

D. H. PRUYN.
SCREW PRESS.
APPLICATION FILED NOV. 23, 1914.

1,280,296.

Patented Oct. 1, 1918.

Fig. 1.

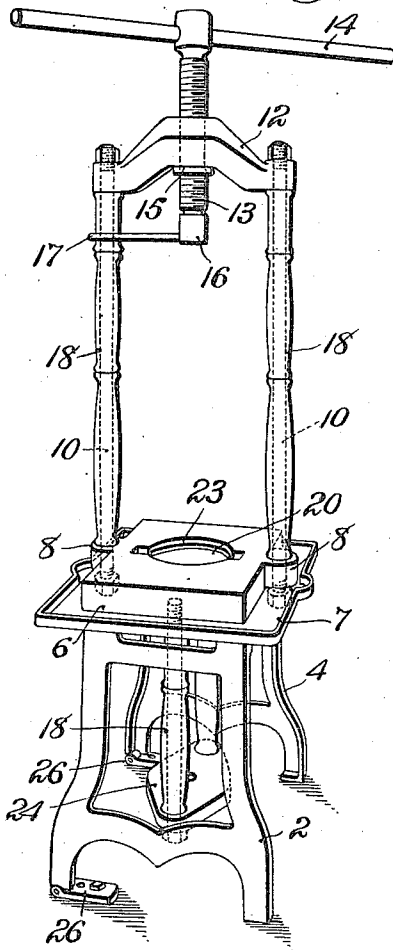


Fig. 2.

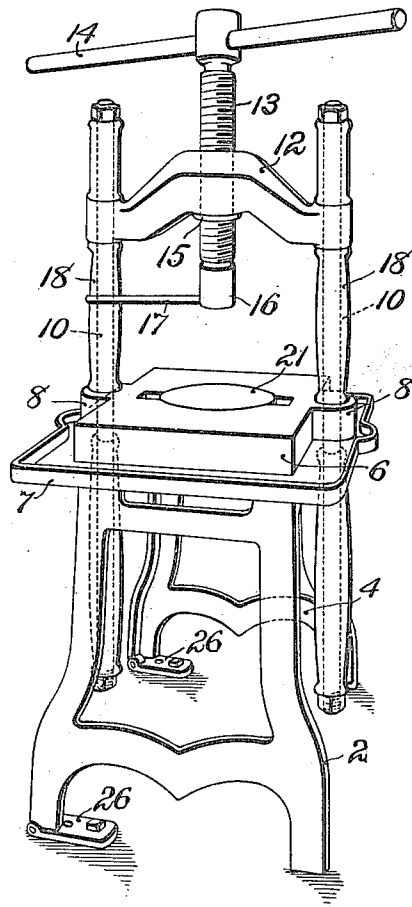


Fig. 3.



Fig. 4.

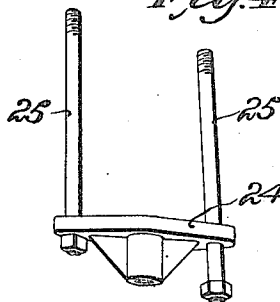
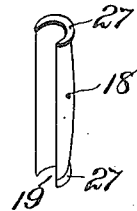


Fig. 5.



Witnesses:

E. E. Durdeman
Elbie Press

Inventor:

David H. Pruyne
by his attorneys
Phillips, VanCorman & Frost

UNITED STATES PATENT OFFICE.

DAVID H. PRUYN, OF HYDE PARK, MASSACHUSETTS.

SCREW-PRESS.

1,280,296.

Specification of Letters Patent.

Patented Oct. 1, 1918.

Application filed November 23, 1914. Serial No. 873,530.

To all whom it may concern:

Be it known that I, DAVID H. PRUYN, a citizen of the United States, residing at Hyde Park, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Screw-Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to presses and more particularly to screw presses for general machine shop work.

The object of the invention is to provide a press of the character described which can readily be used for many of the different kinds of work that come to the machinist, this press being especially adapted for the class of work comprehending removing gears from axles, straightening axles, removing fly-wheels from crank shafts, removing bushings and work of the like nature. In such work a press must be adaptable to work widely varying in size and character.

