June 4, 1957 W. ERNST 2,794,583

PRESS LADDER CONSTRUCTION

Filed Aug. 2, 1952 2 Sheets-Sheet 1

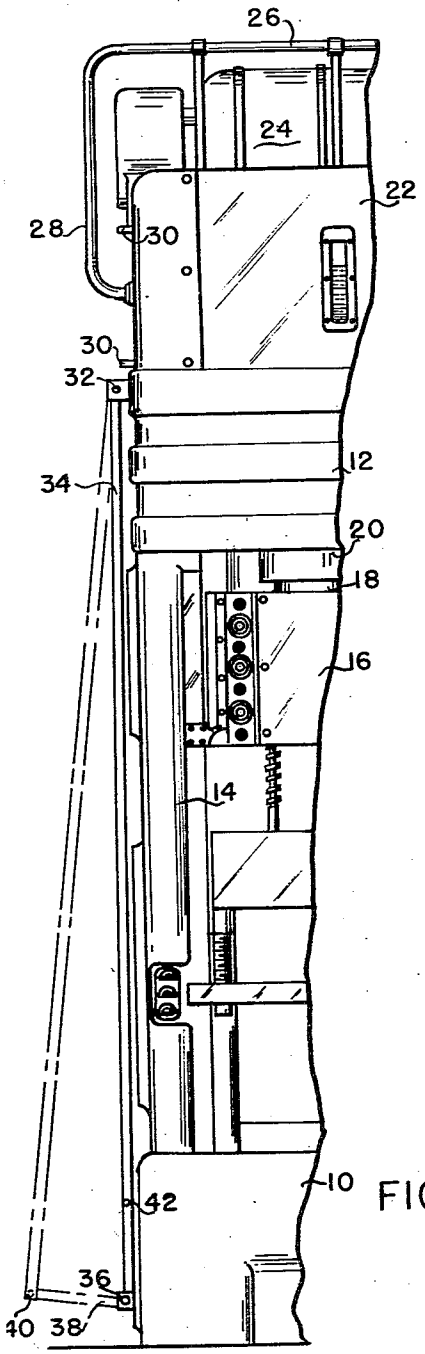


FIG-1

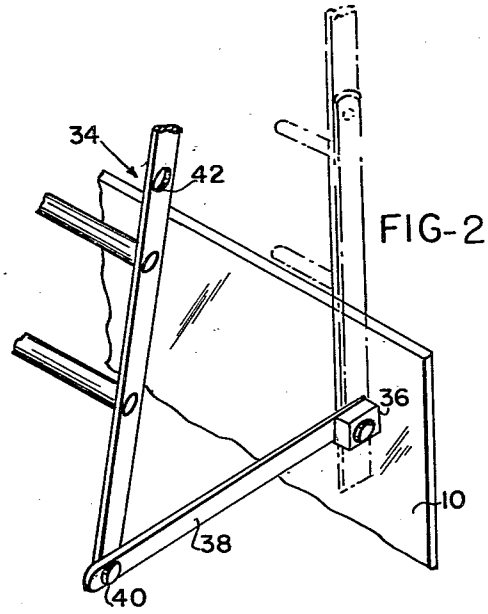


FIG-2

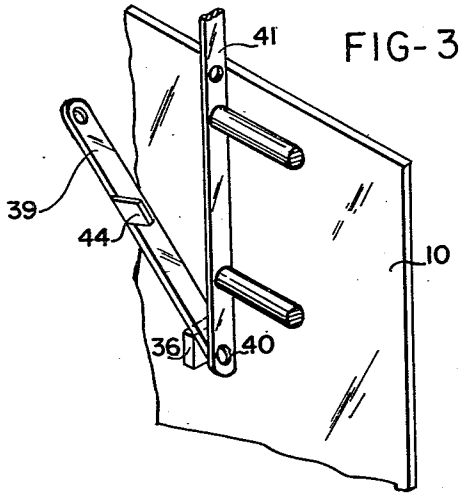


FIG-3

INVENTOR
WALTER ERNST
BY Toulmin & Toulmin
ATTORNEYS

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PRESS LADDER CONSTRUCTION

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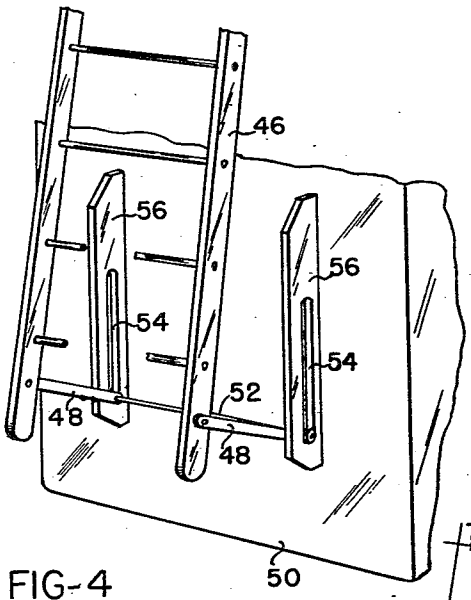


FIG-4

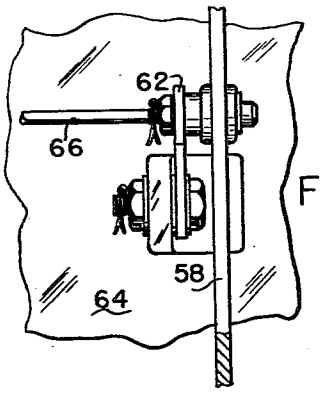


