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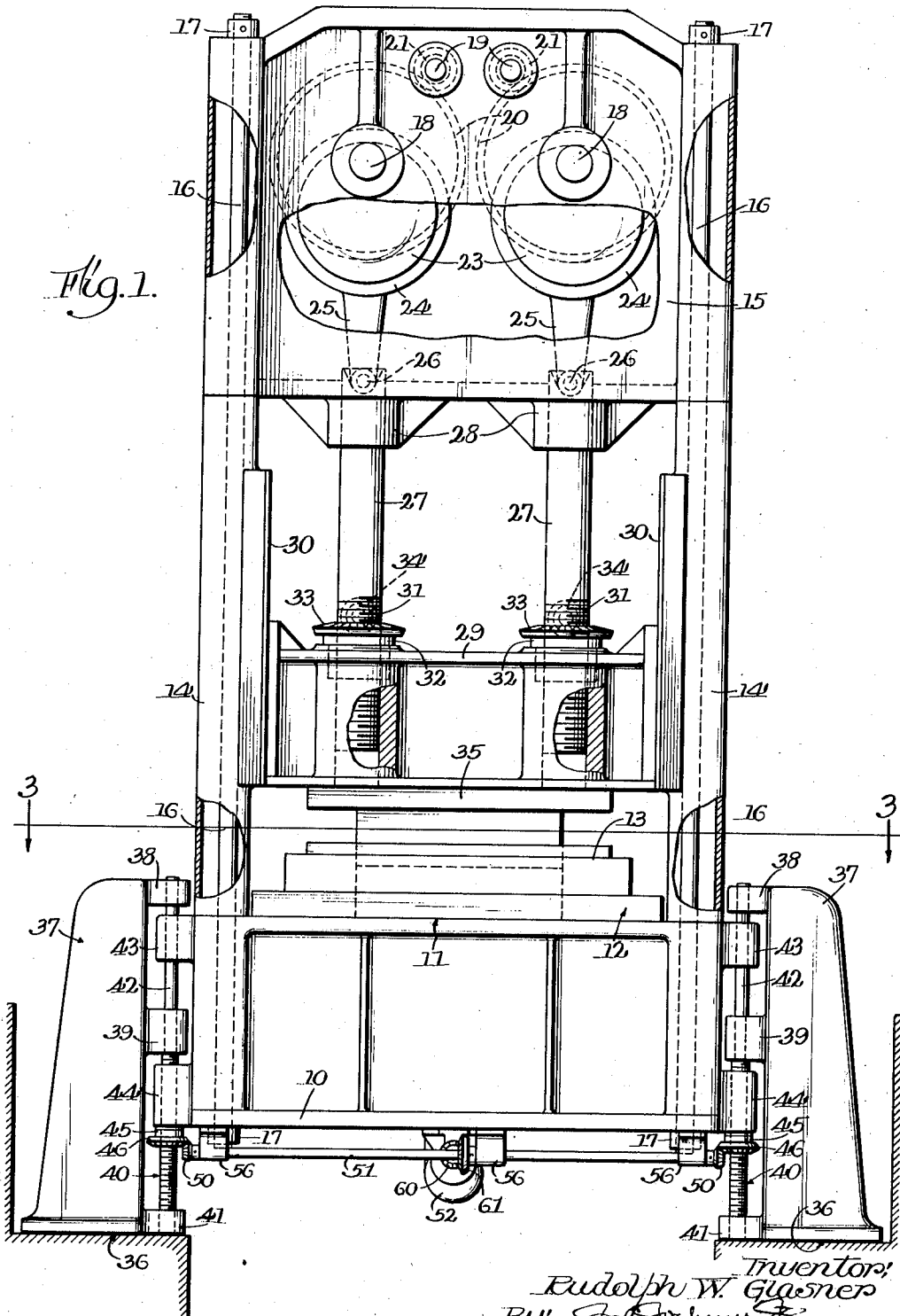
R. W. GLASNER

