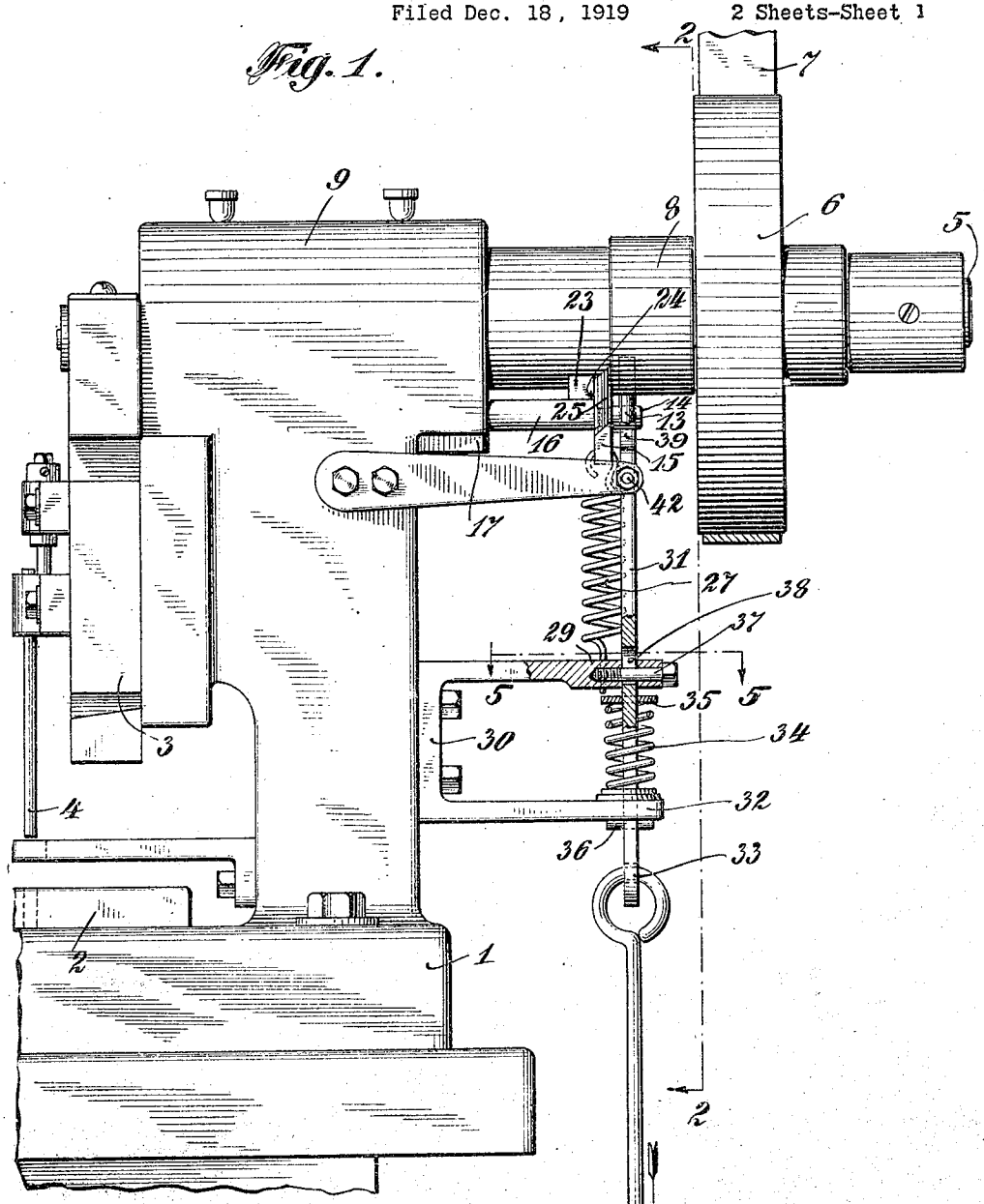
Oct. 23, 1923. 1,471,350

A. PIASER

SAFETY DEVICE FOR POWER PRESSES

Filed Dec. 18, 1919 2 Sheets-Sheet 1

Fig. 1.



