

W. A. WHITNEY.

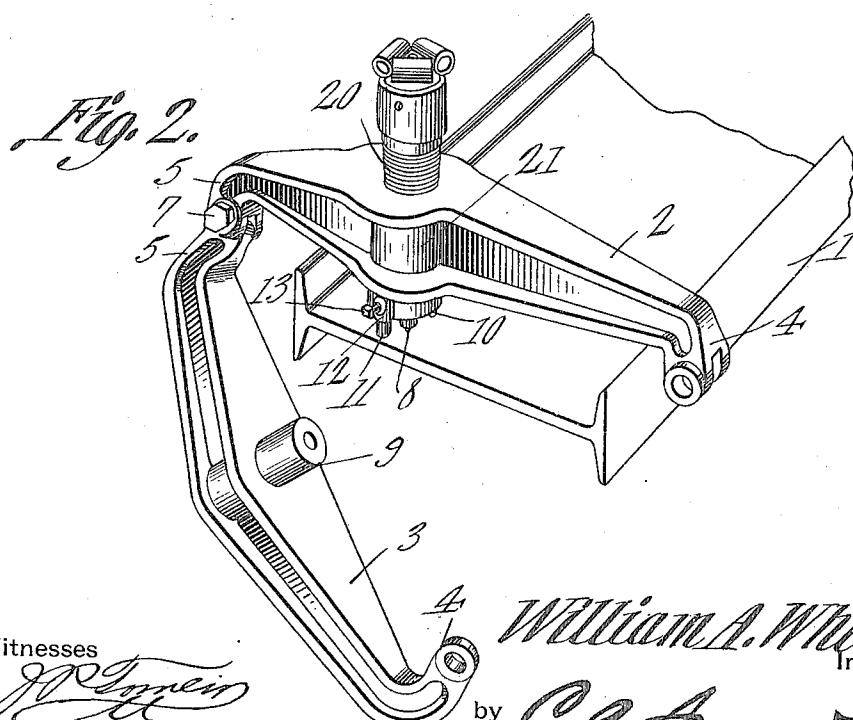
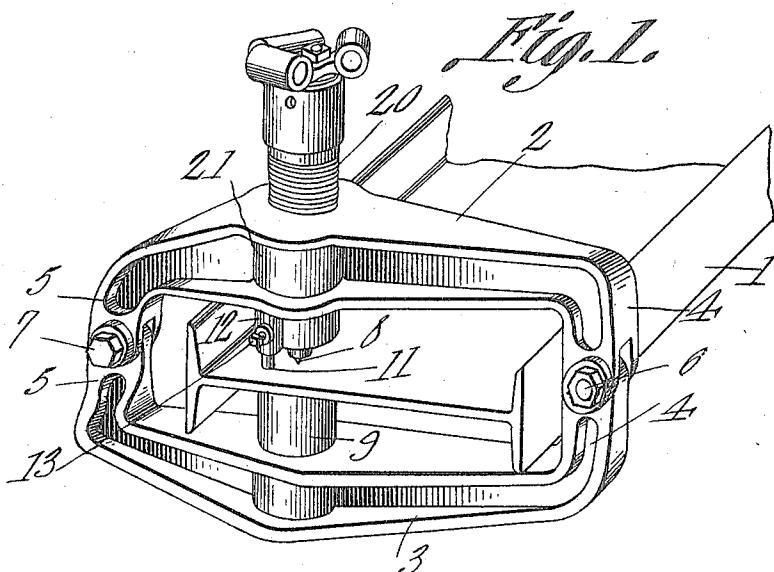
BEAM PUNCH.

APPLICATION FILED FEB. 17, 1912.

1,180,357.

Patented Apr. 25, 1916.

