No. 840,761. PATENTED JAN. 8, 1907.

H. K. FORBIS.

POWER PRESS.

APPLICATION FILED MAY 10, 1906.

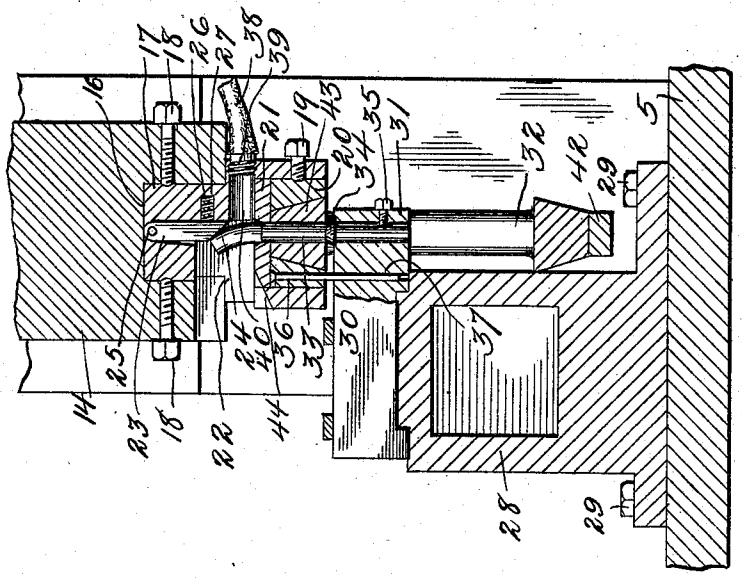

Fig. 2.

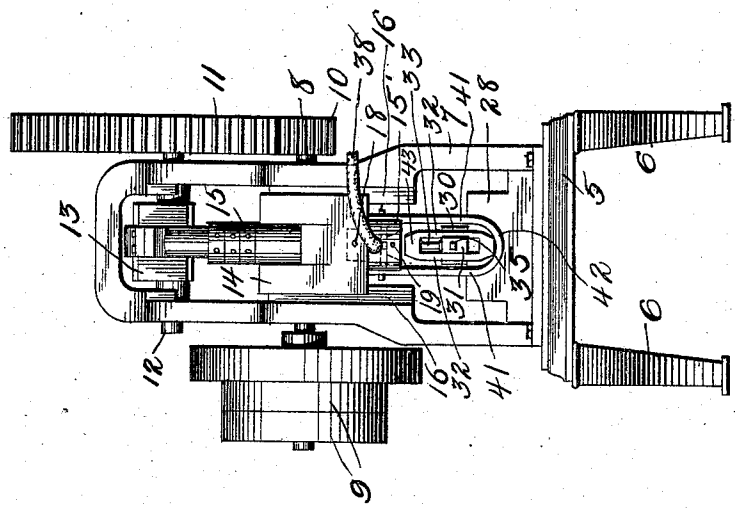

Fig. 1.

Witnesses

Carl Stoughton

Frank G. Campbell

Inventor

Herbert K. Forbis

By Shepherd & Parker

Attorneys

UNITED STATES PATENT OFFICE.

HARBERT K. FORBIS, OF COLUMBUS, OHIO.

POWER-PRESS.

No. 840,761. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed May 10, 1906. Serial No. 316,079.

To all whom it may concern:

Be it known that I, HARBERT K. FORBIS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Power-Presses, of which the following is a specification.

My invention relates to a power-press particularly adapted for use in the manufacture of turnbuckles.

The press forming the subject-matter of the present invention is designed to punch holes through the heads of turnbuckles, while at the same time completing the formation of said head.

A further object of the invention is the provision of improved means for ejecting the plugs which have been forced from the heads of the turnbuckles from the machine.

A further object of the invention is the provision of a stripper mechanism for removing the turnbuckles from the punch after the operation of punching a hole through the head of the turnbuckle has been completed.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a front elevation of an ordinary power-press having the improvements comprising the present invention applied thereto, and Fig. 2 is a partial vertical section through said press upon an enlarged scale.

Like numerals designate corresponding parts in both of the figures of the drawings.

Referring to the drawings, the numeral 5 designates the base of the press. This base is preferably mounted upon legs 6. A frame 7 is supported upon the base, and mounted in this frame is a shaft 8. This shaft carries at one end pulleys 9 and at the other end a pinion 10. This pinion meshes with a gear-wheel 11, which is fast upon a shaft 12. A crank 13 is adapted to impart reciprocatory movement to a head 14 through the medium of a connecting-rod 15 said head slidably engaging ways 16, formed upon the frame 7.

The parts so far described are all of the usual and well-known construction in power-presses and form no part of the present invention except in so far as they enter into the combination of elements which unitedly serve the purposes sought.

The head 14 is reduced, as at 15′, and is cut out, as at 16, for the reception of a die-head 17, said die-head being held in position by set-screws 18. Secured in the die-head 16 by a set-screw 19 is a crowning-die 20, while held in position in said head by said crowning-die is the die proper, 21. The reduced portion 15′ of the head 14 and the die-head are cut out, as at 22, for a purpose which will be hereinafter set forth.

