

W. L. RIEDY.
SAFETY DEVICE FOR HYDRAULIC PRESSES.
APPLICATION FILED OCT. 25, 1920.

1,384,348.

Patented July 12, 1921.

FIG. 1.

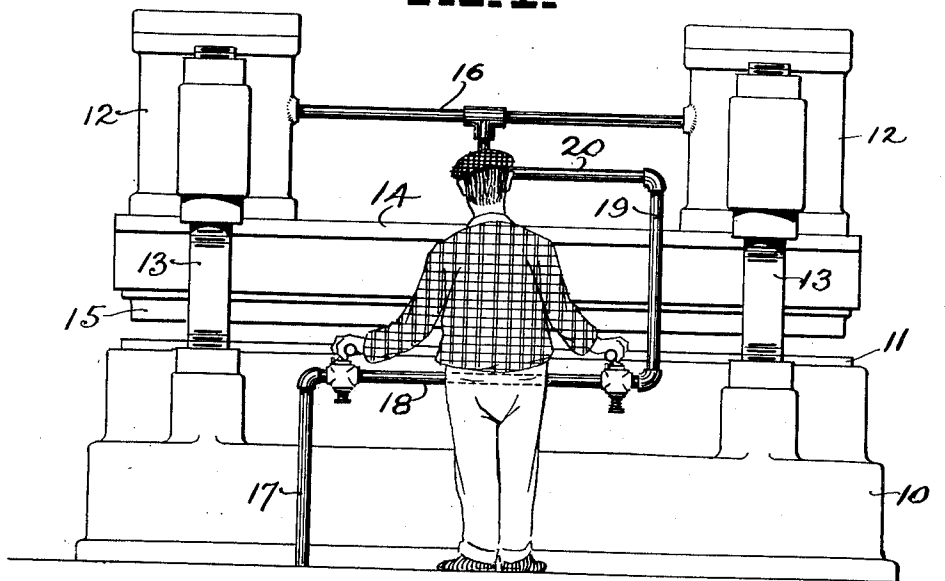
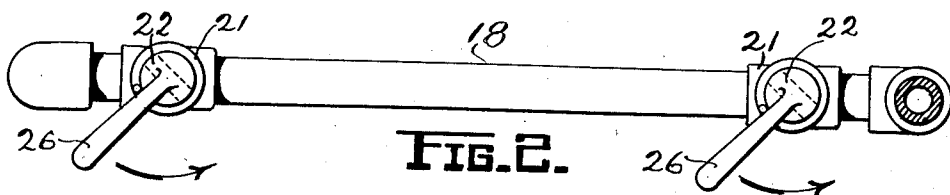


FIG. 2.

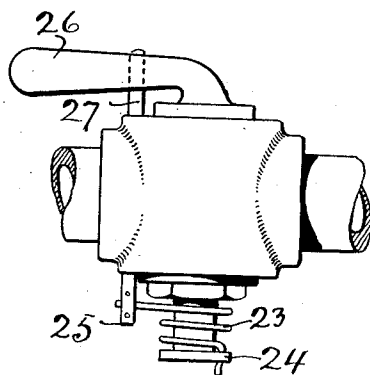


FIG. 3.

INVENTOR
Walter L. Riedy.

BY
Erwin, Wheeler & Woodard
ATTORNEYS

WITNESS
Phil J. Hawn
Del.

UNITED STATES PATENT OFFICE.

WALTER L. RIEDY, OF HOUGHTON, MICHIGAN.

SAFETY DEVICE FOR HYDRAULIC PRESSES.

1,384,348.

Specification of Letters Patent. Patented July 12, 1921.

Application filed October 25, 1920. Serial No. 419,403.

To all whom it may concern:

Be it known that I, WALTER L. RIEDY, a citizen of the United States, and a resident of the village of Houghton, in the county of Houghton and State of Michigan, have invented a certain new and useful Improvement in Safety Devices for Hydraulic Presses; and I do declare the following to be a clear, exact, and complete description thereof, such as will enable others skilled in the art to which the invention pertains to make and use the same, reference being had to the accompanying drawing, as showing one construction in which my invention has been embodied.

The invention relates to safety appliances used in connection with hydraulically operated presses.

Although hydraulic presses as heretofore constructed, have been equipped with safety devices, such devices have not proven efficient as an insurance against accidental injury to the fingers of the workman while operating the press. It is well known in this art that workmen become careless after long periods of operation of a press, and do not always exercise a proper degree of caution. Very often, when their hands are free, their fingers become caught between the dies of the press, with the result that serious injuries sometimes follow.

The purpose of my invention is to provide a construction of safety device for hydraulic presses, of such a nature that the press cannot be operated excepting by the use of both hands of the operator in releasing the control of the fluid pressure to bring about the operation of the press.