2,102,842

PRESS

Filed Oct. 30, 1935

2 Sheets-Sheet 1



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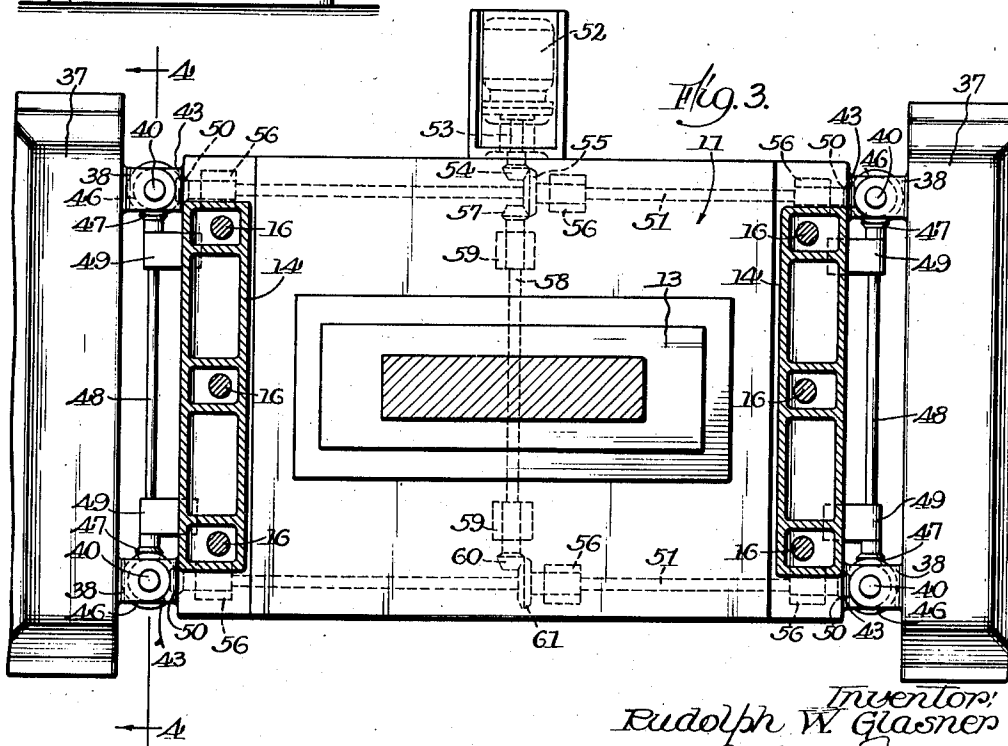
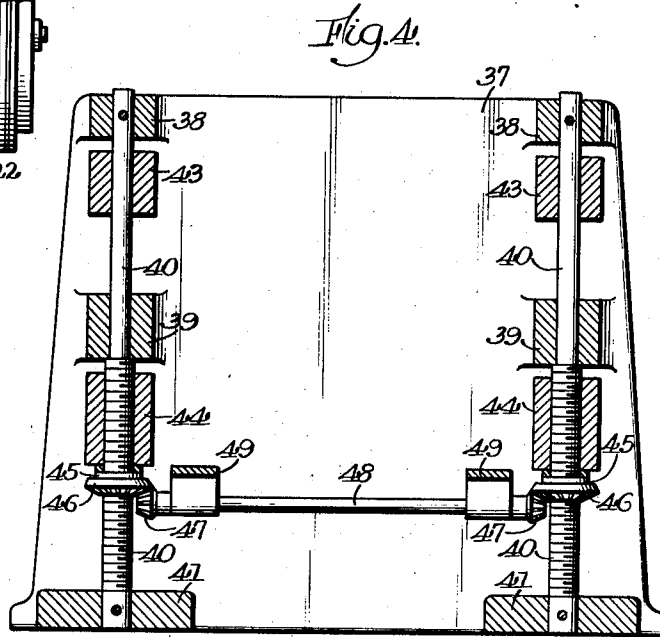
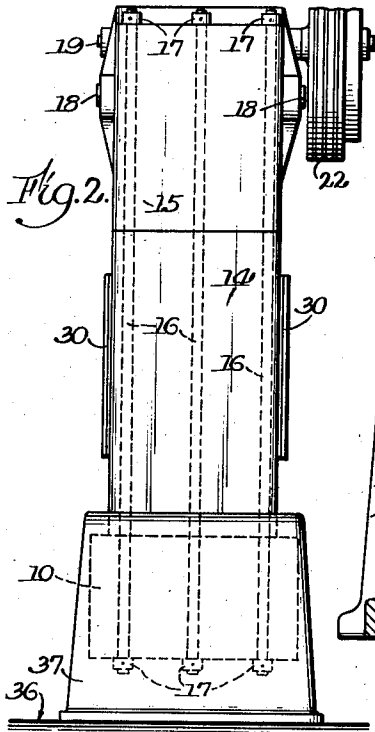
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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PRESS

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6 Claims. (Cl. 113—38)

In presses of the type embodying a bed and a slide reciprocable toward and away from the bed, it is necessary to at times vary the working space between the bed and the slide so as to accommodate work of different sizes. That is, in some instances, material of a comparatively small thickness is to be operated upon, while at other times the work may be of much greater thickness.

