 6 are detail views of punching, cutting and shaping dies. Fig. 4, is a modified construction of the standards. Fig. 7, is a detail view showing the friction roller and semi-circular cam-way of the lever.

In the drawings:—A, denotes the base or bed-plate which may be attached to the work bench or otherwise suitably supported and B, is a vertical standard mounted on the base plate and slotted longitudinally to form guides or ways for the reception of a sliding head C. This head C is provided with a longitudinally extending and centrally located rib —*c*— which is adapted to enter the guide-slot or ways of the standard and is slidingly retained therein by a detachable back-plate —$c^2$— and securing bolt —$c^3$—. Immediately above and normally engaging this sliding head, a pressure disk —D— is eccentrically mounted on the standard and provided with an integral or fixed operating lever *d*, by which the disk may be rotated to force the head downwardly.

To dispense with springs now employed for retracting the head C after each stroke, I preferably form an approximately semi-circular cam-way on or in the inner face of the disk —D—, into which an angular arm —$c^4$— of the head projects. This arm if desired, may terminate in a suitable spindle to receive an antifriction roller —$c^5$—. Thus as the lever is depressed, the peripherical face of the disk normally engaging the sliding head forces the latter downwardly and on the up-stroke, the head will be elevated by reason of the connection between the angular arm of the sliding head and the cam-way above described.

On the base-plate adjacent to the lower end of the standard, is a die-clamp —E— which is adjustable length-wise of the base-plate or to and from the standard by a bolt and slot connection. This clamp may be of any well known construction and is adapted to receive the lower dies, —*g*— of each set, —F—G— (see Figs. 3 and 5).

Removably attached to one side of the standard and extending from the top to the point adjacent to the base thereof is a calk-magazine —I—, which is slotted longitudinally and provided near the lower end of the slot with a gate —*i*— controlled by a pivoted spring-formed lever —$i^2$— one end of which enters the slot below the pivotal pin where it is attached to the gate, which latter is adapted to support a column of heel-calks within the tube. Thus as the upper or longer end of the lever is depressed, the gate will be elevated or drawn out of the slot to allow for the passage of a single calk, after which the lever is released and the remaining calks thereby held suspended, as will be understood.

Referring to Figs. 3, and 5, —$f^2$— are the upper dies of the several sets shown. These dies are cut away to form shoulders —$f^3$— which, when the dies are in position, abut

against correspondingly formed shoulders —$c^6$— of the movable head —C—. The upper dies are secured to the head in any suitable manner but I prefer to use the bolt —$c^3$— which is passed through coincident openings of the die and head and secures these several parts rigidly together.

Referring to Fig. 4, a slightly modified construction is shown, which consists in bolting to the standard —$B^2$— guide strips —$b''$— so that the latter project beyond the front face of the standard and form in combination therewith a dove-tail longitudinally extending recess —$b'''$—. Into the recess thus formed is the sliding head —$C^2$— to which the upper dies of each pair may be secured by bolts C'' as above described.

It will be understood that various forms of dies may be employed in combination with the machine herein described, also that various changes may be made in the detail construction, without materially departing from the spirit of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the combination with a base, and a standard mounted on said base having vertically arranged guides, of a sliding head mounted in the guides and adapted for the attachment of a die, an eccentrically mounted disk connected with said head, an anti-friction roller, means for rotating the disk to raise and lower the head and a die clamp mounted on the base adjustable to and from said standard, as and for the purpose specified.

2. In a machine of the class described, the combination with a base and standard, said standard being guarded with vertically arranged guides, a detachable back plate securing the sliding head in position, a pressure disk eccentrically mounted on the standard provided with an operating lever, a semicircular cam-way on the inner face of the disk, an arm of the head projecting into said cam-way, as and for the purpose specified.

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

DONALD G. URQUHART.

Witnesses:
HENRY C. HINCKLEY,
GEORGE W. MALLETT.