Sept. 27, 1949. J. C. E. BOURASSA 2,483,121

PRESS BED DRIVE

Filed May 3, 1946

Fig. 1

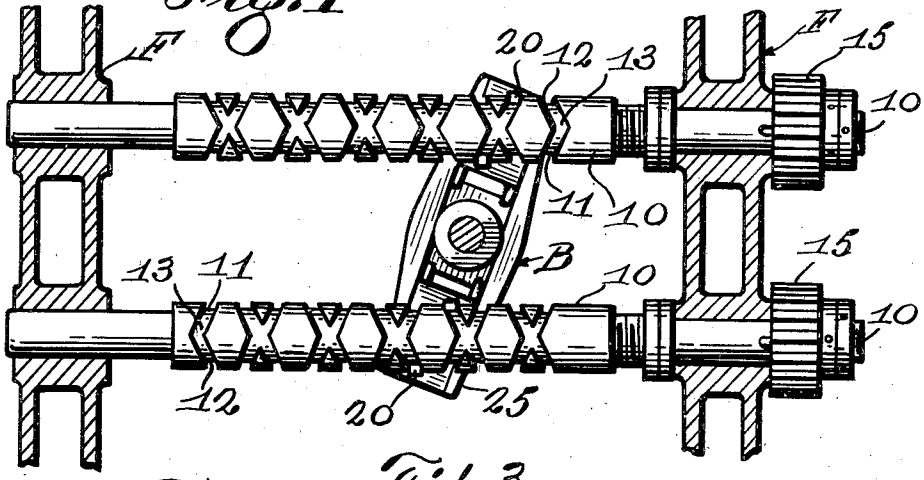


Fig. 2

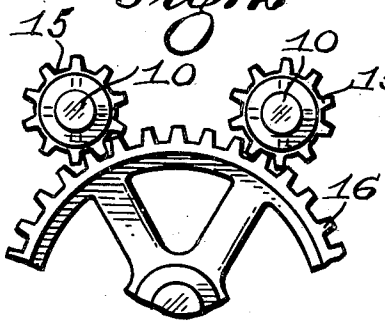


Fig. 3

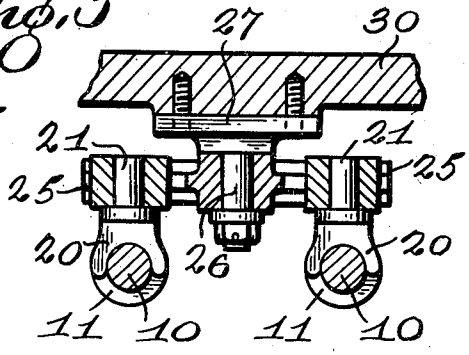


Fig. 4

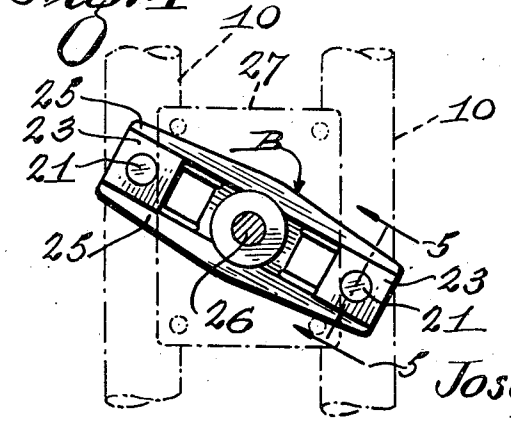
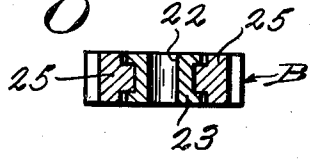


Fig. 5



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PRESS BED DRIVE

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Application May 3, 1946, Serial No. 667,040
In Canada May 26, 1945

2 Claims. (Cl. 74—58)

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The present invention relates to printing presses and, more particularly, to the driving means of such presses having a reciprocating bed and a cylinder.

Various means are presently used for actuating the bed of printing presses, among which may be mentioned the double-thread shaft arrangement such as, for instance, the one disclosed in United States Patent No. 1,543,493, dated June 23, 1925.

Briefly described, the disclosure of this patent comprises, essentially, a rotating shaft held against longitudinal displacement and mounted axially in parallel relation to the axis of the reciprocating bed. Said shaft has threads thereon, which are crossed in opposite directions and in which a shoe is movable. This shoe is attached to the bed and, accordingly, entrains the said bed therewith as it moves along the shaft when same is rotated. Inasmuch as the threads run in reverse directions the shoe, consequently, will be transferred from one to the other, at the ends thereof, and impart to the bed a reciprocating movement.

This bed motion is well adapted to small presses, especially of the type shown in the patent above referred to, wherein a carriage for the inking rollers is caused to travel across the bed by the simple expedient of using a second shoe on the same screw, opposite the first one. On large presses, however, the operating stresses encountered require a much larger shoe and consequent enlargement of the physical size of thread and screw, the result is a wide gap where the threads cross, which gaps present sharp edges subject to wearing and consequent looseness of the moving elements showing up as faulty printing.