To compensate such varying thicknesses, most presses have been provided with means whereby the adjustment necessary to take care of such varying thicknesses, may be obtained by adjustable connections between the slide and the operating mechanism therefor.

Such an adjustment, however, does not overcome all of the objections and difficulties, because when the bed of the press remains fixed, and when such adjustment is obtained by adjusting the slide, the working height or plane in many instances, is inconvenient and awkward for the operator.

It has been proposed, however, to overcome some of these objections by providing a bed which is bodily adjustable, so as to be raised and lowered to maintain the working height in a plane which will be convenient for the operator, and at the same time dispense with the necessity of an adjustment in the slide.

A simple and convenient means for accomplishing such adjustment of the bed has been the provision of screws for supporting the bed for such adjustment, the adjustment of the bed being accomplished by rotating the screws.

This also has in a measure proven unsatisfactory, due to the fact that the entire force of the blow caused by the slide upon the work, is directly conveyed by the bed to the supporting screws, and as there is always, in presses of this character, a certain degree of deflection or spring in the bed with respect to the frame of the press, under such force, the adjusting mechanism will become injured with the result that after the press has been used for a short period of time, proper adjustment, positioning and the alinement of the surface of the bed with relation to the slide guides, as well as the alinement of the lower face of the slide with relation to the bed, is impossible.

It is one of the objects of the present invention to overcome all of these difficulties and objections, and to provide in a press of this character, improved means whereby the bed may be readily adjusted while the adjusting means will be relieved of the force of the blow of slide against the work upon the bed.

A further object is to provide in a press of this character improved means whereby the entire press may be bodily adjusted to raise or lower the bed while the stress or strain caused by the slide upon the bed will be resisted by the press frame and the tie rods therefor, and at the same time the adjusting mechanism for raising and lowering the bed will be relative of such strains.

A further object to provide improved means whereby the bed may be raised or lowered at any time without necessitating the adjustment of any of the other parts of the press.

To the attainment of these ends, and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts, hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention and in which,

Figure 1 is a view partly in front elevation, partly in section, and partly broken away of a press of this character constructed in accordance with the principles of this invention.

Figure 2 is a side elevation of Figure 1 on a reduced scale.

Figure 3 is a horizontal sectional view, taken on line 3—3 of Figure 1, on an enlarged scale.

Figure 4 is a detail sectional view, taken on line 4—4 of Figure 3.

The press consists essentially of a base 10, the upper surface 11 of which constitutes the bed of the press upon which is mounted a bed plate 12 and a die 13.

Uprights 14 extend above the bed of the press and support a crown 15, these parts being fastened or tied together by means of tie rods 16 provided with threaded extremities to receive nuts or collars 17.

The uprights and portions of the base of the press are preferably hollow, and the tie rods, any number of which may be provided, passing through such hollow portions will be housed and protected thereby.

The crown is preferably hollow and shafts 18 may be journaled in the walls thereof, and may be driven in any suitable manner from drive shafts 19, through the medium of intermediate gears 20 and 21, and the shafts 19 may in turn be driven in any suitable manner from a drive pulley 22 or otherwise.

Connected with the shafts 18 are eccentrics 23, any suitable number of which may be provided, and cooperating with each of the eccentrics is an eccentric strap 24 having an arm 25, which is pivotally connected as at 26, to a mem-

ber 27, that slides through a suitable guide 28, and is adjustably connected to a slide 29 that reciprocates on guides 30 carried by the up-rights 14.

5 The members 27, any number which may be provided, but preferably four, maintain the slide 29 in a horizontal position, and are each preferably provided with threads 31 at one end thereof, to be engaged by threaded members 32 se-
10 cured to the slide 29 for rotation with respect thereto, so that by rotating the members 32, the slide 29 will be adjusted with respect to the members 27 in directions lengthwise of their longitudinal axes.

15 These members 32 may be rotated to procure such adjustment, in any suitable manner, but they are each preferably provided with a portion 33 in the form of a bevel gear, engaged by suitable operating gears 34 as is usually in presses
20 of this character.

