A. PIASER.

SAFETY DEVICE FOR POWER PRESSES.

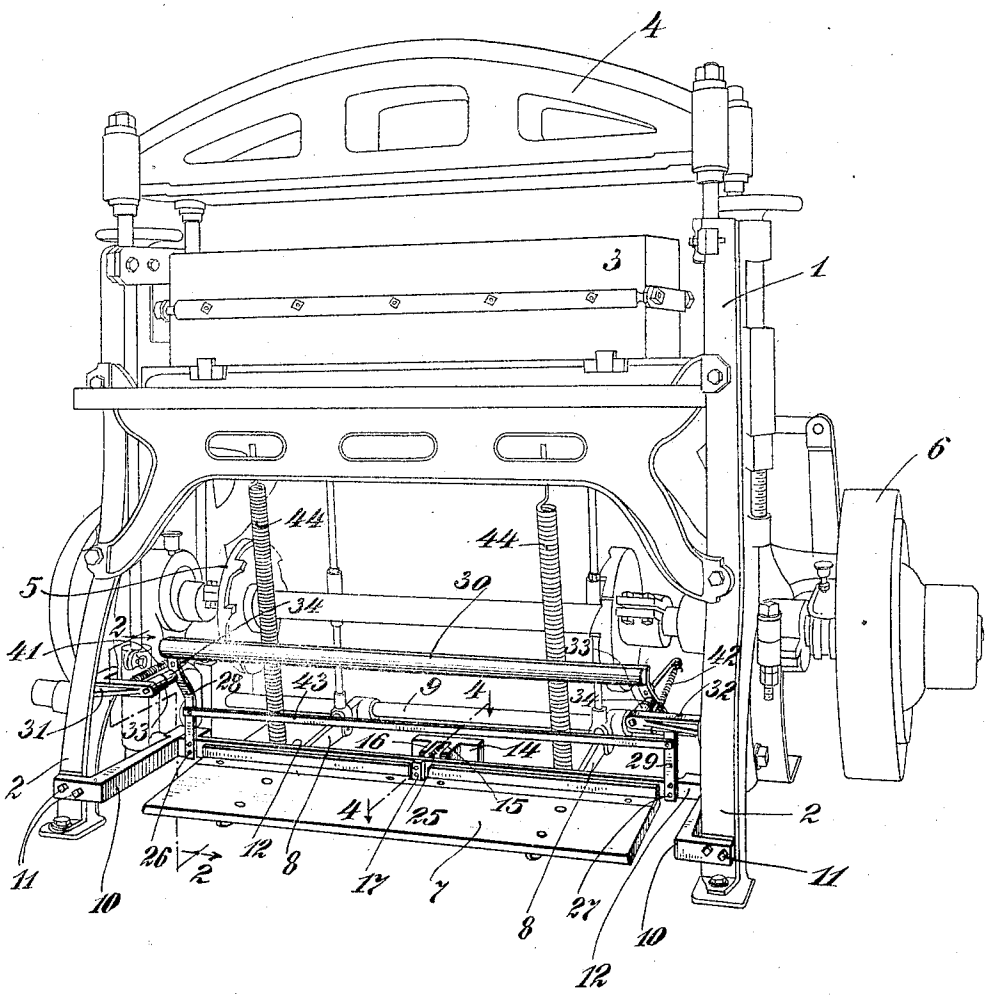
APPLICATION FILED DEC. 18, 1919.

1,375,760.

Patented Apr. 26, 1921.

3 SHEETS—SHEET 1.

Fig. 1.



