Feb. 19, 1924. 1,484,114

W. T. DEE

PUNCH

Filed Feb. 27, 1923

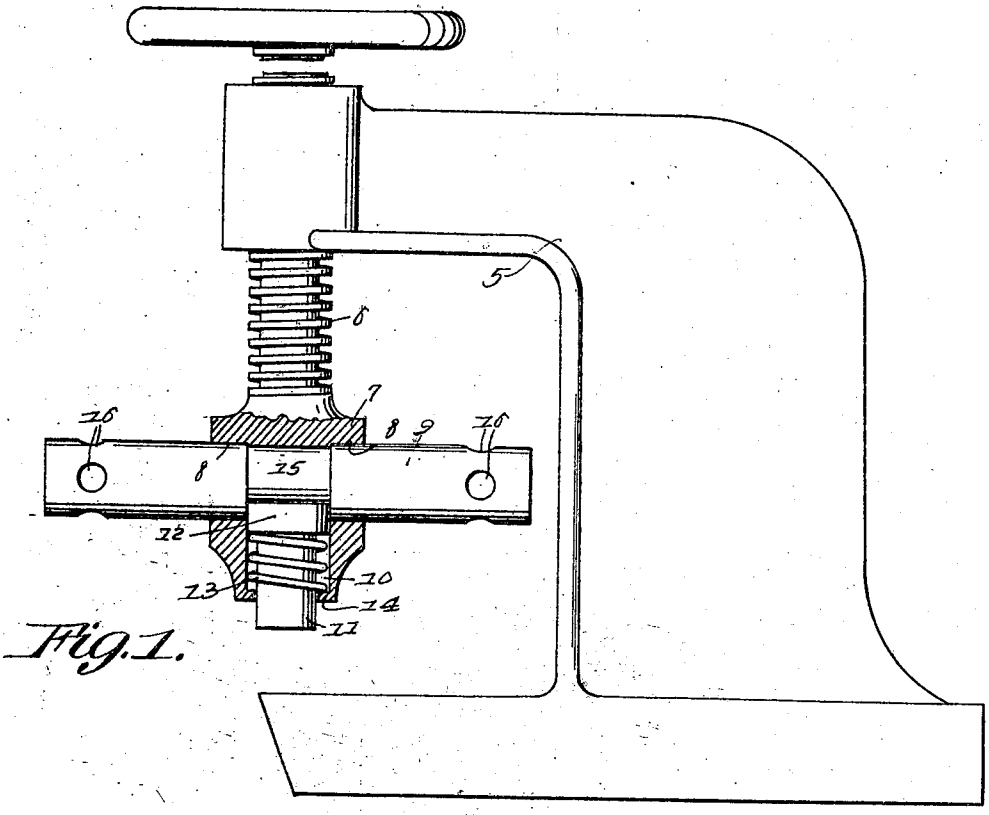


Fig. 1.

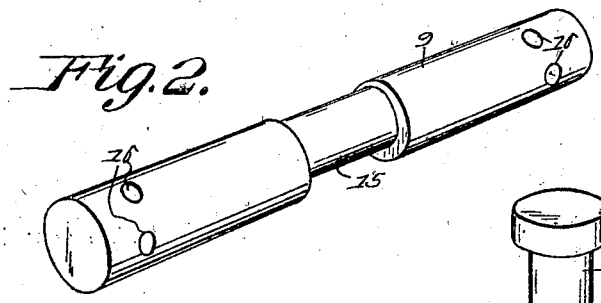


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM T. DEE, OF MECCA, INDIANA.

PUNCH.

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To all whom it may concern:

Be it known that I, WILLIAM T. DEE, a citizen of the United States of America, and resident of Mecca, in the county of Parke and State of Indiana, have invented certain new and useful Improvements in Punches, of which the following is a specification.

This invention relates to punches, and particularly to a punch intended for use in forcing gears from axles, or for the application or removal of bushings and the like.

It is an object of this invention to produce a punch having a head which is preferably carried by a screw that is threaded in an arm of a frame, the said head having a punching element or tool mounted to reciprocate therein, with novel means carried by the head for imparting motion to the punch independently of the movement of the screw in order that the screw may be utilized for moving the punching tool into contact with the element to be moved and the auxiliary punch actuating means may be employed for exerting greater force on the punch than is possible to be produced by the use of the screw alone.

It is a further object of this invention to produce an auxiliary power applying device which will withstand the wear incident to its use and to which a relatively great amount of force or power can be applied for operating the punch.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this application wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a view in elevation of a punch embodying the invention, the same being partly in section;

Figure 2 illustrates a perspective view of the auxiliary power applying element; and

Figure 3 illustrates a perspective view of the punching tool.

In these drawings, 5 denotes a frame which is conventionally shown, the details of construction thereof being immaterial, except that it is preferably provided with a punch head carrying element 6 and movable with relation to the frame, the said head being identified by the numeral 7.

In the present embodiment of the invention, the head has a transversely disposed aperture 8 in which a shaft-like element 9 is rotatably mounted, and the head has a recess 10 in its end which intersects the transversely disposed aperture in which the punching tool 11 may reciprocate, the said punching tool having a head 12 that is engaged by a spring 13 encircling the shank of the punching tool. The spring is operative to hold the punching tool normally elevated as the said spring bears against the shoulder 14 formed at the lower end of the head.

Between the ends of the shaft a cam or eccentric 15 is formed, and the head of the punching tool engages this portion of the shaft in order that when the shaft is turned, it will impart motion to the punching tool.

The shaft has a plurality of transversely disposed apertures 16 preferably near each end that will receive bars or the like for imparting rotary motion to the shaft in order that the cam or eccentric, when it is rotated from the position in which it is shown in Fig. 1, will serve to force the punching tool outwardly independently of the motion of the head or the element by which the head is moved toward the work.

It has been found in practice that unusual power is developed through the rotation of the shaft, and that the arrangement of parts facilitates the operations resulting in the movement of gears with relation to axles, or the movement of bushings in their application or removal.

In the introductory paragraph it is stated that the head is preferably carried by a screw, but in this regard it is to be understood that any means may be employed for the initial movement of the head toward and away from the work to carry the head into position where the auxiliary punch actuating means will become operative.

I claim:

1. In a punch, a frame, a punch head having a recess in its ends and a transversely disposed aperture intersecting the recess, means for moving the head, a shaft rotatably mounted in the transversely disposed aperture, a cam on the shaft at the intersection of the recess, and a punching tool in the said

recess bearing against the cam for receiving motion from the cam when the shaft is rotated.

2. In a punch, a frame, a punch head having a recess in its ends and a transversely disposed aperture intersecting the recess, means for moving the head, a shaft rotatably mounted in the transversely disposed aperture, a cam on the shaft at the intersection of the recess, a punching tool in the said recess bearing against the cam for receiving motion from the cam when the shaft is rotated, and means for holding the punching tool in engagement with the cam.

3. In a punch, a frame, a punch head having a recess in its ends and a transversely disposed aperture intersecting the recess, means for moving the head, a shaft rotatably mounted in the transversely disposed aperture, a cam on the shaft at the intersection of the recess, a punching tool in the said recess having a head bearing against the cam for receiving motion from the cam when the shaft is rotated, a shoulder on the punch head projecting into the recess, and a spring encircling the punching tool between the said shoulder and its head for urging the head of the punching tool into engagement with the cam.

WILLIAM T. DEE.