L. H. BROWN.

SAFETY CLUTCH FOR POWER PRESSES, PAPER CUTTERS, &c.

APPLICATION FILED APR. 4, 1911.

**1,016,395.** Patented Feb. 6, 1912.

Fig. 1.

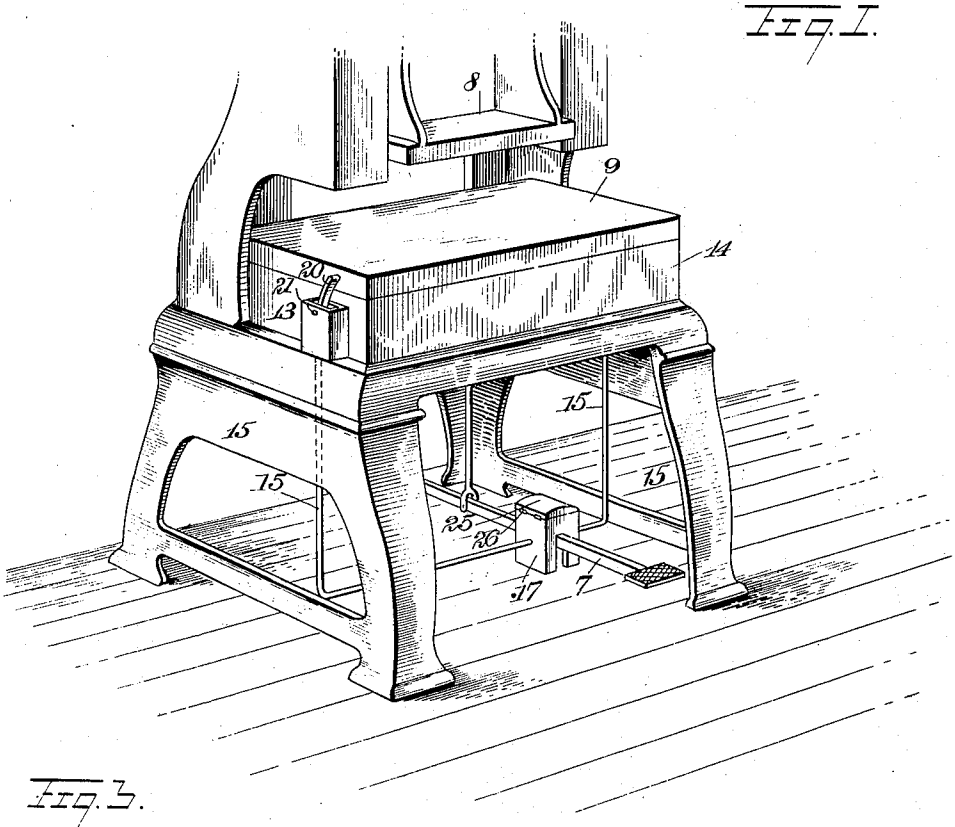



Fig. 3.

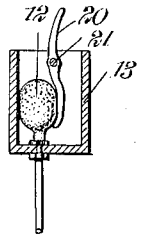
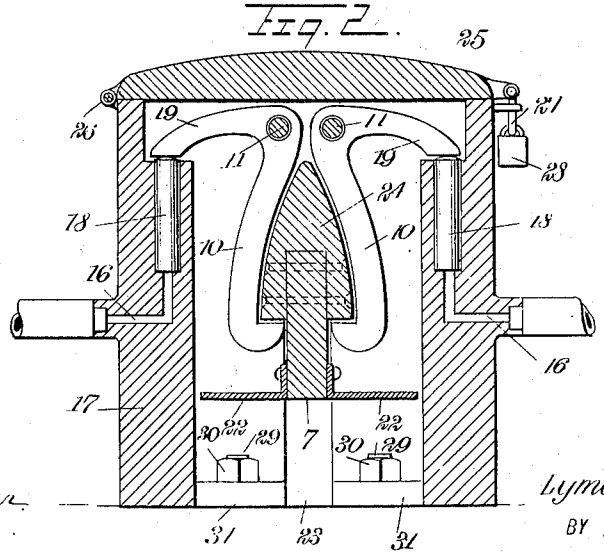



Fig. 2.




WITNESSES:

H. J. Walker

E. S. Mason

INVENTOR

Lyman H. Brown

BY Munn & Co

ATTORNEYS

# UNITED STATES PATENT OFFICE.

LYMAN H. BROWN, OF HARTFORD, CONNECTICUT.

## SAFETY-CLUTCH FOR POWER-PRESSES, PAPER-CUTTERS, &c.

1,016,395. Specification of Letters Patent. Patented Feb. 6, 1912.

Application filed April 4, 1911. Serial No. 618,788.

*To all whom it may concern:*

Be it known that I, LYMAN H. BROWN, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Safety-Clutch for Power-Presses, Paper-Cutters, and Similar Tools, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a clutch for power or drop presses wherein is employed a die, which clutch is operable only by the employment of the two hands of the mechanic operating the press, thus insuring their removal from the danger zone of the press during the operation; and to provide operative means arranged to prevent the operation of the clutch by means of one hand singly.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in both views, and in which—

Figure 1 is a perspective view of a die press of usual construction, showing in connection therewith an operating mechanism constructed and arranged in accordance with the present invention; Fig. 2 is a vertical cross section of the clutch housing and foot treadle constructed and arranged in accordance with the present invention; and Fig. 3 is a detail view, on an enlarged scale and in vertical section, showing the pneumatic bulb, operating lever and containing box therefor.

