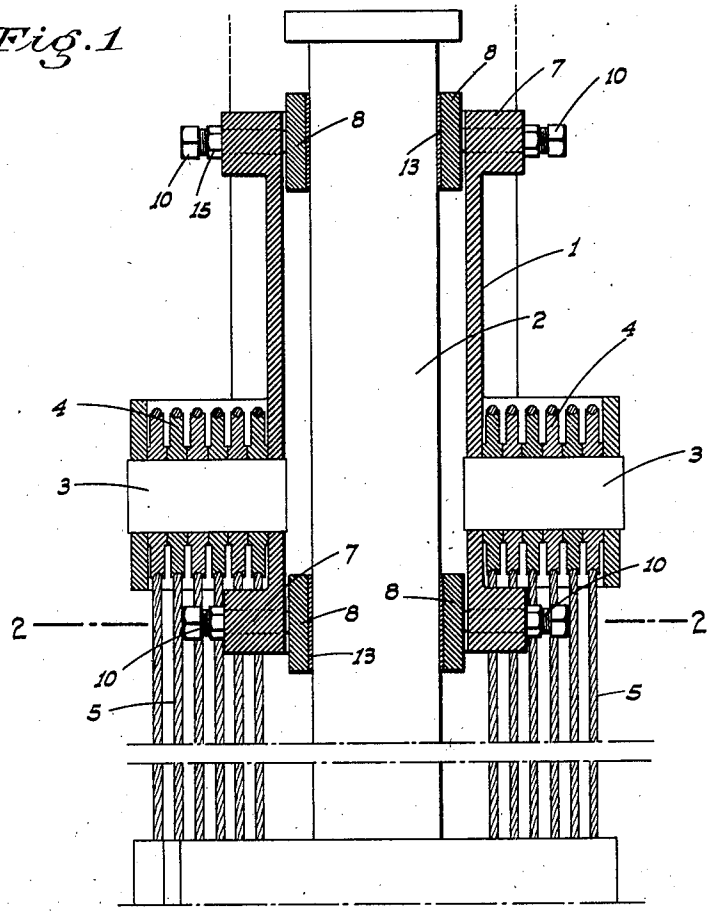
Feb. 29, 1944. R. G. LE TOURNEAU 2,342,946

PLUNGER GUIDE UNIT

Filed May 1, 1942

Fig. 1



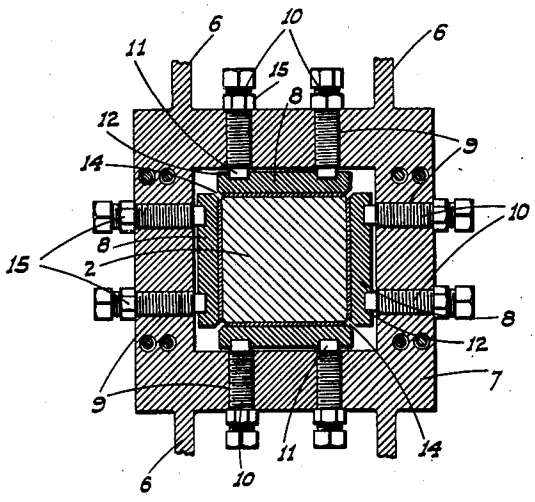


Fig. 2

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PLUNGER GUIDE UNIT

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Application May 1, 1942, Serial No. 441,291

3 Claims. (Cl. 308—3)

This invention is directed in general to power presses, and in particular is directed to, and an object is to provide, an improved guide unit for a power press which includes a plunger for effecting relative approaching movement of the work and a cooperating member, such as a die.

A further object is to provide, in a power press, a plunger guide unit which includes adjustable guide members arranged to provide a fine adjustment at vertically spaced points on the plunger; to provide a non-binding guide assembly; and to provide a ready and accessible take-up for wear.

The present plunger guide unit is designed for use in a cable actuated power press substantially as shown in copending application for United States patent, Serial No. 429,178, filed February 2, 1942, and comprises an improvement over the guide arrangement shown therein.