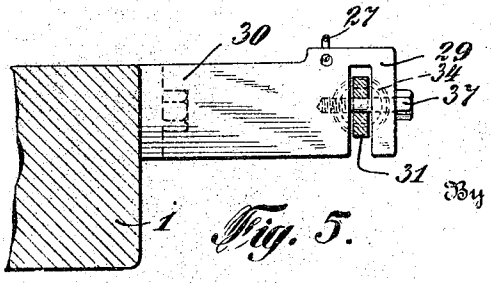


Fig. 5.

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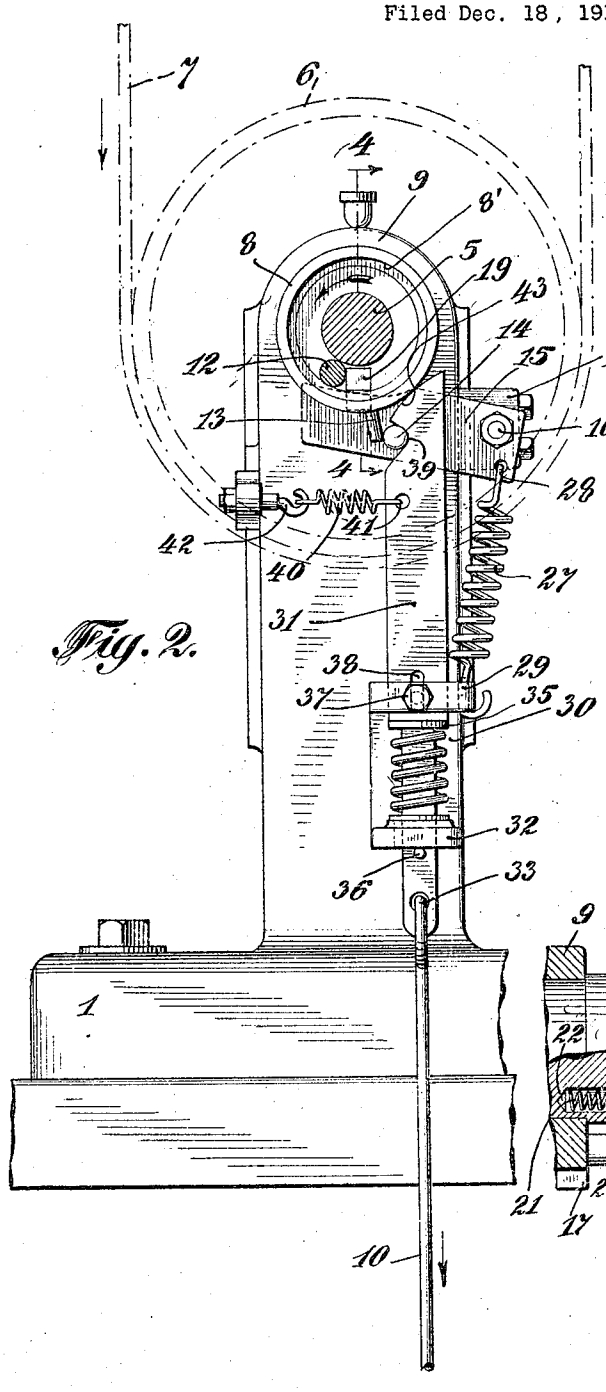


Fig. 2.

Fig. 3.