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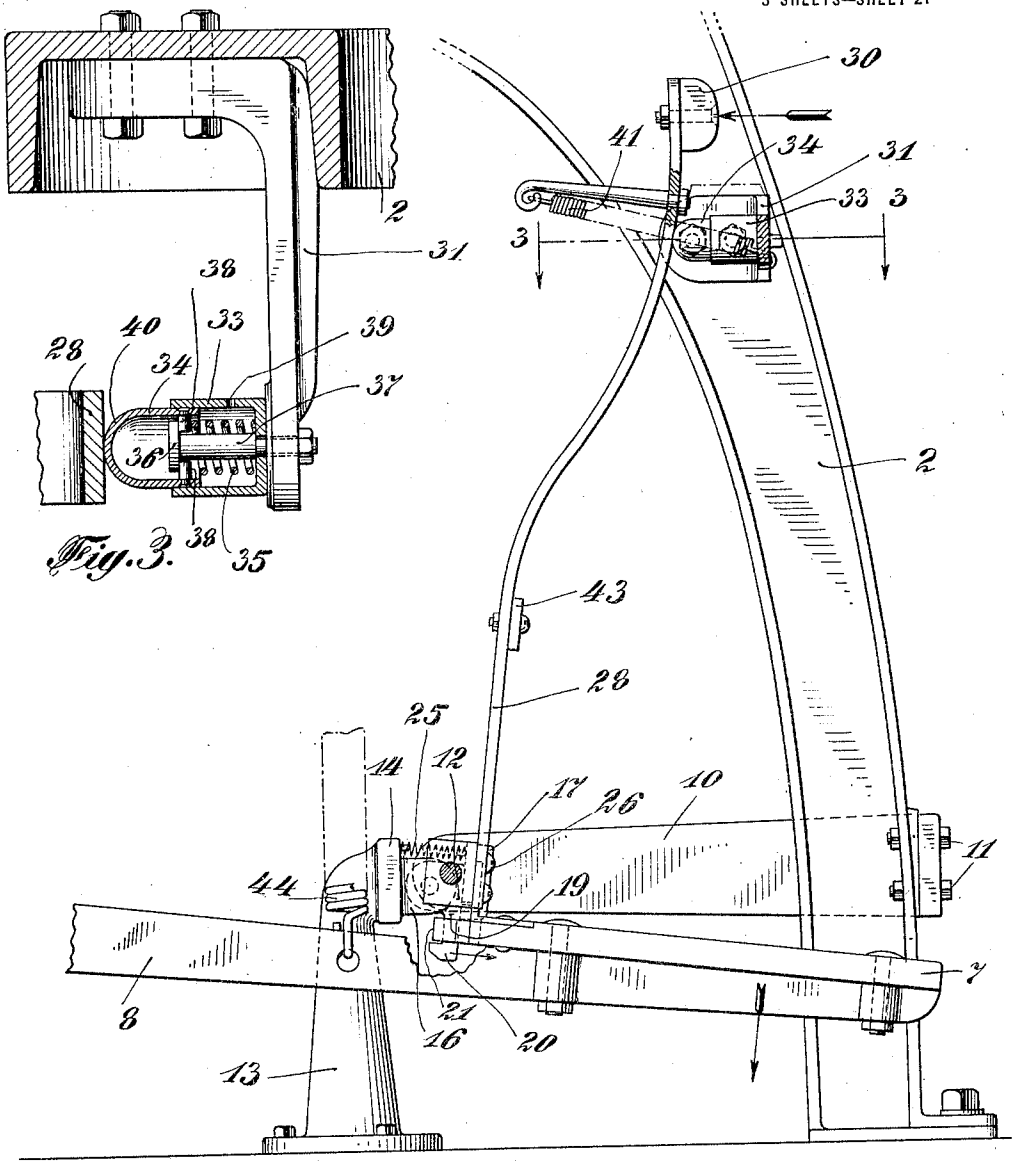


Fig. 3.

Fig. 2.

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3 SHEETS—SHEET 3.

