

Sept. 22, 1953

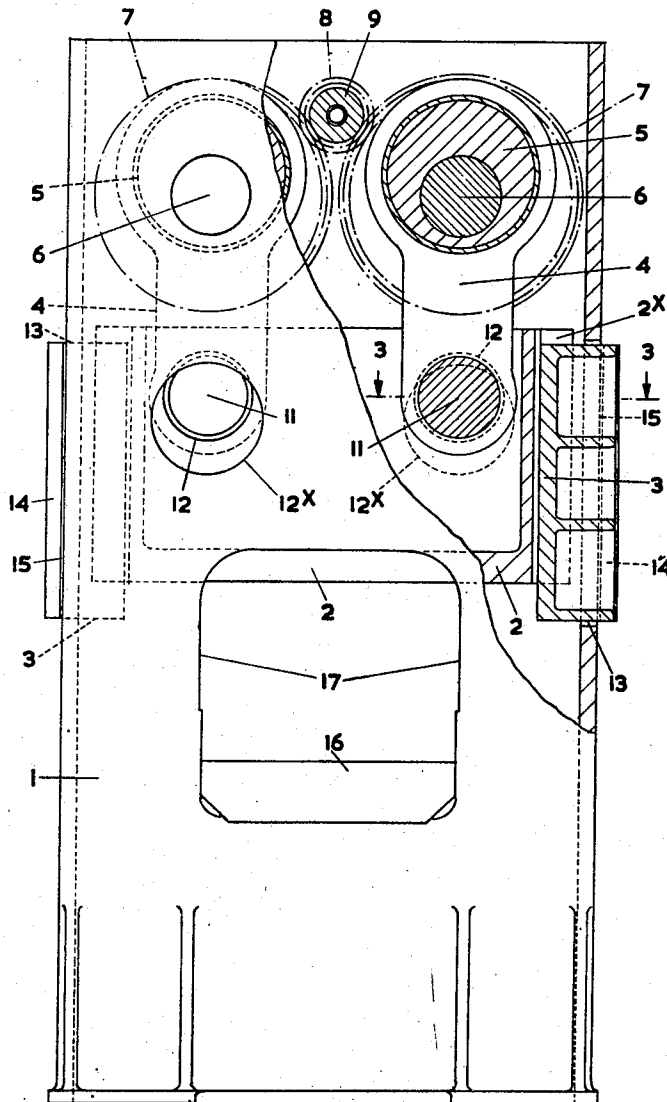
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2,652,770

Filed Aug. 8, 1950

2 Sheets-Sheet 1

FIG. 1



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Filed Aug. 8, 1950

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FIG.2.

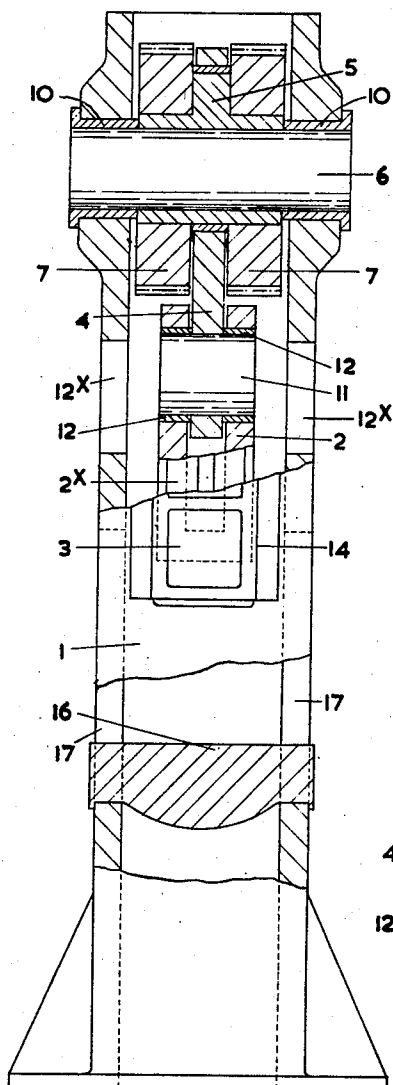


FIG.4.

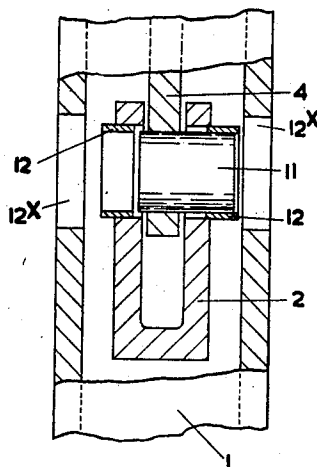
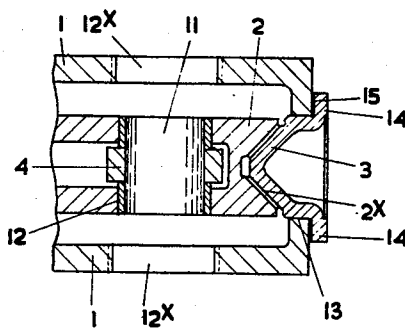


FIG.3.