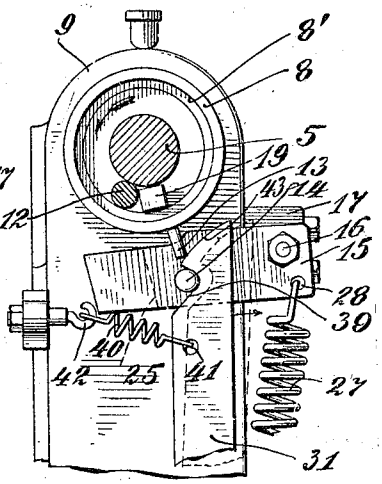
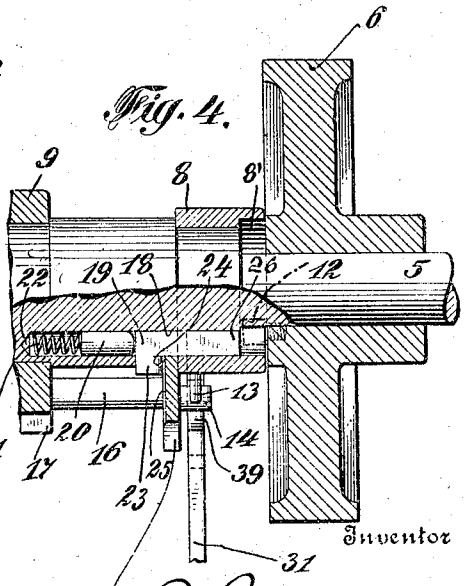


Fig. 4.



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Attorney

Patented Oct. 23, 1923. 1,471,350

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.

Application filed December 18, 1919. Serial No. 345,853.

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 a Safety Device for Power Presses, of which the following is a specification.

This invention relates to 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 useful automatic control mechanism, whereby a single operation of the treadle, no matter how long the latter may be held in a depressed position by the operator, will produce but a single operation of the press.

Another object of the invention is to provide a simple and effective means which will automatically prevent any unintentional reciprocatory movement of the plunger of a power press, thereby eliminating the danger heretofore experienced in the operation of such machines, due to the fact that the press would ordinarily continue its operation as long as the treadle of the operator were held in a depressed position.

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 shown a preferred form of embodiment:

Figure 1 is a view in side elevation of a portion of a power press, showing my invention applied thereto.

Figure 2 is a sectional view, partly in elevation, taken on the line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a view of a portion of Figure 2, showing certain of the parts in a different position.

Figure 4 is a longitudinal sectional view of a portion of the machine, taken on the line 4—4 of Figure 2, looking in the direction of the arrows; and

Figure 5 is a sectional view taken on the line 5—5 of Figure 1, looking in the direction of the arrows.

Referring now to the drawings, wherein similar reference characters refer to similar parts, throughout the several views thereof, the reference numeral 1 denotes the frame of the power press, having the table or platform 2, the plunger 3, which in the present instance carries a punch 4, adapted to operate upon stock positioned upon the table 2.

Journalled in the frame 1 is an operating shaft 5, upon which a pulley 6 is loosely mounted, the latter being driven by a belt 7, from a suitable source of power supply. A collar 8 forms an integral part of the shaft 5, said collar being spaced from the shaft so as to provide a circular space or recess 8′ therebetween. The shaft 5 extends through the upper part 9 of the frame, and is provided with an eccentric at its end, the function of which is to operate the plunger 3. The precise manner of operating the plunger 3, by means of the shaft, is not a part of the present invention, it being understood that the shaft 5 is normally held in a stationary position during the rotation of the pulley 6, whereby the plunger will also remain stationary, means being provided to connect said shaft with the driving pulley, whenever the treadle of the machine is depressed by the foot of the operator, as by means of the link 10, the lower end of which is connected with the treadle (not shown).

The pulley 6 is provided with a laterally extending pin 12, which of course partakes in the rotative movement of the pulley 6.

Owing to the frictional engagement between the pulley 6 and the shaft 5, there is a constant tendency of said pulley to rotate the shaft, which rotation is normally restrained by the engagement of a pin 13 extending laterally from the collar 8, and a stop pin 14, provided upon the cam arm 15, the latter being pivoted at its end upon a suitable supporting member 16, one end of which is attached to a bracket 17, the latter being clamped to the frame of the machine.