My invention resides in coupling the feed pipe which leads to the cylinders of the press, two separated stop cocks, which are automatically closed so as to cut off the pressure of the operating fluid, and which stop cocks must be simultaneously opened in order to allow the fluid pressure to flow. This simultaneous operation of the automatically closing stop cocks is effected by the operator taking one in each hand. He must therefore turn the levers of both stop cocks, to enable the press to operate.

The novel features of my invention will be pointed out in the appended claims.

In the drawings which form part of this specification,

Figure 1 is a view in elevation of a hy-

draulically operated press to which my invention has been applied.

Fig. 2 is a plan view of a section of the fluid conductor showing the arrangement of my safety device in connection therewith.

Fig. 3 is an enlarged view showing one of the automatic or self closing stop cocks as arranged in my invention.

In the drawings the numeral 10 indicates the base of the press, which latter is provided with a bed 11. Cylinders 12, of which there may be one or more, are connected to the base of the press by means of the straining rods 13. A vertically reciprocating head 14, carrying the die 15, is actuated by pistons in the cylinders 12 as is customary.

The operating fluid is conducted to the cylinders 12 by means of a pipe 16, to which leads a pipe 17 connected to the source of fluid supply. In the supply pipe 17, a horizontal run 18 is coupled, the latter also by means of other connecting pipes 19 and 20, leading to the pipe 16.

The length of the horizontal run 18 of the supply pipe will be in about the proportions shown, that is, the ends thereof will be within the reach of the workman when his hands are outstretched, as illustrated in Fig. 1. In carrying out my invention I couple into the horizontal run 18 of the supply pipe a pair of stop cocks 21, each coupled into the pipe 18, near the ends thereof. The plugs of these stop cocks have a single passage 22 adapted to be brought into line with the hollow of the pipe, by partially rotating them against the force of springs 23. The spring 23 encircles the projecting ends of the plug of the stop cock and is attached thereto at one end as at 24. The other end of the spring is confined by a stop 25 fixed in the barrel of the stop cock. The tendency of the said spring is to turn the plug of the stop cock, so that the passage 22 therein, will be out of alinement with the hollow of the pipe 18, and thus effectively cut off the flow of the fluid. The plug of the stop cock is provided with a hand lever 26, which is by the action of the spring 23, brought in contact with a stop 27, likewise fixed in the barrel of the stop cock. The pin 27 resists the rotary movement of the plug of the stop cock beyond the point necessary to cut off the flow of the fluid.

In order to enable the press to operate, it is essential that the plugs of both stop

cocks be rotated so that the fluid under pressure may have a free passage through the openings 22, and to effect this it is required that the workman simultaneously impart to the stop cocks the partial rotation necessary to aline the passages 22 with the hollow of the pipe 18. He cannot do this unless both of his hands be used to turn the levers of the stop cocks. If something between the dies of the press should attract his attention, and he should follow his natural impulse to dislodge the obstruction, if any, with the fingers of one hand, his release of his hold on one of the levers 26, will free the stop cock to the influence of the spring 23, and the flow of the fluid will be immediately arrested. In this way, possible injury to the workman is prevented.

From what has been stated, it is clear that the press cannot be made to operate unless both hands of the workman are engaged in turning both levers 26. The release of either lever will be followed by the instant arrest of the movement of the press, and thus the possibility of injury to the workman will be eliminated.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. In a hydraulic press, a bed, and a reciprocating head, the latter operated by fluid pressure, and a pipe for conducting the fluid for operating the said head, in combination with a safety device for controlling the fluid pressure exerted upon the reciprocating head, said safety device comprising two separated stop-cocks coupled into the conducting pipe and required to be turned by the hands of the workman to permit the flow of the operating fluid.

2. A safety device for hydraulic presses, comprising a fluid conducting pipe having coupled therein two separated normally closed stop cocks, which are required to be turned by the hands of the workman to permit the flow of the operating fluid.

3. A safety device for hydraulic presses, comprising a fluid conducting pipe having coupled therein two separated stop cocks, coil springs attached to the stems of the stop cocks and serving normally to close the latter against the passage of the fluid, hand levers attached to the stop cocks and required to be engaged by the hands of the workman and turned to permit the flow of the operating fluid.

4. A safety device for hydraulic presses, comprising a fluid conducting pipe having two separated stop cocks coupled therein, which stop cocks are required to be simultaneously turned by the hands of the workman to permit the flow of the operating fluid.

In testimony whereof I have signed my name at Houghton, this 20th day of October, 1920.

WALTER L. RIEDY.

Witnesses:

CHARLES R. LITTLE,
W. F. WOOLARD.