2 SHEETS—SHEET 1.



Witnesses

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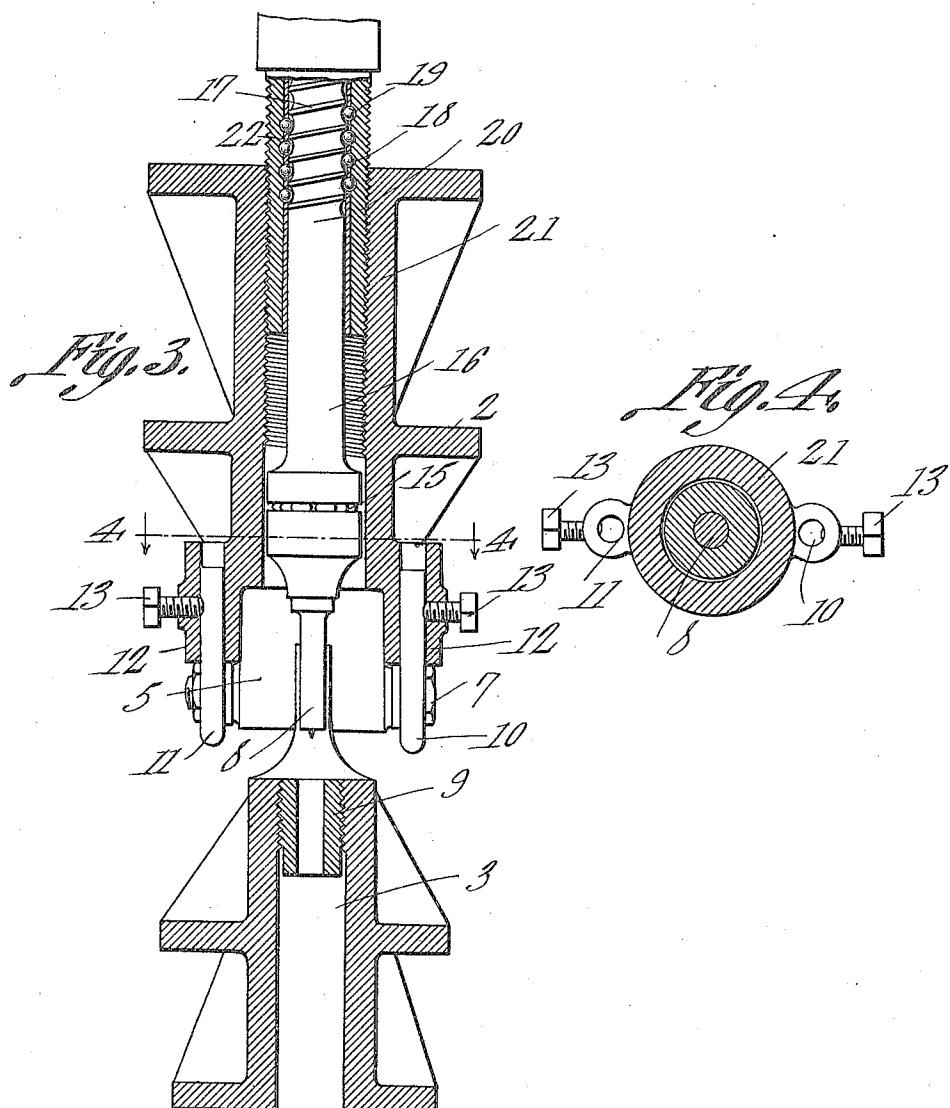
BEAM PUNCH.

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Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM A. WHITNEY, OF ROCKFORD, ILLINOIS, ASSIGNOR TO WHITNEY METAL TOOL COMPANY.

## BEAM-PUNCH.

1,180,357.

Specification of Letters Patent. Patented Apr. 25, 1916.

Application filed February 17, 1912. Serial No. 678,255.

To all whom it may concern:

Be it known that I, WILLIAM A. WHITNEY, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Beam-Punch, of which the following is a specification.

This invention relates generally to punches and particularly to beam punches.

The object of the invention is to provide a punch which can be assembled in position on a beam at any desired point for boring a hole in the beam at any desired distance from the side of the beam.

Further objects of the invention are generally to improve and simplify the construction of beam punches.

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 invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawing forming a part of this specification,—Figure 1 is a perspective view of the beam punch of the present invention locked in position upon a beam; Fig. 2 is a similar view with the punch frame open; Fig. 3 is a transverse vertical section through a punch constructed in accordance with the present invention; and Fig. 4 is a horizontal section on the line 4—4 of Fig. 3.