Located in a suitable groove 18, provided in the shaft 5, is a pin 19, which is constantly pressed outwardly, as by means of a plunger 20, actuated by an extensile

spring 21, seated in a pocket 22, formed in the shaft 5.

It will be understood that when the pin 18 is moved outwardly, it will enter the path normally traversed by the pin 12, so that the engagement of these pins will operate to establish a positive driving connection between the pulley 6 and the shaft 5, whereby the latter will be caused to operate the plunger mechanism of the press.

The pin 18 has a depending portion 23, having a cam surface 24, which is normally engaged by the cam or wedge-shaped end 25 of the arm 15, the relation of the parts being such that when the parts are in the position shown in Figures 1, 2 and 4 of the drawings, the pin 19 is retracted in its groove, so that the end 26 thereof will just escape engagement with the rotating pin 12, carried by the driving pulley. With this position of the parts, as has already been noted, the shaft 5 is held against rotation by an engagement of its pin 13 with the pin 14 provided upon the cam arm 15. The cam arm 15 is held in the position shown in the last mentioned figures, as by means of a retractile spring 27 connecting said arm at 28 with one leg 29 of a bracket 30, clamped to the frame of the machine.

Thus the connecting pin 19 is normally cammed rearwardly to such a position that the shaft 5 and pulley 6 are so disconnected that said shaft is merely frictionally urged to rotative motion, which motion as already described, is restrained by engagement of the pin 13 upon the sleeve and the pin 14 upon the cam arm 15.

The reference numeral 31 denotes a reciprocating member or plate, which is journalled to slide in the arms 29 and 32 of the bracket 30, and is connected at 33 with the upper end of the link 10. A spring 34 resting upon the arm 32 of the bracket 30, and engaging a shoulder 35, provided upon the plate 31, normally urges the latter to upward movement, such movement, however, being limited as by means of a stop pin 36, which engages the under surface of the arm 32 of the bracket 30. The plate 31 is also guided as by means of a pin 37, which extends through a longitudinal slot 38, provided in said plate. The upper end of the plate is provided with a hook-shaped edge 39, which is normally in engagement with the pin 14 of the cam arm 15, and is held in such engagement by means of a retractile spring 40, connected at 41 to the plate, and to a hook 42, secured to the frame of the machine.

It will be noted that the plate 31 has a reciprocatory as well as a slight oscillatory movement about the pin 37, which extends through the slot 38, the slots provided in the arms 29 and 32 of the bracket 30 so formed as to permit such oscillatory or swinging movement. The upper end of the plate 31 is provided with a cam portion 43, the function of which will presently be described.

Having thus described the construction of this embodiment of my invention, the operation thereof may now be understood.

With the parts in the position shown in Figures 1, 2 and 4 of the drawings, the connecting pin 19 is out of engagement with the pin 12, carried upon the pulley 6. When, however, the treadle is depressed to cause a downward movement of the link 10, said link through its connection with the plate 31, causes the latter to be slid downwardly, and through the engagement between the hook shaped edge 39 thereof, with the pin 14, a downward swinging movement of the cam arm 15 is effected. This permits the pin 13 of the sleeve 5 to escape the pin 14, upon the cam arm 15, whereby the connecting pin 19 will be released, permitting the spring-pressed plunger 20 to move it in its slot or groove, so that the end thereof will be engaged with the pin 12. Thus a positive connection is effected between the shaft 5 and the pulley 6. The pin 13 moving with the shaft 5 will thereupon engage with the cam end 43 of the plate 31, causing the latter to swing rearwardly, as shown by the dotted lines in Figure 3, whereby the hook-shaped end 39 thereof will be carried out of engagement with the pin 14, and the latter being released, will permit the spring 27 to swing the cam arm 15 to its normal position, whereby as the sleeve nears the completion of a single rotative movement, the cam end 25 will engage with the cam surface 24 of said pin, and again cam it to its normal retracted position, thereby effecting a disconnection between the sleeve 8 and the pulley 6.