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2,652,770

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Application August 8, 1950, Serial No. 178,196
In Great Britain August 17, 1949

3 Claims. (Cl. 100—282)

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The invention relates to power presses of the type which comprises a tool-carrying slide which is moved in relation to a stationary tool-carrying bolster and in which movement of the slide is transmitted from parallel shafts extending forwardly and rearwardly of the press.

It has heretofore been usual to put the slide into position, and to remove it, through the front of the press thus necessitating a sufficiently wide front opening for such purpose and the press must, of course, be considerably wider than the opening.

According to one feature of this invention the press is so arranged that the slide can be put into place, and removed, through one or either side, thus permitting of a front opening of less width and height than the slide.

It is usual to guide the slide between a pair of gibs secured to the side walls of the press and according to this invention one or each gib is set in an aperture in the respective side wall, the aperture being of such dimensions as will permit of the slide being passed through it, when the slide is being put in position in the press or being removed therefrom. The respective gib may be passed into the aperture from the outside and be provided with flanges which are secured against the outer surface of the respective side wall of the press. Shims may be placed between the flanges and the side wall to allow for inward adjustment of the gibs as wear takes place.

The drive from the said forwardly and rearwardly extending shafts may be effected by eccentrics or cranks on the shafts with which engage connecting rods which, at their other or little ends, are pivotally connected to the slide, a gudgeon pin being passed through each little end and through bearing holes in the slide, and these bearing holes may be fitted with removable bushes. The gudgeon pins must be pushed out from the little ends for removal of the slide and special holes may be formed in the press walls for such purpose.

The invention will now be described with reference to the embodiment shown, by way of example, in the accompanying drawings, in which:

Fig. 1 is a front elevation, partly in section, of the power press.

Fig. 2 is a side elevation, partly in section, of the power press shown in Fig. 1.

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Fig. 3 is a fragmentary sectional plan, the section being taken on the line 3, 3 of Fig. 1.

Fig. 4 is a fragmentary sectional side elevation, partly exploded to show how the gudgeon pins and their bearings can be assembled and removed through clearance holes in the front and rear walls of the press frame.

Referring to the drawings, the press frame 1 is a hollow rectangular box-like structure, open at the top and bottom and fabricated from heavy rolled steel wall slabs or plates welded together at their edges down the four vertical corners of the frame. The tool carrying slide 2 is guided for vertical movement between a pair of gibs 3, 3 which are secured to the side walls of the press and engage vertical V-section slideways 2^x in the respective side faces of the slide 2, which vertical movement of the slide 2 is derived through a pair of connecting rods 4, 4 operated by eccentrics 5, 5 on parallel shafts 6, 6 which are each driven by spur wheels 7, 7 from a common pinion 8 on a first motion shaft 9 which is driven by a multiple friction clutch at one end and brought to rest by a multiple friction brake at the other end, the clutch and brake not being shown.

There are two spur wheels 7 on each shaft 6, one on each side of the eccentric 5, and there are two pinions 8 axially spaced on the first motion shaft 9 and each meshing with two spur wheels 7 one on each of the shafts 6 which are mounted for rotation in removable bearings 10 in the front and rear walls of the press frame. This arrangement ensures that a balanced load is applied to each of the two centrally disposed connecting rods 4 and uniformity of frame loading.

The connecting rods 4 suspended from the eccentrics 5 have their lower or little ends connected to the slide 2 by gudgeon pins 11 engaged with removable sleeve bearings 12 in the front and rear walls of the slide 2 which is of fabricated steel construction and of U-shape in transverse section, the limbs of the U constituting the front and rear walls of the slide and the U-section being closed by side walls which are machined to afford the V-section slideways 2^x. When the eccentrics 5 are in their bottom dead centre positions the gudgeon pins 11 are co-axial with clearance holes 12^x in the front and rear walls of the press frame 1.

The gibs 3 extend into engagement with the

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sideways 2^x, on the sides of the press slide 2, through openings 13 in the side walls of the press frame 1 and they are in the form of heavy, stiff castings of V-section in plan and with lateral flanges 14 whereby they are secured to the outer faces of said side walls, shims 15 being placed between the flanges 14 and the press frame side walls to allow for inward adjustment of the gibs 3 as wear takes place.

The openings 13 are of greater depth than the slide 2 and their width is also somewhat greater than the overall front to back dimension of the slide 2 so that the latter can be put into position in the press frame 1, and removed therefrom, through either of said side openings 13.