The present invention has been conceived to avoid the drawbacks enumerated above and has for its main object the provision of highly improved and efficient means for driving the bed of printing presses by means of crossed-thread screws.

Another object concerns printing press bed-driving means adaptable to large, heavy, presses, economically and easily.

A further object envisages means of the character described whereby a printing press bed can be actuated by a pair of crossed-thread twin screws in a simple and relatively inexpensive manner.

Other objects and advantages of the invention will become apparent, or be pointed out further, during the description to follow.

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As an example, and for purposes of illustration, an embodiment of the invention is shown in the annexed drawing, wherein:

Figure 1 is a somewhat schematic plan view of the drive according to the invention, taken below the bed,

Figure 2 is a partial side representation of a gear and pinion train for rotating the twin screws shown in Figure 1,

Figure 3 is a vertical section taken through the drive and showing the position of the swing-bar at the point of reversal of the bed,

Figure 4 is a plan view of the swing-bar showing its angular relation with respect to the screws and bed-plate, shown in dotted lines, during constant speed operation thereof, and

Figure 5 is a sectional view, taken on line 5—5 of Fig. 4.

Referring to the drawing, wherein similar reference characters represent corresponding parts throughout, it will be seen that the driving mechanism of the invention comprises a pair of twin, parallel, lead screws 10 suitably journalled against longitudinal displacement in a press frame F. Said screws consist of shafts in which helicoidal channels 11 and 12 are formed to cross each other at regular intervals in staggered diametrally opposed positions. In other words, the channels constituting screw threads of a suitable pitch are disposed in opposite directions and merge together at point 13 at each end of the screws.

The twin screws are rotated in unison, and in the same rotational direction, by means of pinions 15 keyed to the outer ends thereof and meshing with a gear 16 suitably driven.

Shoes 20 engage the channels of the screws, as shown in Figures 1 and 3, said shoes consisting of a flat member provided with a concave depression adapted to fit snugly around the reduced diameter of the screw (Fig. 3). The said shoes are provided with a shank 21 freely mounted in the center bore 22 of a sliding block 23.

This block is splined to move longitudinally within the arms 25 of a swing-bar indicated generally at B. Said swing-bar is pivoted centrally around a stub shaft or pin 26, integral with a plate 27 adapted to connect said bed 30 with the swing bar B. Thus, the swing-bar is pivoted to the bed, and the shoes, in turn, are pivoted to sliding blocks movable in the bar.

The mechanism being assembled as shown in Figure 1, it will be evident that the shoe at each end of the bar being engaged with the correct thread, the bar will be moved longitudinally when the gear 16 causes the screws to revolve in unison.

Inasmuch as one end of the bar is shifted longitudinally a distance corresponding to the pitch of one thread, the bar will be normally inclined with respect to the axis of the screws. Since both ends of the bar are entrained at equal speed, said bar will, in turn, cause longitudinal movement of the bed through the intermediary of the pin **26**.

This particular construction presents distinct advantages over the single-screw drive for presses:

1. The swing-bar and shoes being located nearer the bed than in any other driving mechanism, more easily controlled acceleration and retardation of the bed may be had which can be converted into higher speeds. The compactness of the said driving mechanisms frees the under side of the press, whereby easier access thereto is possible, a distinct advantage in presses mounted directly on a floor having no pit.

2. One end of the swing-bar being reversed before the other, the movement of the bed is gradually diminished to a stand-still before being reversed.

3. The driving shoes being at the end of a lever constituted by the arms **25**, the amplitude of any looseness in said shoes is reduced in two before being transmitted to the bed. Consequently, the bridging of the crossed-threads gaps has little effect on the bed motion especially when, as shown in Figure 1, the screws are timed together so that one shoe bridges a gap while the other is disposed between gaps.

4. Compared with conventional reversing mechanisms, the present arrangement is a structural simplification resulting in a great saving in weight and space.

5. Due to the sliding action of the shoes, the operation is very silent.

6. The driving element being comprised of two small lateral screws, instead of a large central one, the bed can be lowered and a saving in height is had, or better accessibility obtained under the press as mentioned under 1.

7. The actuating members are easily accessible and adapted to be changed rapidly and at low cost.

From the foregoing, it should be apparent that the present invention is an advance in the art of driving the bed of printing presses, especially large ones.

It must be understood, also, that various changes as to the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, I claim:

1. As driving means for the bed of a printing press, a pair of spaced parallel cross-thread screws, means for synchronously rotating said screws, shoes engaged in the threads of the screws, a swing-bar centrally pivoted to the bed of a press, and means for slidably supporting the shoes in the ends of the swing bar.

2. Means for causing a reciprocatory longitudinal movement having gradually retarded and accelerated gradients, comprising a pair of spaced parallel members reciprocated longitudinally by means of synchronized crossed-thread screws, a swing bar joining together said members angularly with respect to the longitudinal axis of the screws, and means disposed centrally of the swing bar for pivoting thereto an element to be moved.

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