It will thus be seen that upon each depression of the treadle, the shaft 5 and the plunger of the press will be automatically connected, whereby the latter will be operated but once, an automatic disconnection between the parts being effected at each rotation of the driving shaft, and that no matter how long the treadle be depressed, the operative parts of the machine will be disconnected until the plate 31 is moved upwardly again to engage the hook-shaped part 39 thereof with the pin 14 of the cam arm 15, whereby the parts will be restored to their normal position, ready for another depression of the treadle.

It will accordingly be seen that I have provided simple and effective means to accomplish the ends sought, and whereby a machine of this character may be operated with safety, inasmuch as there can be but a single operation of the press from a downward depression of the treadle by the foot of the operator.

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 drawings 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 in a power press, of a revoluble shaft, a power driven pulley loose on the shaft, treadle-operated mechanism for connecting and disconnecting the pulley and shaft, means for holding the shaft against rotation by friction from the loose pulley comprising a projecting member on the shaft, a device carried by the said treadle-operated mechanism for positively limiting the movement of the said shaft-holding means and shaft when the treadle-operated mechanism is in its highest position, the said mechanism having a member arranged in the path of and actuated by the said shaft-holding member when the said mechanism is in its lowest position whereby the said pulley and shaft are disconnected.

2. The combination in a power press, of a revoluble shaft, a power driven pulley loose on the shaft, means for connecting and disconnecting the pulley and shaft including a spring pin and guide therefor, a pivoted member having its free end movable towards and from the said pin and constructed to retract and control the said spring pin, means for holding the shaft against rotation by friction from the loose pulley comprising a projecting member on the shaft, treadle-operated mechanism for actuating the said pivoted member, a device carried by the said pivoted member for limiting the movement of the said shaft-holding member and shaft when the said treadle-operated mechanism is in its highest position, the said mechanism having a member arranged in the path of and actuated by the said shaft-holding member when the said mechanism is in its lowest position whereby the said pulley and shaft are disconnected.

3. The combination in a power press, of a revoluble shaft, a power driven pulley loose on the shaft, means for connecting and disconnecting the pulley and shaft including a spring pin and a guide therefor, a pivoted member having its free end movable towards and from the said pin and constructed to retract and control said spring pin, means for holding the shaft against rotation by friction from the loose pulley comprising a projecting member on the shaft, a device carried by the said pivoted member for limiting the movement of the shaft-holding member and shaft when the said pivoted member is in its highest position, treadle-operated mechanism in releasable engagement with the said device carried by the pivoted member whereby the pivoted member may be actuated, the said mechanism having a member arranged in the path of and actuated by the said shaft-holding member when the said mechanism is in its lowest position whereby the said pulley and shaft are disconnected.

4. The combination in a power press, of a revoluble shaft, a power driven pulley loose on the shaft, means for connecting and disconnecting the pulley and shaft including a spring pin and guide therefor, a pivoted member having its free end movable towards and from the pin and constructed to retract and control the said spring pin, means for holding the shaft against rotation by friction from the loose pulley comprising a projecting pin on the shaft, a projecting pin carried by the said pivoted member and arranged to limit the movement of the said shaft-holding pin and shaft when the said pivoted member is in its highest position, treadle-operated mechanism having a vertically arranged plate pivoted near its lower end and having a recess in detachable engagement with the said pin carried by the pivoted member whereby said pivoted member may be operated, and the upper end of the said plate being arranged in the path of and actuated by the shaft-holding pin when the said plate is in its lowest position whereby the pulley and shaft are disconnected.

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

A. PIASER.

Witnesses:
EMMA WEINBERG,
IRVING A. HAME.