When the slide 2 has been inserted through either of the side openings 13 and the gibs 3 have been secured in position, the eccentrics can be turned into their bottom dead centre positions, whereupon the slide 2 can be moved up or down, as may be required, to bring the bearing holes in the slide walls into axial register with gudgeon pin holes in the connecting rods 4 and with the clearance holes 12^x in the front and rear walls of the press frame 1, whereupon the gudgeon pins 11 and bearing sleeves 12 can be inserted through said clearance holes 12^x to connect the slide 2 to the connecting rods 4 (see Fig. 4). During this operation the slide 2 would require to be supported from the stationary bed or bolster 16 of the press by appropriate jacking means whereby it can be raised and lowered, which jacking means can be removed through the opening 17 in the front wall of the press frame when the slide has been connected up.

Removal of the slide 2 from the press frame 1 through either of the side openings 13 would involve reverse operation to that required for insertion, that is to say the eccentrics 5 would be brought to the bottom dead centre positions, and whilst the slide 2 is supported say by a jack on the bolster 16, the sleeve bearings 12 and gudgeon pins 11 would be withdrawn or pushed out through the clearance holes 12^x, whereupon the appropriate gib 3 would be taken out and the slide 2 moved sideways through the opening 13 vacated by said gib 3.

By providing for the insertion and removal of the slide 2 through an opening 13 in either side of the press frame 1 instead of through the front opening 17, said front opening 17 can be of much less width and height than the slide, and the width of said opening is preferably within the points of application of the pressure, that is to say between the vertical axial planes of the gudgeon pins 4, as shown in Fig. 1. The reduction in the size of the front opening 17 results in a corresponding increase in the strength and stiffness of the press frame and enables the overall side-to-side dimension of the latter to be reduced somewhat.

Having fully described my invention, what I claim and desire to secure by Letters Patent is:

1. A power press comprising front and back plates arranged in substantially parallel spaced relation, said plates being provided with work receiving access openings of substantially less width than said plates adjacent the lower end thereof, a pair of side plates of less width than said front and rear plates arranged in substantially parallel relation and extending between the edges of said front and back plates substantially the height of said front and back plates and secured thereto for providing a rigid frame, said side plates being provided with openings extending a substantial portion of the width of said

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side plates, a bolster mounted on said front and rear plates and resting on the lower edges of the openings therein, a shaft rotatably mounted in said front and rear plates above the openings therein, an eccentric on said shaft, a slide positioned in said frame and mounted for up and down sliding movement, a connecting rod extending from said eccentric to said slide for causing sliding movement thereof, and gibs mounted on said side plates and extending into said openings therein and engageable with said slide for guiding the same in vertical movement, said slide being of a size to be inserted into said frame through the openings in said side plates, the bottom edge of said side plate openings being at a higher level than the top of said bolster.

2. A power press comprising front and back plates arranged in spaced relation, at least one of said plates being provided with a work receiving access opening of substantially less width than said plate adjacent the lower end thereof, a pair of side plates of less width than said front and rear plates arranged in spaced relation and extending between the edges of said front and back plates and secured thereto for providing a rigid frame, at least one of said side plates being provided with a slide receiving opening extending a substantial portion of the width of the said side plate, a bolster mounted on said front and rear plates adjacent the lower edge of the opening in the said plate, a shaft rotatably mounted in said front and rear plates above the opening therein, an eccentric on said shaft, a slide positioned in said frame and mounted for up and down sliding movement, a connecting rod extending from said eccentric to said slide for causing sliding movement of the latter upon rotation of said eccentric and said shaft, a gib mounted on said one side plate and extending into the opening therein and engageable with said slide for guiding the same in vertical movement, and a gib mounted on the other side plate for guiding the other side of the slide, said slide being of a size to be inserted into said frame through the opening in said one side plate, the bottom edge of said side plate openings being at a higher level than the top of said bolster whereby the work receiving access opening may be kept to a minimum size for maximum strength of the press.

3. A power press comprising front and back plates arranged in spaced relation, at least one of said plates being provided with a work receiving access opening of substantially less width than said plate adjacent the lower end thereof, a pair of side plates of less width than said front and rear plates arranged in spaced relation and extending between the edges of said front and back plates and secured thereto for providing a rigid frame, at least one of said side plates being provided with a slide receiving opening extending a substantial portion of the width of the said side plate, a bolster mounted on said front and rear plates adjacent the lower edge of the opening in the said one of said front and rear plates, parallel shafts rotatably mounted in said front and rear plates in the upper part of the frame, eccentrics on said shafts, connecting rods operatively connecting said eccentrics and said slide for causing sliding movement of the latter upon rotation of said shafts and eccentrics, a gib mounted on said one side plate and extending into the opening therein and engageable with said slide for guiding the same in vertical movement, and a gib mounted on the other side plate for guiding the other side of the slide, said slide being of a size to

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be inserted into said frame through the opening in said one side plate, the bottom edge of said side plate openings being at a higher level than the top of said bolster whereby the work receiving access opening may be kept to a minimum size for maximum strength of the press.

EDWARD W. WILKINS.

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