Sept. 11, 1923. 1,467,637

R. M. HATCH

PUNCH

Filed May 2, 1922

Fig. 1.

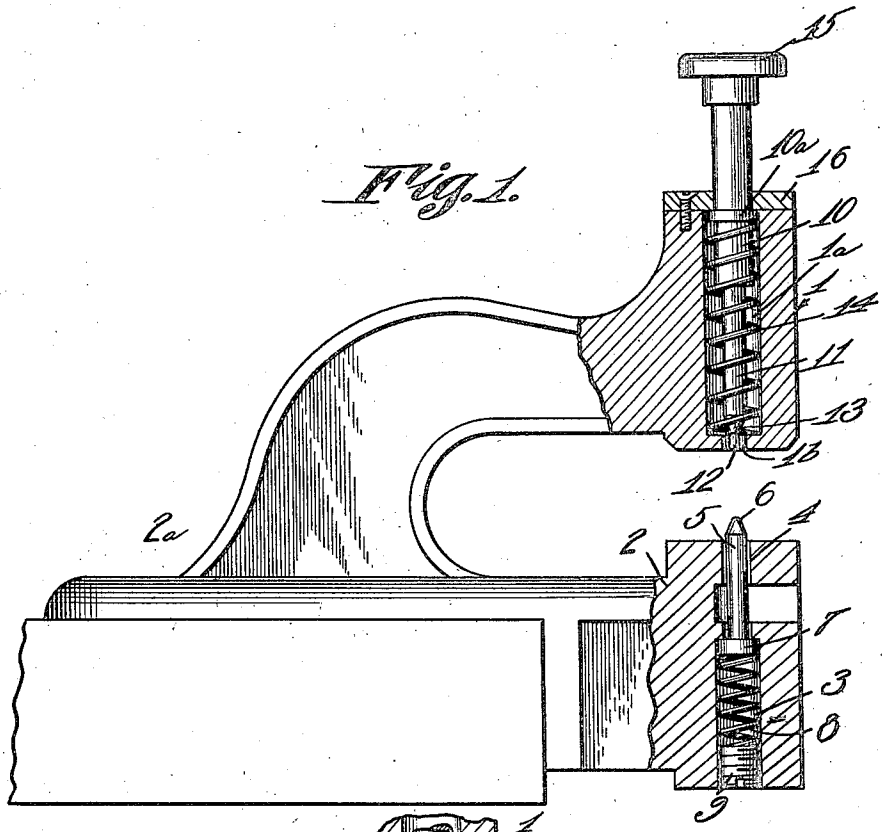
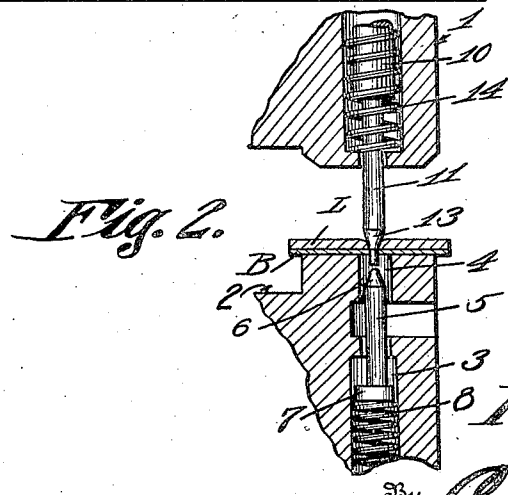


Fig. 2.



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UNITED STATES PATENT OFFICE.

RAYMOND M. HATCH, OF TRUMANSBURG, NEW YORK.

PUNCH.

Application filed May 2, 1922. Serial No. 557,336.

To all whom it may concern:

Be it known that I, RAYMOND M. HATCH, a citizen of the United States, residing at Trumansburg, in the county of Tompkins and State of New York, have invented a new and useful Punch, of which the following is a specification.

This invention relates to punches, and more particularly to punches for making holes in brake band liners, the object of the invention being to so construct a punch of this character that the holes in the brake band liner may be quickly and cleanly formed, without any ragged edges.

Another object is to so construct a tool of this character that the brake band to which the liner is to be applied operates as a fixed die cooperating with a movable punch die to form a clean cut opening in the liner.