FIG-7

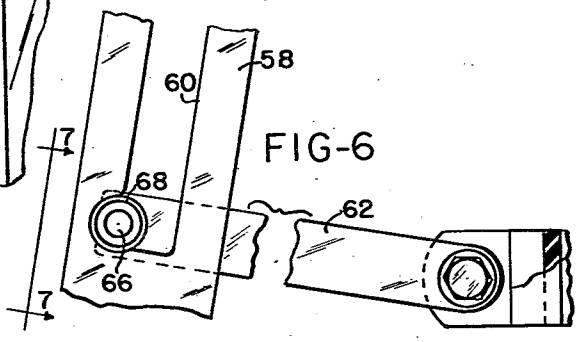


FIG-6

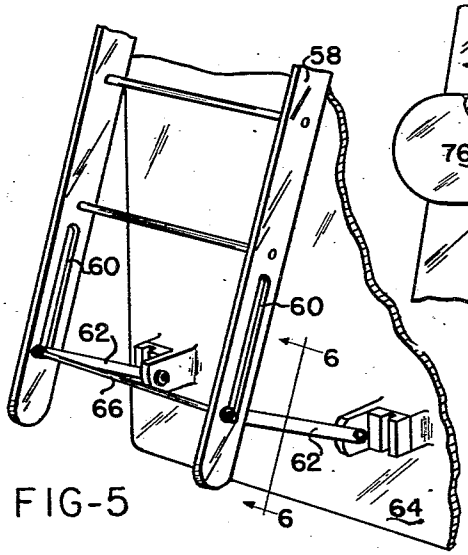


FIG-5

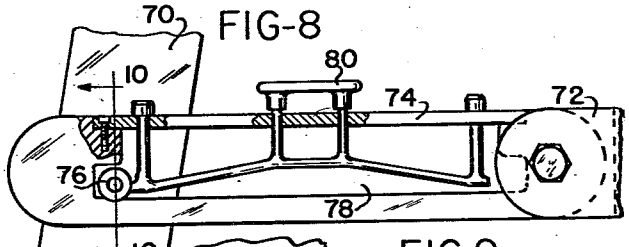


FIG-8

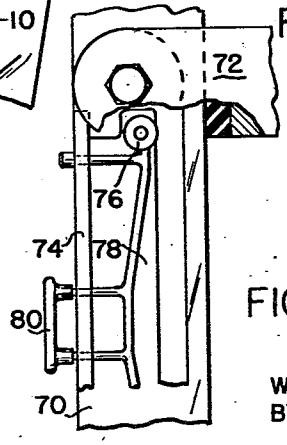


FIG-9

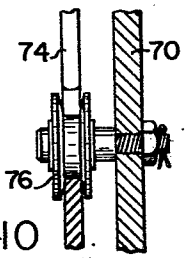


FIG-10

INVENTOR
WALTER ERNST
BY Toulmin & Toulmin
ATTORNEYS

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PRESS LADDER CONSTRUCTION

Walter Ernst, Dayton, Ohio, assignor to The Commonwealth Engineering Company of Ohio, Dayton, Ohio