In accordance with this object a feature of the invention contemplates the provision in a screw press provided with the usual cross-head of means for quickly adjusting its distance from the base upon which the work rests to accommodate the length of movement permitted to the press screw, to the character of the particular operation to be performed. Such means comprises a graded series of interchangeable spacing units all or part of which may be used as occasion requires.

Other features of the invention, to gain the desired object relate to means for retaining the press either upright or on its side and a sub-base, which may be used as the exigencies require, and to certain devices, combinations and arrangements of parts which possess advantages in simplicity of construction and ease of operation which will be readily apparent to those skilled in the art.

To the accomplishment of this object and such others as shall hereinafter appear, the invention comprises the features and combinations of parts hereinafter described and particularly pointed out in the appended claims.

The preferred form of the invention is shown in the accompanying drawing, in which,

Figure 1 is a perspective of the press having the cross-head held by the novel spacing units at a relatively great distance from the base on which the work rests. On this view the sub-base is also shown in operative position;

Fig. 2 is another perspective of the press, showing, however, the cross-head relatively near to the base which is to support the work,

Fig. 3 is a perspective of the removable press plate used interchangeably with the sub-base,

Fig. 4 is a perspective of the sub-base, with its securing side rods removed from the machine, and

Fig. 5 is a perspective of one of the novel spacing units.

In the embodiment of the invention illustrated in the drawings, the press is provided with a supporting frame comprising two side webs 2 and 4 in the form of legs which rest upon the floor. On these legs there is mounted a press table, or work supporting base 6, which is shown as a heavy block and is circumscribed by a shelf 7 for holding tools. The table 6 is provided with two oppositely disposed lugs 8 which are bored for the reception of side rods 10, shown in dotted lines in Figs. 1 and 2. These side rods extend vertically through the lugs 8 of the base 6 and, as usual, are provided with nuts at their lower ends to prevent their being pulled through the base. Below nuts threaded on the upper ends of the side rods there is mounted a cross-head 12 which carries a press screw 13 operated as usual by a handle 14.

The press screw is mounted in the cross-head in the following manner: Through the central portion of the cross-head 12 there is a vertical bore in which there is pressed a bushing 15 and the press screw is threaded through this bushing. This permits a combination of metals to be worked between the bushing and the press screw such as will tend to eliminate the greatest possible amount of friction between the parts. The press screw is provided at its lower end

with the usual frictionless work engaging shoe 16 having a laterally extending guide arm 17 which engages one of the side rods to prevent rotation of the shoe while the work is being pressed.

In order to adjust the cross-head 12 relatively to the work supporting table, or base, 6, there is provided for use with the machine a number of spacing units 18 (see Fig. 5) which, in their preferred construction, are in the form of a spool longitudinally slotted through its side wall, as illustrated at 19 (Fig. 5) to permit ready removal and replacement of the spools upon the side rods. Spools of various lengths are provided so that by a proper selection the exact spacing of the cross-head from the base for any particular work being operated upon may be secured.

It will be noted that the table 6 is provided with a central aperture 20 but in such work as straightening axles, removing bushing and wheels and the like where the thickness of the work being operated upon is relatively small, this aperture is filled in with a removable press plate 21 (see Figs. 2 and 3) which has a flange 22 adapted to rest in a groove 23 formed at the periphery of the aperture 20. This aperture 20 in the table 6 may, of course, be of any desired shape, but it has been found convenient in practice to make it of the general shape shown in Figs. 1 and 2.

In other work, however, such, for instance, as applying gears or other parts to long shafts, it is convenient to supply the machine with a sub-base which comprises a plate 24 (Fig. 1) suitably strengthened and bored at opposite ends for the reception of supporting side rods 25. The upper ends of these rods are threaded into the lower face of the table 6 and their lower ends are provided with nuts as usual. The sub-base may be adjusted relative to the table 6 by application to the side rods of one or more of the spacing spools 18 as may be necessary (see Fig. 1). This sub-base with its side rods detached from the machine is shown in Fig. 4. In Fig. 1 the cross-head 12 is spaced by means of several spools 18 on each side rod 10 at quite a distance from the table 6 and press plate 21 being removed from the aperture 20 and the sub-base 24 being in position. In this condition the press is set up for operating on long shafting which is permitted to pass through the aperture 20 and rest upon the sub-base. In Fig. 2, however, the press is shown as set up for straightening an axle for instance. In this case the sub-base is not in position and the table 6 has fitted thereto the press plate 21, and the cross-head 12 is spaced only a short distance from the table 6. In this case the spacing spools 18 are applied to the side

rods 10 both above and below the table 6 and also above the cross-head 12.

