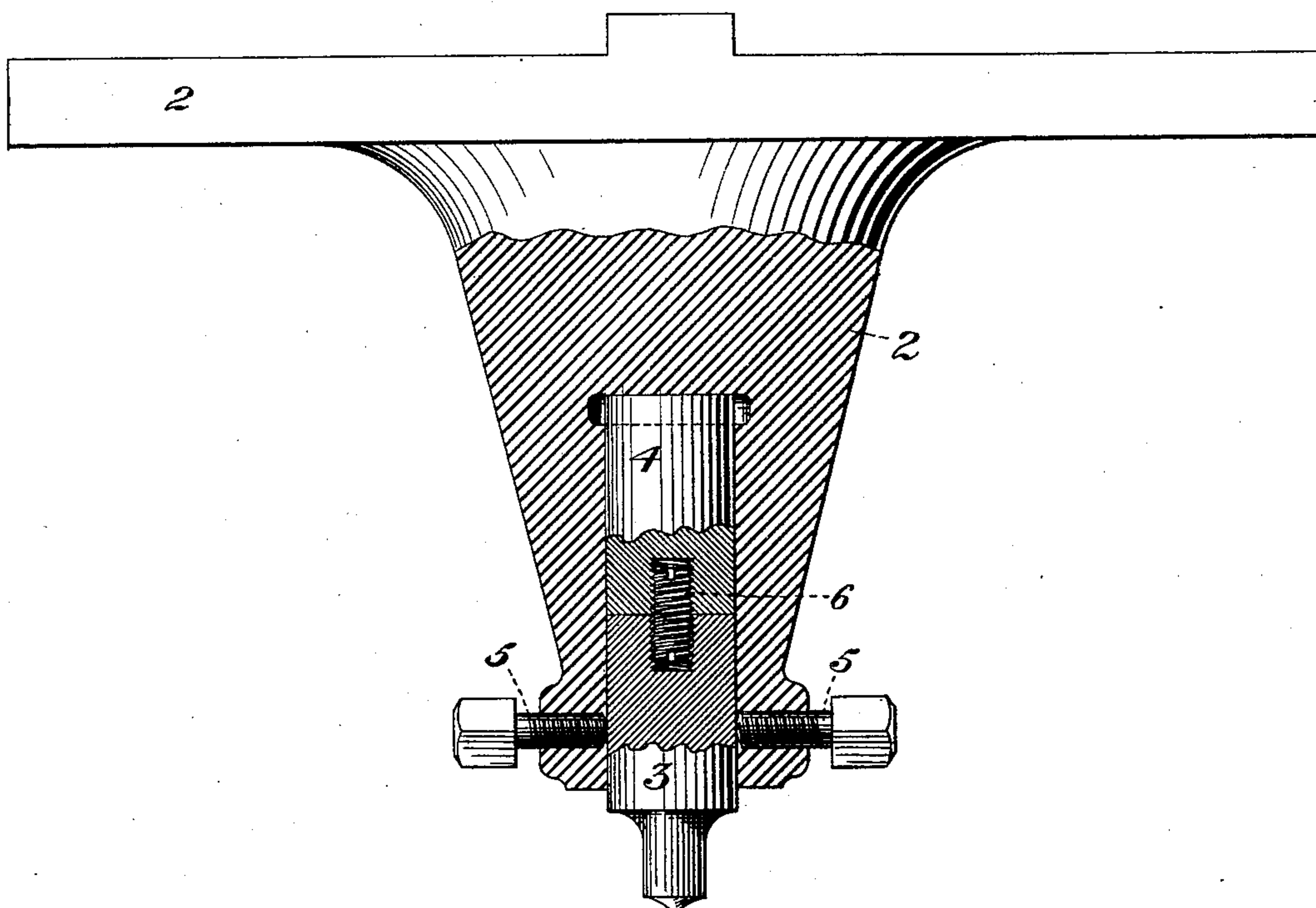


(No Model.)

G. B. TENNANT.  
PUNCH.

No. 434,738.

Patented Aug. 19, 1890.



WITNESSES.

*C. M. Clarke*  
*W. T. Corwin*

INVENTOR.

*George B. Tennant*  
*by W. Baxendell & Sons*  
*his Attorneys*

# UNITED STATES PATENT OFFICE.

GEORGE B. TENNANT, OF UNIONTOWN, PENNSYLVANIA.

## PUNCH.

SPECIFICATION forming part of Letters Patent No. 434,738, dated August 19, 1890.

Application filed November 23, 1889. Renewed July 24, 1890. Serial No. 359,733. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. TENNANT, of Uniontown, in the county of Fayette and State of Pennsylvania, have invented a new and useful Improvement in Punches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, which is a side elevation, partly in section, of my improved punch set in the holder.

The object of my invention is to improve the construction of punches such as are commonly used for punching metal by enabling the punches to be used for a longer time than has heretofore been possible. Punches of this class are composed of bars of steel, generally about six or eight inches long, adapted to be set in a holder at the end of the reciprocating plunger. The end of the bar is made of proper size and shape to do the work of punching, and by reason of the severe nature of such work the end of the punch soon wears out or breaks, and as this occurs it has heretofore been necessary to discard the punch as useless and to replace it in the holder with a new one. This is entirely prevented by my invention, which enables the punch, when worn, to be dressed and reshaped and to be used until nearly its entire length by repeated wear and reshaping has been reduced.

Referring to the drawing, 2 represents the punch-holder having the usual punch-cavity.

3 is the punch, which may be made of the usual shape, except that at the rear end it is provided with a screw-threaded socket for the reception of a screw-plug, hereinafter described. When the end of the punch wears out or breaks, it is dressed and turned again into proper shape, and to compensate for the reduction in length I attach to it a packing-piece 4, which is of the same cross-section as the punch, so as to be capable of fitting neatly in the holder, and which is of such length that, together with the remaining part of the punch, it shall be of the original length of the latter. I prefer to secure this packing-

piece to the punch by means of a screw-plug 6, which is fitted in the threaded socket in the end of the punch and in a correspondingly-threaded socket in the packing-piece. The punch and packing-piece thus united are placed in the cavity of the holder, and are therein confined by means of the usual set-screws 5. At each redressing of the punch the packing-piece may be replaced by one somewhat longer, so that the total length of the conjoined punch and packing-piece shall be constant, and that the rear end of the latter may have a solid bearing at the end of the holder-cavity, though within certain limits the same end may be obtained by interposing small blocks between the end of the packing-piece and the end of the cavity. The punch may thus continue to be used for a considerable time after it has so worn that the set-screw shall no longer engage the punch proper, but the packing-piece back of the punch. When the punch is thus held, the screw connection between the packing-piece and punch is sufficient to strip the punch from the metal on the back-stroke of the machine-plunger.

Other modifications in form and construction of my improvement may be made by the skilled mechanic without departing from the principles of my invention.

What I claim is—

1. The combination, with the punch, of a packing-piece removably secured to the end thereof, substantially as and for the purposes described.

2. The combination, with the punch, of a packing-piece removably secured to the end thereof by a screw-plug, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 6th day of November, A. D. 1889.

GEORGE B. TENNANT.

Witnesses:

W. B. CORWIN,  
THOMAS W. BAKEWELL.