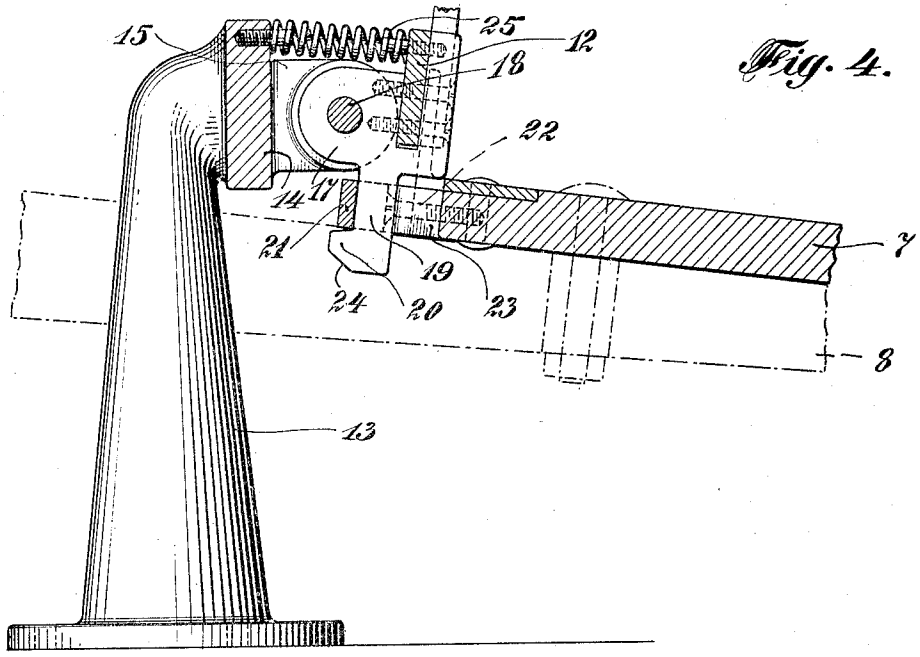


Fig. 4.

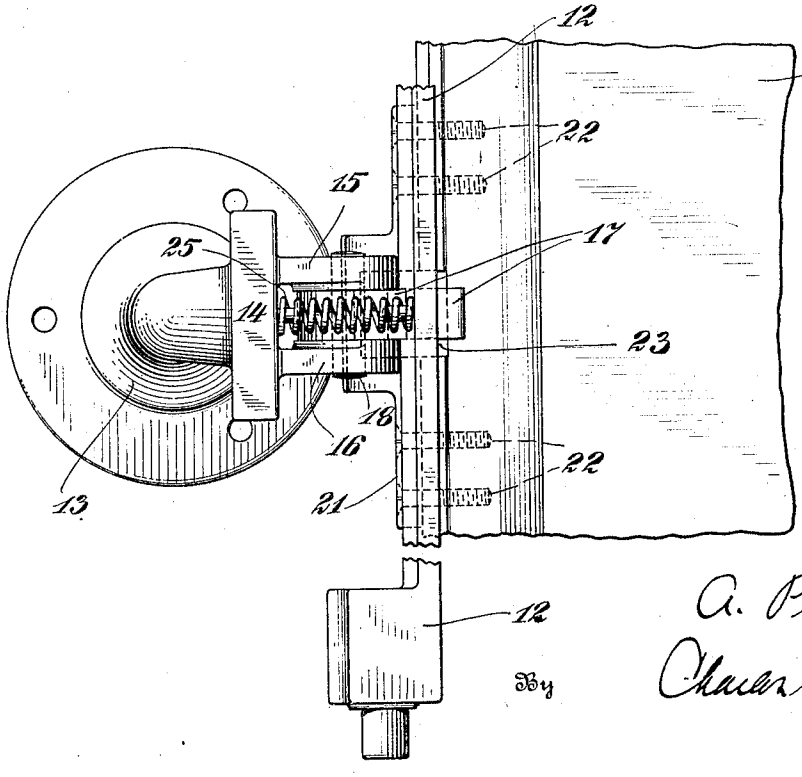


Fig. 5.

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UNITED STATES PATENT OFFICE.

ABRAHAM PIASER, OF ELMHURST, NEW YORK, ASSIGNOR TO ROSENWASSER BROS. INC., OF ASTORIA, LONG ISLAND, NEW YORK, A CORPORATION OF NEW YORK.

SAFETY DEVICE FOR POWER-PRESSES.

1,375,760. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed December 18, 1919. Serial No. 345,852.

To all whom it may concern:

Be it known that I, ABRAHAM PIASER, residing at Elmhurst, county of Queens, and State of New York, have invented certain new and useful Improvements in Safety Devices for Power-Presses, of which the following is a specification.

This invention relates to safety devices for power presses, and the like, which are subject to manual control.

One of the objects of the invention is to provide in a machine of the above character, a new and improved manual control mechanism, whereby accidental operation of the reciprocating head or plunger is prevented, and whereby the weight of the foot of the operator upon the treadle cannot cause an inadvertent operation of the head or plunger, as ofttimes occurs in the use of machines of this character.