A further object of the invention is to provide a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a sectional elevation of the improved plunger guide unit.

Figure 2 is a cross section on line 2—2 of Fig. 1.

Referring now more particularly to the characters of reference on the drawing, the numeral 1 indicates a hollow vertical column which is square in cross section, the distance between opposite walls of said column being substantially greater than the cross sectional width of a square plunger 2 which projects through column 1 in symmetrical but spaced relation to the walls of the latter.

Adjacent its lower end the column 1 rigidly supports horizontally and oppositely projecting stub shafts 3 on which are journaled the sheaves 4 of multiple-reach block and tackle units which include cables 5, such block and tackle units being arranged substantially as shown in the above-identified copending application, and functioning to effect vertical movement of plunger 2 through column 1; the latter being immovably mounted in connection with the body of the press (not shown) by suitable means including vertical, laterally projecting flanges 6.

The present invention is directed primarily to the mechanism employed to guide the plunger 2 for such movement within and relative to said column, and which mechanism comprises the following:

At its upper and lower ends the column 1 is formed with enlarged rectangular collars 7; the rectangular bore of the column 1 remaining of like dimension from end to end. Flat, rectangular guide blocks 8 are disposed between the sides of plunger 2 and the corresponding walls of the column 1, at both the upper and lower ends thereof. These guide blocks are substantially the same width as the adjacent sides of the column, but initially have a loose fit between said sides and the corresponding walls of the column.

The enlarged collars 7 are formed on each side with a pair of spaced, horizontally-alined and right-angled bores 9 threaded for the reception of cap screws 10 whose inner ends are formed as reduced diameter non-threaded pins 11 which seat in corresponding sockets 12 formed in the outer face of guide blocks 8. The inner face of these guide blocks is surfaced with a suitable bearing or anti-friction material, as at 13. Adjacent ones of the inner vertical edges of guide blocks 8 are beveled or chamfered, as at 14, whereby the blocks can engage the sides of the plunger 2 for their full width without said blocks abutting or striking each other.

By releasing lock nuts 15 and cap screws 10, perfect alinement or bearing position of the guide blocks on all sides of the plunger, as well as at the upper and lower ends of column 1, may be accomplished, and said blocks may be adjusted to fine limits. Additionally, the manner of mounting the guide blocks, i. e., pins 11 seated in sockets 12 disposed in the same horizontal plane, assures against binding of the guide blocks. Not only is the above described plunger guide unit of advantage at the time of initial assembly of the unit, but also provides accessible and easily adjustable means for wear take-up between the blocks and the plunger.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A plunger guide unit comprising a hollow column through which the plunger extends in spaced relation to the interior surface thereof, a plurality of sets of separate guide blocks disposed in the column at spaced points lengthwise of the latter, the blocks of each set being disposed in substantial alinement transversely of and extending about the plunger, and means on the column supporting the blocks of each set in guiding engagement with the plunger, and for independent

adjustment relative to the same; said separate means comprising a plurality of screws adjustably threaded through the column outwardly of each block, each block having matching sockets in which the inner ends of the screws seat in block supporting relation; the column including an enlarged reinforcing collar at each end in unitary relation and the screws for the corresponding sets of blocks being threaded through said collars.

2. A guide unit for a multi-sided plunger, said unit comprising a plurality of guide blocks, one for each side of the plunger and grouped thereabout, said blocks being arranged when engaged with the plunger for inward adjusting movement independently of each other, a fixed member about the blocks, and means mounted in the member and engaging the blocks for individually adjusting the same.

3. A guide unit for a multi-sided plunger comprising with a hollow column about the plunger symmetrical to and larger than the column a pair of sets of guide blocks between the column and plunger at spaced points in the length of the latter, each set comprising a plurality of blocks, one for each side of and engaging the plunger, all the blocks of a set being individually adjustable inwardly, and means between the column and blocks to so individually adjust each block of each set independently of the remainder.

ROBERT G. LE TOURNEAU.