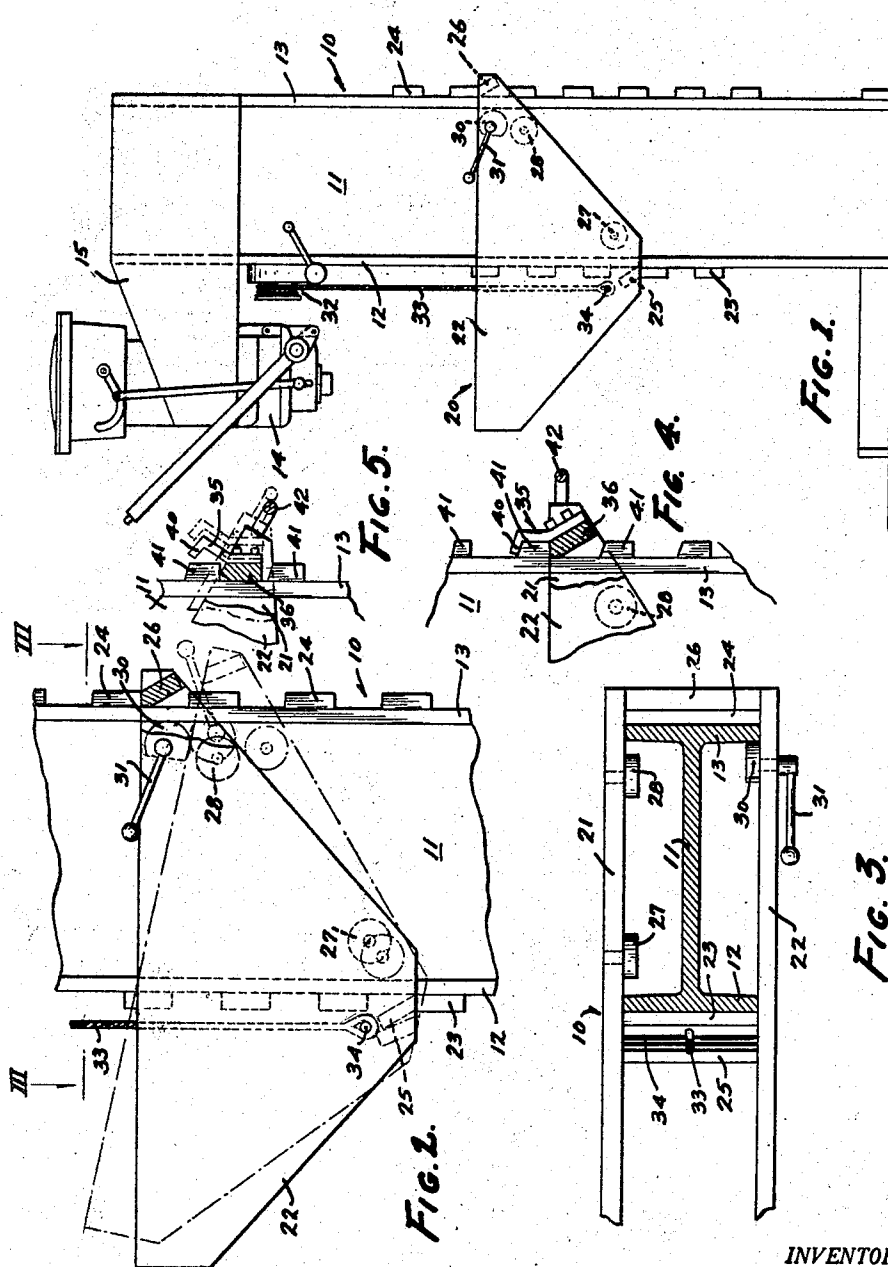


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HYDRAULIC PRESSES
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HYDRAULIC PRESSES

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My invention relates in general to hydraulic presses and in particular to an adjustable table for such presses.

As is well known to those skilled in the art, it is necessary to adjust the height of the table of a hydraulic press in relation to the rams thereof to accommodate various size workpieces. Since the table of the present day press is usually supported by a number of pins carried by the supporting standard, adjustment is accomplished by adjusting alternate ends of the table by removing one pin at a time or by the removal of both the pins while the table is supported and adjusted by means of a windlass.

The principal object of my invention has been to provide a table which is adjustably supported by lugs carried at opposite sides of the table and engageable with detents formed on opposite sides of the framework of the machine.

Another object has been to provide a table comprising two side plates slidably mounted on a single vertical standard and provided with detent means so located that when the table is tilted backwardly from its working position, the detents will become disengaged and the table may then be moved up and down to the desired location.