Those skilled in the art will recognize that a large number of arrangements of the spacing spools on the side rods may be made to suit particular kinds of work placed in the press, and that the disclosures in Figs. 1 and 2 are merely illustrative of some of the modes in which these spacing units may be used.

It will be obvious also to those skilled in the art that in pressing a shaft from a gear or other part mounted thereon, the shaft may be of such length that the height of the table 6 from the floor will cause the end of the shaft to strike the floor before the gear has been removed. This difficulty has been overcome by hinging on two of the legs of the supporting frame straps 26 (Figs. 1 and 2) which are bolted to the floor and thus permit the entire press to be laid upon its side. The press can then be used on work of this character with no danger of having an obstruction in the way of the shaft which is being pressed out.

Particular attention is directed to the novel open-sided spacing spools 18 which, as before mentioned, are supplied with the press in varying lengths and are provided with end-meeting flanges 27 (Fig. 5) to give a firm bearing where they abut against each other or against the cross-head or other parts of the press. These spacing units while preferably cylindrical in the form of a spool, as hereinbefore described, need not necessarily be made in this exact form. Any hollow spacing member having one side cut out so that it may be slipped on to the side rods from the sides thereof, when their ends are loosened, is within the scope of the present invention.

During the preceding description, and in the following claims, it has been convenient to employ various terms denoting direction of movement, position and the like, but it is to be understood that these terms are not expressive of any characteristic features of the invention, as it is the relative arrangement of the parts alone which is of importance.

While it is preferred to employ the specific construction and arrangement of the parts shown and described, since this construction and arrangement is the simplest and most efficient embodiment of the invention which has yet been devised, it will be understood that this construction and arrangement is not essential except so far as it is specified in the claims, and may be varied or modified without departing from the broader features of the invention.

What is claimed as new, is:—

1. A press, having, in combination, a base on which the work is supported, side rods

extending substantially normal to the plane of said base, a cross-head mounted on said rods, a press screw carried by the cross-head, and means for variably spacing said cross-head from the base comprising a plurality of interchangeable hollow spacing units of varying lengths adapted to be mounted on said side rods between the cross-head and base to support the cross-head.

10 2. A press, having, in combination, a supporting frame, work supporting base, side rods, cross-head on said rods, a press screw on said cross-head, and hinged straps at one side of the base adapted to be secured to the floor, whereby the press may be operated in either an upright or horizontal position.

20 3. A press, having, in combination, a frame, a table supported thereby having an opening therethrough, side rods extending substantially normal to the plane of the table, a cross-head on said rods, a press screw carried by said cross-head, and a sub-base suspended below the opening in said table.

25 4. A press, having, in combination, a frame, a table supported thereby, a pair of side rods extending above the table, a second pair of side rods extending below the table, a cross-head and press screw carried

by said first named pair of side rods and a sub-base carried by said second named pair of side rods.

5. A press, having, in combination, a frame, a table supported thereby, a pair of side rods extending above the table, a second pair of side rods extending below the table, a cross-head and press screw carried by said first named pair of side rods, a sub-base carried by said second named pair of side rods, and spacing units on both pairs of side rods comprising elongated spools longitudinally slotted through their side walls to permit ready removal and replacement.

6. A press having, in combination, a base on which the work is supported, side rods extending substantially normal to the plane of said base, a cross-head mounted on said rods, a press screw carried by the cross-head, and a plurality of interchangeable hollow spools of various lengths adapted to be mounted on said side rods to support the cross-head in various positions of adjustment relatively to the base.

DAVID H. PRUYN.

Witnesses:

GEO. E. STEBBINS,
FREDERICK W. DORING.

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