In the character of press illustrated in the accompanying drawings, and to which the present invention is peculiarly adapted, a foot treadle 7 is employed for throwing in the clutch on the driving shaft for the power head 8. The usual form of mechanism for effecting this purpose is employed.

The present invention has for its particular object to prevent the operation of the treadle 7 until the hands of the operator are removed from the bed plate 9 or the danger zone thereof. It is for this purpose that the clutch consists of two latches 10, each being independently pivoted on shafts 11, and each independently operated by pressing the bulbs 12. The bulbs are compressed by means of a hand lever 20 which is pivotally mounted on a shaft 21 in the boxes 13.

The bulbs 12 are mounted in the boxes 13 secured to the beds 14 at each side thereof, and in such manner that the levers 20 are raised, and just below the surface of the plate 9 in convenient position to the hand of the mechanic. The boxes are connected by means of metallic pipes 15 to the passages 16 formed in the housing 17. The passages 16 are shaped substantially as shown in Fig. 2 of the drawings, having inner vertical terminals to receive the plungers 18 in sliding relation. The plungers 18 normally rest beneath the arms 19 of the latches 10. The said plungers close the passages 16 so that the pressure of the air displaced by contracting the bulbs 12 lift the said plungers and rock the latches 10 to remove the holding ends thereof from the path of the treadle 7 when depressed.

In the operation of the invention it will be seen that the mechanic is compelled, prior to depressing the treadle 7, to compress both of the bulbs 12. The compression of either one simply would in itself be insufficient, as the latch 10 operated from the other bulb would still suffice to prevent the depression of the treadle 7. It is by the depression of the treadle 7 that the clutch of the power head 8 is operated.

It will be understood that it is an important factor in the present invention to prevent, as far as possible, the intentional interference with the apparatus by the mechanic. In other words, to prevent the mechanic placing himself in a dangerous position. For this purpose the treadle 7, within the housing 17, is protected by the laterally extended plates 22 which fill the space within the housing extending from the opening 23 to the internal walls of the said housing. This construction prevents the insertion within the housing 17 of a hook or other instrument which could be inserted within the housing from below the treadle 7 to throw one or other of the latches 10 out of engagement with the said treadle. It is to provide for engagement of the latches 10 above the bottom of the treadle 7 that there is formed a head 24. The head 24 is wedge-shaped, to extend between the ends of the latches 10. The head overhangs the sides of the treadle 7 to receive thereunder the ends of the latches 10. This construction is best seen in Fig. 2 of the drawings.

It will be seen that the safety attachment thus constructed and arranged may be operated only when the lever 20 on each side

of the bed 14 is controlled by one or other hand of the mechanic. This arrangement compels the mechanic to remove both hands from the bed plate 9 and the danger zone before the foot treadle 7 may be operated. It will also be observed that by constructing the plungers 18 as preferred, so that a slight leakage of air occurs in the sockets therefor, it becomes impossible for the operator to fasten the levers 20 back, and thus hold the plungers 18 and latches 10 connected therewith in position to release the treadle 7. On the event of this attempt being made, the plungers 18 and arms 19 would resume the normal position where the latches 10 would engage and hold the treadle 7, necessitating the operation of the bulbs 12.

To provide for the installation of the latches 10 and the plates 22 within the housing 17, the said housing is provided with a cap or cover 25. The cover 25 is hinged at 26 on one side of the housing, and is secured by means of a shackle 27 and a padlock 28 at the opposite side of the said housing. The housing is rigidly secured to the fixed structure of the building by means of bolts 29 and nuts 30. The bolts are extended through flanges 31 provided in the said housing. It will be seen that after the housing 17 is thus fixedly secured to the building, the plates 22 secured to the treadle 7, the plungers 18 dropped into position, and the latches 10 adjusted, the same cannot be interfered with after the cover 25 is closed upon the said housing and secured by the lock 28.

While I have described the arrangement of the treadle 7 and housing therefor as secured to the floor of the factory or building, it will be understood that a vertical clutch rod and a lever for operating the same may be attached to the frame of the press in any convenient position instead of to the floor of the building. It will also be understood that while I have described the housing 17 as being open on the bottom, I do not wish to be confined to such a construction, as in some instances where the clutch lever would be most conveniently placed it might prove convenient to suspend the housing in such manner that, if unprovided with the bottom, access to the chamber within the housing might be gained. This would defeat the present invention, which is primarily to prevent, accidentally or intentionally, interference with the mechanism for releasing the treadle 7.

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

1. A safety clutch for power press, comprising a clutch controlling lever; a plurality of latches holdingly engaging said lever; and pneumatically operated means disposed for operation at separated stations for removing said latches singly from the path of said lever.

2. A safety clutch for power press, comprising a clutch controlling lever; a plurality of latches adapted to engage the said lever in holding relation; a plurality of plungers one engaging each of said latches; and a plurality of pneumatically actuated mechanisms for moving said plungers to thrust said latches from the path of said lever.

3. A safety clutch for power press, comprising a clutch controlling lever; a plurality of latches pivotally mounted to engage in holding relation said lever, said latches having lateral extensions; a plurality of movable plungers disposed to move against said extensions; and a plurality of transmission devices fixedly mounted on the frame of the press at separated stations and operatively connected with said plungers to move the same to rock the said lever.

4. A safety clutch for power press, comprising a clutch controlling lever; a plurality of latches pivotally mounted to engage in holding relation said lever, said latches having lateral extensions; a plurality of movable plungers disposed to move against said extensions; and a plurality of pneumatic bulbs and pipes connected therewith to move said plungers against said extensions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LYMAN H. BROWN.

Witnesses:

STANLEY W. EDWARDS,

CHARLES C. RUSS.