Application August 2, 1952, Serial No. 302,379

1 Claim. (Cl. 228—48)

This invention relates to press constructions, particularly to a novel ladder construction for gaining access to the top of the press and is a continuation-in-part of my co-pending application, Serial No. 115,901, filed September 15, 1949, and now Patent No. 2,672,836.

In large presses, particularly hydraulic presses, it is customary to mount the hydraulic power unit and the fluid reservoir and tank together with at least some of the operating valves on top of the press head. These elements require frequent inspection and servicing, and for this purpose it is customary to provide a ladder attached to the press frame so a workman can climb up to the top of the press.

Inasmuch as there is inevitably some accumulation of oil on the press frame and on the ladder it is rather difficult to ascend and descend the usual type of ladder because it is generally a vertical arrangement having round rungs therein.

The ladder is usually arranged perfectly vertically and closely adjacent to the press in order to conserve floor space, and this increases the possibility of the ladder becoming coated with an oily film.

Having the foregoing in mind, it is a primary object of this invention to provide a ladder arrangement for a press, particularly a hydraulic press, in which the difficulty of ascending and descending the ladder because of its slippery and oily condition is largely eliminated.

Another object of this invention is the provision of a ladder arrangement for a press, particularly a hydraulic press, which is secured to the press in an out-of-the-way position when not in use, but which can be moved to a more accessible position when it is desired to use the ladder.

Another object of this invention is the provision of a ladder for a press having an out-of-the-way idle position and a more accessible use position in which the ladder is prevented from shifting accidentally from either position.

These and other objects and advantages of this invention will become more apparent upon reference to the following specification taken in connection with the accompanying drawings, in which:

Figure 1 is an elevational view of one side of a hydraulic press construction having a ladder, according to this invention;

Figure 2 is a perspective view of the ladder arrangement of Figure 1;

Figure 3 is a view like Figure 2 but showing a modified arrangement of the ladder;

Figure 4 is a view like Figure 3 showing still another modification;

Figure 5 is still another view like Figure 3, but shows a still further modification of this invention;

Figure 6 is a side view of the Figure 5 arrangement, indicated by line 6—6 on Figure 5;

Figure 7 is a view looking in at the Figure 5 construction, as indicated by line 7—7 on Figure 6;

Figure 8 is a view showing a still further modified arrangement with the ladder in use position;

Figure 9 is a view of the Figure 8 construction, showing the ladder in rest or idle position; and

Figure 10 is a sectional view of line 10—10 on Figure 8.

Referring to the drawings somewhat more in detail, the press illustrated in Figure 1 comprises a bed 10 and a head 12 between which extends uprights 14 with the assembly being secured together by strain rods which are not shown. Press platen 16 is reciprocal between the head and bed and is powered by a ram 18 extending into a cylinder 20 in the press head.

Mounted on top of the press head is a fluid tank or reservoir 22 and pumping means adapted for being driven by a motor 24. The principal valves for controlling the energization of the hydraulic motor are also mounted on the press head.

A guard rail 26 is provided about the space on top of the press head and reservoir, and access to this space can be had through the opening 28 in the guard rail arrangement, and in which opening there may be provided the steps 30.

Pivoted as at 32 to the press head is a ladder 34 comprising side rails and rod rungs extending therebetween.

On the bed 10 of the press there are provided the lugs or blocks 36, to which are pivoted the arms 38. Arms 38 are apertured at the outer ends and which apertures are adapted for registering with the apertures 40 at the lowermost ends of the saide rails of ladder 34, or with the apertures 42 spaced upwardly on the side rails of the ladder.