Like reference numerals indicate corresponding parts throughout the several figures of the drawing.

The reference numeral 1 indicates an ordinary I beam on which is fitted the punch of the present invention, this punch consisting of a suitable frame in which is carried a suitable punching mechanism. The frame of the beam punch is made up of the upper and lower frame pieces 2 and 3, each of which is formed with the end extensions 4—5. The end extensions of the two frame pieces 2 and 3 are detachably locked together in any suitable manner, as indicated at 6—7.

As shown in the drawing, the end extensions 4 and 5 of the lower frame piece 3 are fitted between perforated ears or lugs formed on the end extensions of the upper frame piece

2, and the parts 6 and 7 are passed through the end extensions, so as to lock the frame pieces together. Either one of the parts 6 or 7 can be removed, according to which end of the frame is desired to be opened. The frame pieces 2 and 3 form a rectangular frame, the length of which is about one and one-half times the height of the I beam 1, and the height of which is about the same as the width of the flange of the I beam, that is to say, if the I beam 1 were, say, six inches in height, the inner dimensions of the punch frame would be nine inches.

The punching mechanism 8 and die 9, which may be of any suitable form and construction, are located preferably at a point one-third of the length of the frame away from the end thereof. That is to say, the punching mechanism, as shown in Fig. 1, is located a distance, say, one-third of the length of the punch away from one end thereof. The object in disposing the punching mechanism in this manner and in constructing the frame pieces 2 and 3 so that their inner dimensions will be one and one-half times the width of the I beam, is to adapt the punch to form a hole in the I beam at any distance away from either side thereof. For example, the punch in Fig. 1 is shown in position to form a hole adjacent the left hand side of the I beam. If it should be desired to bore a hole at the center of the I beam, the frame work would be adjusted to the right in Fig. 1 until the pin was disposed at the proper point. If it should be desired to form a hole at a point between the center of the I beam and the right hand side thereof, the frame 2—3 would be unlocked, removed from the I beam, and reversed, after which it would be again locked in position on the beam.

For the purpose of holding the frame work in any position to which it has been adjusted, and of guiding the punch proper into the beam, the locking bolts 10 and 11 are employed, as best shown in Fig. 3 of the drawing. Each of the bolts 10 and 11 is slidably mounted in a sleeve member or supplemental socket 12 formed on the upper frame piece 2 on the opposite sides of the punching mechanism 8.

Extending transversely through each sleeve 12 is a set screw 13 which holds the locking bolt in any position to which it has been set. Prior to the punching operation,

the frame is properly arranged upon the I beam and the locking bolts 10 and 11 are set down against the beam, after which the set screw 13 is tightened up so as to hold 5 the punch against wabbling and guide it properly into the beam.

While the punch 8 and die 9 may be of any suitable form and construction, the preferred arrangement is illustrated in Fig. 3, 10 wherein the punch is swiveled by the ball bearings 15 into the stem 16 which is formed with the threaded portion 17 engaged by the annular series of balls 18. The balls 18 at their outer portions are set into a spiral 15 groove 19 formed in a bushing 20 threaded into a barrel or punch socket 21 in the upper frame piece. The balls 15 are held in proper relation to each other in any suitable manner, such as by means of a perforated ball 20 cylinder 22 of the type described in Letters Patent No. 975591, granted to me November 15, 1910, on a mechanical movement.

What is claimed as new is:

In a device for punching I-beams, upper 25 and lower arched members, the upper mem-

ber having a punch socket and being provided with supplemental sockets disposed on opposite sides of the punch socket and in a line transverse to the length of the upper member; a punch movable in the punch 30 socket; legs movable in the supplemental sockets; means carried by the supplemental sockets and engaging the legs to hold the legs in adjusted positions; a die carried by the lower member; and means for detachably and pivotally uniting the ends of the lower member with the ends of the upper member; the legs being adjustable to dispose the punch at adjusted angles to the surface of the beam to be punched, and to facilitate 35 the use of the device on I-beams having flanges of unequal widths.

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

WILLIAM A. WHITNEY.

Witnesses:

STANTON A. HYER,  
ROBERT F. MARSHALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."