Another object of the invention is to provide a safety device for machines of the above type, which does not require the use of either of the hands of the operator, but which may be conveniently operated by the knee or foot of the operator that is used to actuate the treadle.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings, wherein I have illustrated a preferred form of embodiment of my invention:

Figure 1 is a view in perspective showing a conventional form of power press equipped with my invention.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1, looking in the direction of the arrow, the parts being shown upon an enlarged scale.

Fig. 3 is a horizontal sectional view, taken on the line 3—3 of Fig. 2, looking in the direction of the arrow.

Fig. 4 is a sectional view, taken on the line 4—4 of Fig. 1; and

Fig. 5 is a top plan view of the mechanism shown in Fig. 4.

Referring now to the drawings, wherein similar reference characters refer to similar parts, the reference numeral 1 denotes the frame of the machine, and 2 the legs thereof. 3 indicates the bed plate and 4 the reciprocating head or plunger. The reference numeral 5 denotes generally the operating means which, driven by the pulley 6, causes the plunger head 4 to be violently projected toward the bed plate when the treadle 7 is depressed by the foot of the operator. The treadle 7, it will be noted, is carried on arms 8 mounted upon the rock shaft 9.

All the parts thus far described are old and well known in this art, and consequently a description in detail is not deemed necessary, the old and well known parts being shown in the light lines of the drawing.

Referring now to a detailed description of the mechanism constituting the present invention, the reference numeral 10 denotes brackets, each of which is bolted as at 11 to one of the legs 2 of the machine, said brackets extending rearwardly, and at their rear ends forming pivotal supports for a rod 12, which extends between said brackets.

Resting upon the floor and extending upwardly therefrom, midway of the length of the machine, and immediately behind the rod 12, is a standard 13, having a forwardly extending forked bracket 14 between the flanges 15 and 16, on which is positioned a block 17, the latter being mounted on a pivot 18, extending between the legs of flanges 15 and 16. The block 17 has a downwardly extending arm 19, which passes through an aperture formed in the rear portion of the treadle, and the arm 19 at its lower end is provided with a shoulder or catch 20, which when the parts are in normal position, for instance as shown in Fig. 4, engages with a shoulder 21, carried by the treadle 7. This shoulder 21 is preferably formed by a metallic strap attached to the treadle, as by means of the bolts 22, the aperture 23 formed by this strap, and the rear wall of the treadle, permitting a forward and rearward swinging movement of the arm 19 therein, to permit the catch to be engaged and disengaged with the shoulder 21.

The catch 20 is provided with a cam surface 24 for a purpose which will be explained hereinafter. An extensile spring 25, positioned between the upper end of the standard 13, and the rod 12, operates to hold the parts in the position shown in the drawings.

With the parts in the position shown, it will be noted that it will be impossible to depress the treadle 7, whereby the press will be actuated by the power driven mechanism.

Fastened to the rod 10, as at 26 and 27, are upwardly extending arms 28 and 29, and these arms at their upper ends are connected by means of the cross-piece 30, which is located in such position above the treadle as will enable it to be conveniently engaged by the knee or lower leg of the operator whose foot is upon the treadle.

The reference numerals 31 and 32 denote respectively brackets which are secured to the legs 2 at opposite ends of the machine, said brackets extending inwardly and terminating directly in front of the arms 28 and 29 respectively. Each of these brackets is provided with a dash-pot 33, in which operates a piston 34, which is constantly urged upwardly, as by means of the extensile spring 35, the head 36 upon the pin 37 fastened in the bracket, engaging with inwardly extending pins 38, carried by the piston to limit the outward movement of the said piston. The dash-pot is provided with a vent 39 of such size as to provide the proper air cushion for the piston. The outer end of the piston 34 is curved or rounded, as at 40, so that said pistons may be engaged by the upstanding arms 28 and 29, which carry the cross-piece 30. The arms 28 and 29 are urged to a forward movement by means of springs 41 and 42, their inward movement being limited by their engagement with the piston 34 of the dash-pots, whose inward movement is in turn resisted by the springs 35.

A cross-piece 43 secured to the arms 28 and 29, intermediate their ends, serves as a brace to strengthen the structure.