As will be seen in Figure 2, when the bars 38 are connected with the ladder 34 at the apertures 40, the ladder is tilted outwardly from the press so that it is easy to ascend and descend the ladder and with a greater degree of safety than when the ladder is vertically mounted on the side of the press.

However, when the ladder is not in use, bars 38 can be connected therewith at the apertures 42 and at that time the ladder will be held close against the side of the press, and thus be in an out-of-the-way position. It will, therefore, be seen that this provides for a ready means of improving the safety and convenience of the press, and, particularly, for the servicing or inspection of the hydraulic elements mounted on the press head.

In Figure 3 there is illustrated a modified arrangement where the bars 39 which correspond with the bars 38 in Figures 1 and 2, are provided with small clips 44 that engage the adjacent side rails of the ladder 41 when the ladder is positioned against the side of the press. Provision of the clips 44 insures that the ladder will be firmly clamped against the side of the press when not in use.

In Figure 4 the ladder, which is pivoted to the head of the press as in Figure 1, is identified at 46 and pivoted to the bottoms of the side rails of the ladder are the bars 48. The ends of the bars 48 at bed 50 of the press are traversed by a rod 52 having its ends slidingly guided in the slots 54 of the members 56 mounted on the press bed.

In use, the Figure 4 arrangement can be collapsed against the side of the press by raising rod 52 in slots 54, and the pulling outwardly of the bottom of the ladder when it is to be used will permit rod 52 to drop to the bottom of slots 54, and in which position the ladder will remain until it is deliberately collapsed.

In Figure 5 the pivoted ladder is indicated at 58 and is provided with the slots 60 in the lower ends of its side rails. A pair of bars 62 are pivoted to the press bed 64 and have their outer ends connected by a rod

66 that slidably engages the slots 60 in the side rails of the ladder.

As will be seen in Figure 6, the lowermost ends of slots 60 include the recesses 68 for receiving the ends of bar 66 or rollers which may be mounted thereon. When the Figure 5 arrangement is to be placed in use position, the lower end of the ladder is pulled out and the rod 66 will drop to the bottoms of slots 60, whereupon releasing of the ladder will permit the recesses 68 to engage the said rod or the rollers thereon, and thus to lock the ladder in place.

When the ladder is to be collapsed it is pulled outward slightly and the rod 66 raised upwardly in the slots 60, whereupon the ladder will collapse against the side of the press.

In Figure 8 the pivoted ladder bears numeral 70 and pivoted on brackets 72 mounted on the side of the press bed are the bars or arms 74. The rollers 76 on the side rails of the ladder are received in the slot means 78 in the arms or bars 74. The latch 80 on each arm is adapted to lock the rollers 76 at either end of its slot so that the ladder can be locked at its Figure 8 or use position, and also locked in its Figure 9 or collapsed position.

In any case, with any of the modifications referred to above, the advantage obtains that the ladder can readily be shifted from a tilted use position where it is convenient to use or collapsed back flat against the side of the press where it occupies the least possible amount of space.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions, and, accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claim.

I claim:

A ladder for an oil operative hydraulic equipment having improved safety in operation, said ladder comprising parallel side rails extending the length of the ladder, rungs spaced longitudinally of said rails and disposed transversely and joining said side rails, frame means for supporting said ladder, a bracket arranged on said frame adjacent the upper end of said ladder, pivot means for securing the upper ends of said ladder rails whereby said ladder may be swung to and from said frame, each of said side rails being provided with elongated slots near the lower end thereof, a pair of brackets mounted on said frame adjacent the lower end of said ladder rails, slot means disposed adjacent each of said lower brackets and arranged to receive the rails of said ladder when the ladder is swung against the frame, a pair of parallel bars disposed at the lower end of said ladder rails, said bars being pivotally connected at their inner ends to said pair of brackets and at their outer ends to a rod, said rod being slidably engaged at its outer ends in said elongated slots, said pivot means at the top and the pivot at the bottom of said ladder and said rod lying in the same plane which plane is parallel to and spaced from said frame means when the ladded is pivoted against said frame.

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