Another object has been to provide cam means for drawing the table into working position after adjustment.

Moreover, my device is provided with a windlass attached to the table at such a position that when the detents are disengaged from the standard, the table will occupy a position where it can be readily moved up or down to the desired location.

Moreover, my table is provided with guide rollers which engage flanges carried by the standard, whereby the table is guided in its vertical movement.

Furthermore, one of the detents carried by the table may be provided with locking means to hold the table against tilting until the operator is ready to make the adjustment thereof.

The above objects and advantages have been accomplished by the device shown in the accompanying drawings, of which:

Fig. 1 is a side elevation of a hydraulic press equipped with my improved table;

Fig. 2 is an enlarged fragmentary side elevation thereof;

Fig. 3 is a fragmentary plan view taken on line III—III of Fig. 2;

Fig. 4 is an enlarged fragmentary view of a modified form of the invention; and

Fig. 5 is a similar view with the parts in their released positions.

In the drawings, a hydraulic press is shown which is provided with a single standard 10 made preferably of I-beam section having a central web 11 and opposite flanges 12 and 13. The hydraulic cylinder 14 of the press is carried by side plates 15 secured to the edges of the flanges 12 and 13 of the I-beam at the upper end thereof.

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The table 20 of my device preferably comprises two plates 21 and 22 arranged one on each side of the standard 10 and secured together in spaced relation so as to be freely movable thereon. Over the area traversed by the table, the front flange 12 is provided with a series of spaced abutments 23, and the back flange 13 is provided with a similar series of spaced abutments 24. The table is provided with a front stop 25 which extends across between the plates and which is carried at the lower edge thereof. The stop 25 is engageable when moved downwardly with one of the abutments 23. In like manner, a back stop 26 is carried near the upper edge of the table plates at the rear thereof and is engageable when moved in an upward direction with the registering abutment 24. As will be seen by the full line position of the table in Figs. 1 and 2, the stops 25 and 26 will be in engagement with the registering abutments 23 and 24 when the table is in its horizontal or working position. The stops are preferably inclined away from the adjacent flange so as to bring the engaging faces in firm contact with the adjacent abutment. The table is drawn to and held in its working position by means of a cam 30, pivotally mounted in one of the plates and engageable with the inner face of the rear flange 13. The cam is actuated by means of a lever 31. When the table is in its working position, it will be obvious that any load placed upon the forwardly projecting portions of the table plates will be taken by the stops 25 and 26 and their engaging abutments.

A suitable windlass 32 is mounted upon the flange 12 of the standard and a cable 33 carried thereby has its lower end attached to the table at a point 34 which is located forwardly of the center of gravity of the table. When the cam 30 is released it will permit the rear of the table to move downwardly as it is supported by the cable 33 of the windlass thus permitting the table to assume the position shown in the dot and dash lines of Fig. 2. In this position the stops 25 and 26 are moved away from the adjacent detents to permit the table to be moved up or down depending upon the adjustment required guided by the rollers 27 and 28 carried by one of the side plates of the table and engageable with the inner faces of the flanges 12 and 13. Such movement may be accomplished by the windlass 32. When the table is adjusted to a point opposite the desired position, it can easily be moved by the operator to a substantially horizontal position, thus causing the front stop 25 to be brought inwardly where it may engage the abutment below it upon further downward movement. Such pivotal movement of the table around the front stop 25 will cause the rear stop 26 to be brought upwardly to a point of engagement with the registering abutment 24. This may be accomplished by actuation of the cam 30 which will thus lock the table in its adjusted position.

In the modified form of the invention shown in Fig. 4, a tilt lock 35 is shown secured to the back stop 36. This lock is formed as to overlie the adjacent abutment 41 and is formed at its upper end with an inwardly projecting arm 40. The engaging surfaces of the arm and abutments are inclined outwardly so that the arm 40 will clear the top surface of the abutment when the front side of the table is lifted. During this movement, the rear end of the table pivots or rocks about the engaged stop 41 and supports this end of the table during such tilting action. After such pivotal movement the table may be pushed backwardly to the dot and dash line position where it will be free to be moved up or down. In order to facilitate movement of the table when adjusting the same, a handle 42 may be provided which is secured to the rear of the plates 21 and 22.

From the foregoing it will be obvious that my invention provides a very rigid table which may be adjusted

vertically with great ease and without the necessity of having to withdraw and replace any movable parts such as pins or the like. Moreover, the table cannot slip out of position and fall owing to the fact that it is controlled by means of the windlass and is held in position by the stops 25 and 26 which are engageable with the front and back flanges of the standard.