By the rotation of the members 32, it will be seen that the fixed position of the slide 29 with respect to the axes of the shafts 18 and the work supporting surface of the bed, may be
25 varied so as to vary the working space between the die 35 carried by the slide 29, and the bed plate 12 carried by the base or bed of the machine.

The entire structure of the press thus described
30 is supported by bodily and vertical adjustment with respect to the supporting surface 36 for the press, and thereby render it possible to raise and lower the entire frame so as to vary the working height of the surface of the bed and
35 bed plate 12, to move the same into a position which is convenient for the operator and according to the thickness and nature of the work being operated upon.

To that end there is provided suitable supports
40 37 which are mounted upon the surface 36 and these supports are provided with laterally extending ears or projections 38 and 39, which are preferably spaced from each other in a vertical plane.

45 Upright non-rotatable screws or threaded shafts 40 are mounted upon the supports 37, one end of each of the screws being held in a suitable bearing 41, and the other end of the shaft or screws are held in the projections 38, while the
50 body of the shaft or screw passes through the projection 39.

If desired, a portion only of the shaft 40 may be provided with threads while another portion 42 may be smooth so as to pass freely through
55 the projections 39 and 38.

Carried by the bed of the press and formed integral therewith are ears or projections 43 and 44, the projection 43 preferably extending into the space between the projections 38 and 39 on
60 the supports 37, while the projection 44 preferably extends below the projections 39 of the supports 37.

Rotatably mounted upon the threaded portion of each of the shafts or screws 40 is a member
65 45, which engages the threads, and this member 45 is rotatably connected to the projection 44 or may be disconnected therefrom, and in the latter event, the members 45 having threaded engagement with the shaft or screw 40 will serve
70 as supports for the frame of the machine which rests thereupon by reason of the lower faces of the projections 44 engaging and resting upon the members 45.

Any number of these screws or shafts 40 may
75 be provided, but it is preferable to provide four,

one at each corner of the bed or frame of the press, as shown more clearly in Figure 3.

Each of the members 45 is provided with a portion 46, preferably in the form of a bevel gear, and the gears at the respective ends of the bed
5 of the press mesh with bevel gears 47 carried by a shaft 48 journaled in suitable bearings 49. Bevel gears 50 also mesh with the bevel gears 46, and the gears 50 at the front and rear of the press bed at opposite ends of the press, are
10 respectively connected by means of a shaft 51, so that when the shafts 51 are rotated the bevel gears 46 will be simultaneously rotated, and as the shafts or screws 40 are maintained against rotation the members 45 will be fed or moved
15 simultaneously in directions lengthwise of the respective shafts or screws 40, to raise or lower the entire press frame including the bed, according to the direction of rotation of the gears 46, and this will result in the raising and lowering
20 of the working plane of the surface of the bed.

Any suitable means may be provided for rotating the shafts 51, but a simple and efficient means embodies a motor 52 on the shaft 53 of
25 which is secured a bevel gear 54 that meshes with a bevel gear 55 secured to one of the shafts 51, the shafts 51 being journaled in suitable bearings 56.

Meshing with the bevel gear 55 is a bevel gear
30 57, secured to a shaft 58 that is journaled in suitable bearings 59, and secured also to the shaft 58 is a bevel gear 60 which in turn meshes with a bevel gear 61 secured to the other of the shafts 51.

Thus it will be seen that upon operation of
35 the motor 52, which latter may be controlled at will in any suitable manner (not shown) and well-known, the members 45 at the four corners of the bed will be simultaneously rotated and the press frame will be bodily raised or lowered
40 accordingly.

In presses of this character and where the force of the stroke of the slide 29 is considerable, the bed or base of the frame will spring or
45 will be deflected under such force, but by reason of the fact that in the present invention, the bed with the crown and uprights being tied and fastened together by means of the tie rods 16, such force will be resisted by tie rods, as well as the press frame, and this will relieve
50 the adjusting screws or shafts 40 from such stress or strain, and only the dead weight of the press frame will be supported by the adjusting screws.

The springing or deflection of the bed of the
55 press under the force of the blow of the slide, being resisted by the tie rods 16, and such deflection or stress being prevented from being exerted upon the upright screws or shafts 40, the result will be that proper alinement and positioning of the adjusting parts will not be inter-
60 ferred with.

Furthermore, with this invention, it is possible to raise and lower the bed to vary the working plane to any height without adjust-
65 ing any of the other parts of the press, and by reason of the simultaneous adjustment of the screws or shafts at the corners of the bed or frame, the press as well as the bed, will be maintained in a horizontal position regardless of
70 the amount of adjustment.