Having thus described this embodiment of my invention, the operation of which should be largely obvious, is a follows:—

Assuming the parts to be in the position shown in the drawings, with the catch 24 engaged in the shoulder 21, it will be seen that the operator's foot cannot depress the treadle 7. Whenever it is desired to depress said treadle, however, it is merely necessary for the operator to move his knee forwardly so that it, or its lower leg adjacent thereto, will be engaged with the cross-piece 30, and swing that part rearwardly, whereby, through its connection with the rod 12, the head 17 will be swung upon its pivot, to carry the catch 20 out of engagement with the shoulder 21. The treadle 7 can then be depressed and the machine operated. When the operator releases the pressure of his foot from the treadle, allowing it to move upward under the influence of its springs 44, the shoulder 21 will engage with the cam surface 24 of the catch, and cam that part back enough to permit the catch to slip over the shoulder 21, whereby the parts will again assume their normal position with the treadle locked as before.

It will therefore be seen that I have provided a device which while most effective, will attain the object sought, is of exceedingly simple construction; and moreover I have provided a device which can be operated in a most convenient manner. With the operator's foot upon a treadle, it is merely necessary for him to move his knee forwardly so that it will engage with the cross-piece or rail 30, moving the latter rearwardly a sufficient distance to release the catch, whereupon the continued movement of his leg and foot will depress the treadle a sufficient distance to effect an operation of the machine. Thus a slight compound movement of the operator's leg and foot is sufficient to operate the device, leaving his hands free to perform the other work necessary in the operation of the machine.

The provision of the dash-pot construction is of an advantage in that it cushions the movement of the parts to normal position, so that the rail or cross-piece 30 will not tend to violently strike or jar the operator's knee or leg.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with a power press, having a treadle whose depression determines an operation thereof, of means for normally locking said treadle against depression, and means adapted to be engaged by the leg of the operator for releasing said locking means.

2. The combination in a power press, having a tripping treadle, of means for normally locking said treadle against depression, and means for releasing said locking means located in proximity to said treadle, so that it may be engaged and operated by the leg of the operator.

3. The combination with a power press having a tripping treadle, of means for normally locking the treadle against depression, means for releasing said locking means, and a rail located in proximity to said treadle, connected with said releasing means, said rail being adapted to be engaged by the leg of the operator whose foot depresses the treadle.

4. The combination with a power press, having a tripping treadle, a catch normally engaging said treadle and holding it against operation, a releasing device for said catch,

and a rail located adjacent said treadle connected with said releasing means, and said rail being located in position so that it may be engaged by the operator's leg when he is engaged in depressing said treadle.

5. The combination with a power press, having a tripping treadle, a catch normally engaging said treadle and holding it against operation, a releasing device for said catch, and a rail located adjacent said treadle connected with said releasing means, said rail being located in position so that it may be engaged by the operator's leg when he is engaged in depressing said treadle, and means connected with said rail for holding the latter against vibration.

6. The combination with a power press, having a tripping treadle, a catch normally engaging said treadle and holding it against operation, a releasing device for said catch, and a rail located adjacent said treadle connected with said releasing means, said rail being located in position so that it may be engaged by the operator's leg when he is engaged in depressing said treadle, and a dash-pot connected with said rail for holding the latter against vibration.

7. The combination with a power press, having a tripping treadle, of a catch which normally engages said treadle and holds it against operation, a support for said catch, a rod extending lengthwise of the machine, connected with said catch, arms extending upwardly from said rod, a rail connecting the upper end of said arms, said rail when moved rearwardly by the leg of the operator being adapted to move said catch out of engagement with said treadle, whereby the latter may be depressed.

8. The combination with a power press, having a tripping treadle, of a catch which normally engages said treadle and holds it against operation, a support for said catch, a rod extending lengthwise of the machine, connected with said catch, arms extending upwardly from said rod, a rail connecting the upper end of said arms, said rail when moved rearwardly by the leg of the operator being adapted to move said catch out of engagement with said treadle, whereby the latter may be depressed, and a dash-pot connected with each of said arms adapted to cushion the movement of the rail toward normal position.

In testimony whereof I affix my signature in the presence of two witnesses.

A. PIASER.

Witnesses:
EMMA WEINBERG,
IRVING A. HAMER.