While I have shown a hydraulic press having but a single standard, it is obvious that the table construction may be used on presses having two spaced standards of structural shape and having detents arranged at similar positions on opposite standards, whereby when both tables are adjusted to the same detent, they would be in proper alinement.

What is claimed is:

1. A work support for presses, and the like, comprising an upright, a work supporting table vertically adjustable thereon and having stops interengaging with abutments on the upright to hold it in a given adjustment, said stops being disengageable from said abutments by and upon tilting the table upwardly on the upright for changing the adjustment, and cable means connected to the table off center and operable to lift and thereby tilt the table to effect shoulder disengagement and thereafter to carry it to a new adjustment.

2. A work support for presses and the like, comprising a vertical upright of angular cross section having inner and outer opposed surfaces, interspaced abutments carried by said upright and disposed on opposite outer surfaces thereof, a work supporting table vertically adjustable upon said upright and having an upright engaging portion and a work supporting portion, said work supporting portion extending forwardly of said upright, the upright engaging portion of said table having stops interengaging with said abutments to hold the table in a given position of adjustment, said stops being disengageable from said abutments by and upon upward tilting of the work-engaging portion of said table for changing the adjustment of said table, and table elevating means carried by said upright and arranged at the work supporting portion thereof, said elevating means being connected to said table at the front of said upright and at a point offset from the center of gravity of said table to cause tilting of said table when lifted by said elevating means to affect stop and shoulder disengagement and thereafter to carry said table to a new position of adjustment.

3. A work support for presses and the like, comprising a vertical upright of angular cross section having inner and outer opposed surfaces, interspaced abutments carried by said upright and disposed on opposite outer surfaces thereof, a work supporting table vertically adjustable upon said upright and having an upright engaging portion and a work supporting portion, said work supporting portion extending forwardly of said upright, the upright engaging portion of said table having stops interengaging with said abutments to hold the table in a given position of adjustment, said stops being disengageable from said abutments by and upon upward tilting of the work-engaging portion of said table for changing the adjustment of said table, table elevating means carried by said upright and arranged at the work supporting portion thereof, said elevating means being connected to said table at the front of said upright and at a point offset from the center of gravity of said table to cause tilting of said table when lifted by said elevating means to affect stop and shoulder disengagement and thereafter to carry said table to a new position of adjustment, and locking means carried by said table and engageable with the inner surface of

said upright to cause stop and abutment engagement and thereafter to hold said table in fixed position.

4. A work support for presses and the like, comprising a vertical upright of angular cross section having inner and outer opposed surfaces, interspaced abutments carried by said upright and disposed on opposite outer surfaces thereof, a work supporting table vertically adjustable upon said upright and having an upright engaging portion and a work supporting portion, said work supporting portion extending forwardly of said upright, the upright engaging portion of said table having stops interengaging with said abutments to hold the table in a given position of adjustment, said stops being disengageable from said abutments by and upon upward tilting of the work-engaging portion of said table for changing the adjustment of said table, guide abutments carried by the upright engaging portion of said table and engageable with the inner opposed surface of said upright, and table elevating means carried by said upright and arranged at the work supporting portion thereof, said elevating means being connected to said table at the front of said upright and at a point offset from the center of gravity of said table to cause tilting of said table when lifted by said elevating means to affect stop and shoulder disengagement and thereafter to carry said table to a new position of adjustment.

5. A work support for presses and the like, comprising a vertical upright of angular cross section having inner and outer opposed surfaces, interspaced abutments carried by said upright and disposed on opposite outer surfaces thereof, a work supporting table vertically adjustable upon said upright and having an upright engaging portion and a work supporting portion, said work supporting portion extending forwardly of said upright, the upright engaging portion of said table having stops interengaging with said abutments to hold the table in a given position of adjustment, said stops being disengageable from said abutments by and upon upward tilting of the work-engaging portion of said table for changing the adjustment of said table, guide abutments carried by the upright engaging portion of said table and engageable with the inner opposed surfaces of said upright, table elevating means carried by said upright and arranged at the work supporting portion thereof, said elevating means being connected to said table at the front of said upright and at a point offset from the center of gravity of said table to cause tilting of said table when lifted by said elevating means to affect stop and shoulder disengagement and thereafter to carry said table to a new position of adjustment, and locking means carried by said table and engageable with the inner surface of said upright to cause stop and abutment engagement and thereafter to hold the table in fixed position.

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