A bar 23, which has its lower end beveled, as at 24, is pivoted, as at 25, in the die-head 17. A spring 26, which is located in the recessed portion 27 of the die-head, bears against this bar and tends to force it to the left in Fig. 2. A block 28 is secured by bolts 29 to the base 5. Secured to this block is a punch-support 30, the end of which is reduced, as at 31, to such size that said reduced end may enter between the side bars 32 of a turnbuckle. A punch 33 is provided with a flange 34, which rests upon the upper surface of the punch-support 30, and said punch is secured in said punch-support by a set-screw 35. An elongated pin 36 is carried by the crowning-die 20 and travels in an opening 37, formed in the punch-support, by virtue of which construction the crowning-die is always held in proper alinement with the punch. A water-supply hose 38 conducts water to a nipple 39, which communicates with an opening 40, formed through the die-head just above the die proper, 21. The arms 41 of a U-shaped yoke 42 are secured to the sides of the die-head, said yoke forming a stripping mechanism, as will be hereinafter described.

The operation of the device is as follows: It will be understood that when power is applied to the pulleys 9 reciprocatory motion will be imparted to the head 14 in the usual manner of power-presses of this character. It will also be understood that this will serve to impart reciprocatory motion to the die-head and to the stripping mechanism carried thereby. One end or one head of the turnbuckle having been heated to a white heat in a furnace, a workman grasps said turnbuckle with a proper tool and places it in the position illustrated in Fig. 1, with the side bars of the turnbuckle lying upon each side of the reduced portion 31 of the punch-support and with the punch resting against the under face of the heated head 43. As the die-head carried by the head 14 travels down, the die engages the head of the turnbuckle and forces said turnbuckle bodily downward. This forces the punch 33 through the head of the

turnbuckle and forms a hole therein. The plug of metal which is thus forced out of the head 43 contacts with the beveled end 24 of the bar 23 and is caused to fall over and down an inclined face 44, formed by cutting away the die 21 and the die-head.

It will be understood that it is necessary to provide some means of preventing the dies from becoming overheated, which would cause them to lose their temper. For this reason water is fed through the pipe 38 in a constant stream upon said dies. After the plug of metal has been forced from the head of the turnbuckle the plunger starts upon its upward movement. The lower portion of the yoke 42, which rests beneath the turnbuckle, then catches said turnbuckle and forces it upward until it is free of the punch, when it may be removed by the workman. After the turnbuckle is cooled the opposite end or head thereof is heated, and the above-described operation is repeated.

It will be readily understood that the present invention results in the saving of time and labor. Heretofore it has been necessary, owing to the peculiar formation of the turnbuckle, to drill these holes through the heads of said turnbuckles. By the present method this operation is performed at an exceedingly rapid rate. A machine embodying the present improvements is in actual use at this time and satisfactorily performs this operation of punching these holes in the turnbuckles.

While the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim is—

1. In a machine for perforating turnbuckles, a punch adapted to enter between the side bars of a turnbuckle, a reciprocatory die coacting with said punch, and a stripping mechanism for stripping the turnbuckles from said punch.

2. In a machine for perforating turnbuckles, the combination with a reciprocatory head, of a die carried by said head, a fixed punch adapted to enter between the side bars of a turnbuckle, and a stripping mechanism carried by said reciprocatory head.

3. In a machine of the character described, the combination with a reciprocatory die-head, of a fixed punch-support having a reduced portion which is adapted to enter between the side bars of a turnbuckle, a punch carried by said reduced portion, a die carried by said reciprocatory head, and a stripper mechanism for stripping the turnbuckle from the punch.

4. In a machine for perforating turnbuckles, the combination with a reciprocatory head, of a die carried in said head, a punch adapted to enter between the side bars of a turnbuckle, and an ejecting mechanism located in said head above the die.

5. In a machine for perforating turnbuckles, the combination with a reciprocatory head, of a die carried by said head, a stripping mechanism carried by said head, and a fixed punch lying directly beneath said die, said punch being adapted to enter between the side bars of a turnbuckle.

6. In a machine for perforating turnbuckles, a reciprocatory head, a fixed punch adapted to enter between the side bars of a turnbuckle, a die carried by said reciprocatory head and coacting with said punch, and a yielding bar having its lower end beveled and located in said head above the die.

7. In a machine for perforating turnbuckles, a reciprocatory head, a die carried by said head, and a punch coacting with said die and adapted to enter between the side bars of a turnbuckle, said head being cut away as and for the purposes set forth.

8. In a device of the character set forth, the combination with a reciprocatory head, of a die carried by said head, a fixed punch, and a U-shaped yoke carried by the reciprocatory head, the arms of said yoke lying upon each side of said punch and the lower portion of said yoke lying directly beneath said punch.

9. In a machine for perforating turnbuckles, the combination with a punch adapted to enter between the side bars of the turnbuckle, of a die, and a reciprocatory stripper mechanism for stripping a turnbuckle from said punch.

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

HARBERT K. FORBIS.

Witnesses:
FRANK G. CAMPBELL,
A. L. PHELPS.