While in the present exemplification of the invention the press is shown and described as having the slide 29 operated by power driven shafts, it is to be understood that the invention
75

is applicable to any form of press, such as a press wherein the slide is operated by toggles or by hydraulic or other means.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction, and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A press comprising a rigid frame structure embodying a base, a slide reciprocable towards and away from the base and exerting its operative force against said base, standards independent of and disposed outside of the frame adjacent the corners of said frame, vertical bearings carried by the standards, co-operating vertical bearings carried by the frame and arranged in alignment with the bearings of the respective standards, threaded upright members passing through the respective co-operating bearings on the standards and frame, rotatable members threaded upon said uprights and operatively connected with said frame, and means for rotating the last said members to bodily and vertically adjust said frame with respect to the standards to vary the working height of the bed, the force of the operative stroke of the slide against said bed being sustained by said frame, said upright threaded members being relieved of such force.

2. A press comprising a rigid frame structure embodying a base, a slide reciprocable towards and away from the base and exerting its operative force against said base, standards independent of and disposed outside of the frame adjacent the corners of said frame, vertical bearings carried by the standards, co-operating vertical bearings carried by the frame and arranged in alignment with the bearings of the respective standards, stationary upright screws in the respective co-operating bearings on the standard and frame, rotatable members threaded upon said screws and operatively connected with said frame, means for simultaneously and concomitantly rotating said members with respect to said screws to bodily and vertically adjust said frame to vary the working height of said bed, the operative working force of said slide being sustained by said frame and said screws being relieved of such working force of the slide.

3. A press comprising a rigid frame structure embodying a base, a slide reciprocable toward and away from the base and exerting its operative force against said base, standards independent of and disposed outside of and adjacent the corners of the frame, vertical bearings carried by the standards, co-operating vertical bearings carried by and outside of the frame and arranged in alignment with the bearings of the respective standards, upright members passing through the respective co-operating bearings on the standards and frame, portions of said upright members being threaded, a member threaded upon each of the said upright members and operatively connected to the frame, one of each of the co-operating members being non-rotatable and the other being rotatable, and means for rotating the rotatable members to bodily adjust the frame and bed to vary the working height of the bed.

4. A press comprising a rigid frame structure embodying a base, a slide reciprocable toward and away from the base and exerting its operative force against said base, standards independent of and disposed outside of and adjacent the corners of the frame, vertical bearings carried by the standards, co-operating vertical bearings carried by and outside of the frame and arranged in alignment with the bearings of the respective standards, upright members passing through the respective co-operating bearings on the standards and frame, portions of said upright members being threaded, a member threaded upon each of the said upright members and operatively connected to the frame, one of each of the co-operating members being non-rotatable and the other being rotatable, and means for rotating the rotatable members to bodily adjust the frame and bed to vary the working height of the bed, said bearings and said co-operating upright members being disposed within the confines of the front and rear faces of the frame structure.

5. A press comprising a rigid frame structure embodying a base, a slide reciprocable toward and away from the base and exerting its operative force against said base, standards independent of and disposed outside of the frame adjacent the corners of said frame, vertical bearings carried by said standards, co-operating vertical bearings carried by the frame and arranged in alignment with the bearings of the respective standards, threaded upright members passing through the respective co-operating bearings on the standards and frame, rotatable members threaded upon said uprights and operatively connected with said frame, a source of power, and actuating mechanism comprising a symmetrical drive connection between said rotatable members and said source of power for uniformly and simultaneously actuating the last said members to effect a bodily vertical adjustment of said frame to vary the working height of said bed, the force of the operative stroke of the slide against said bed being sustained by said frame, said upright threaded members being relieved of such force.

6. A press comprising a rigid frame structure embodying a base, a slide reciprocable toward and away from the base and exerting its operative force against said base, standards independent of and disposed outside of and adjacent the corners of the frame, vertical bearings carried by the standards, co-operating vertical bearings carried by and outside of the frame and arranged in alignment with the bearings of the respective standards, threaded upright members passing through the respective co-operating bearings on the standards and frame, a member threaded upon each of said upright members and operatively connected to the frame, one of each of the said co-operating members being non-rotatable and the other being rotatable, a source of power, and actuating mechanism comprising a symmetrical drive connection between the said rotatable members and the said source of power concomitantly actuating said rotatable members to effect a bodily vertical adjustment of the frame to vary the working height of the bed.

RUDOLPH W. GLASNER. 70