Another object is to so construct a movable punch die that the outer end of the hole formed thereby will be flared to provide a counter-sink for a rivet head.

Another object is to provide a tool of this character equipped with a punch for locating the holes in the brake band and to hold it in position directly beneath the main punch so that when a blow is struck on the main punch, it will cooperate with the walls of the opening in the band to cut a hole in the liner.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a side elevation partly in section, of a punch constructed in accordance with this invention with the dies or punching elements shown in normal inoperative position, and

Fig. 2 is a detail sectional view showing the punch in the act of forming an opening in the liner.

In the embodiment illustrated, the punch constituting this invention is shown equipped with two vertically spaced fixed jaws 1 and 2 carried by a suitable base 2^a, which is designed to be mounted on any suitable support. The lower jaw 2 has a socket or bore 3 opening through the lower end thereof and closed by a threaded closure 9 between which and the head 7 of a movable punch or die 5 is mounted a coiled spring 8 which operates to project said punch. The punch or die 5 is mounted in a reduced extension 4 of the bore or socket 3. The outer projecting end of the punch 5 is tapered as shown at 6 and is designed to locate the opening in the brake band B in connection with which the device is to be used.

The fixed upper jaw 1 of the punch has a bore 1^a extending therethrough in register with the socket or bore of the lower jaw with its lower end reduced as shown at 1^b. Mounted to reciprocate in said bore 1^a is a plunger 10 having a reduced extension 11 provided at its lower end with a punch 12 having a substantially truncated cone-shaped base 13 for a purpose presently to be described. A coiled spring 14 is mounted on the plunger and operates to normally retract said plunger into position shown in Fig. 1. A head 15 is carried by the upper end of the plunger, and is designed to be struck by a hammer to cause the punch to be lowered against the tension of spring 14 and to cut through the brake band liner L in connection with which it is to be used.

A removable cover 16 is arranged over the upper end of the bore 1^a and forms an abutment for a collar 10^a carried by the plunger which limits the outward or upward movement of the plunger.

The punch 5 may be termed the pilot or locating punch, since it is designed to locate one of the openings in the brake band B and to hold the band in proper position for the walls of the opening to operate as a die while a hole is being punched in the liner L by the cutting punch 12 which is accomplished by striking a blow on the head 15 of the plunger carrying this punch.

From the above description it will be obvious that there is no die used in connection with the machine except that formed by the opening in the brake band which is to be lined, and the gist if the invention resides in using this band as a die and employing in connection therewith, the pilot or locating punch 5 for setting the band.

After a hole has been punched in the liner in the manner above set forth, the band is

moved until another hole therein is located by the pilot 5 and positioned directly under the main punch 12 and another hole is formed in the lining by a stroke of a hammer on the plunger head 15. This operation is repeated until the proper number of holes are made in the lining, when the rivets which connect it to the band are inserted through the registering openings in the liner and the band and riveted down or headed the heads on the liner face thereof being counter sunk in the flared openings formed by the cone-shaped portion 13 of the punch 12.

It will be obvious that the use of this punch in the manner above set forth employing the brake band as a die will permit clean cut rivet holes in the liner which exactly match those in the brake band. It is obvious that when the main punch 12 is driven under the stroke of the hammer on the plunger head, the locating or pilot punch 5 will drop back out of the way of the main punch against the tension of its spring 8 so that when the main punch is retracted the pilot punch will be again projected by said spring.

While a hammer is described for imparting the stroke to the punch 12, obviously, any other means may be employed in doing this.

I claim:

1. A punch of the class described comprising a pair of vertically spaced jaws each having a bore extending therethrough, the bore in one registering with that in the other, a spring projected locating punch mounted in one of said bores and a spring retracted cutting punch in the other bore.

2. A punch of the class described comprising a pair of vertically spaced fixed jaws, each having a bore extending therethrough, the bore in one registering with that of the other, a spring projected locating punch mounted in one of said bores and a spring retracted cutting punch in the other bore, in combination with an apertured brake band adapted to be mounted on said locating punch and to cooperate with said cutting punch for forming holes in the object to be cut thereby.

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

RAYMOND M. HATCH.

Witnesses:

A. S. WILLIAMS,

P. F. SEARS.