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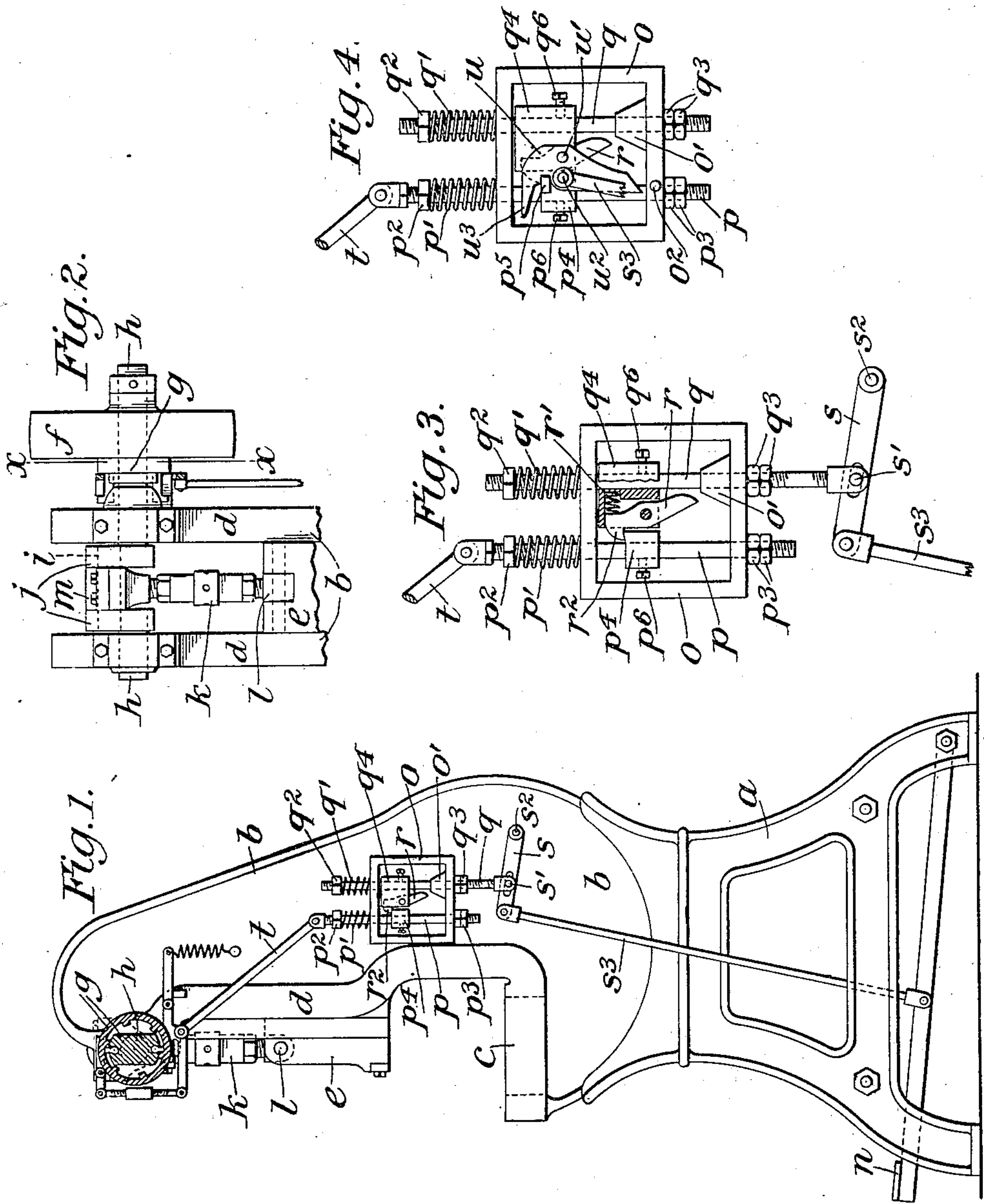
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CLUTCH TRIP.

APPLICATION FILED DEC. 9, 1902.

NO MODEL.



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CLUTCH-TRIP.

SPECIFICATION forming part of Letters Patent No. 725,756, dated April 21, 1903.

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To all whom it may concern:

Be it known that I, WILLIAM A. MURPHY, a citizen of the United States, residing at No. 256 De Kalb avenue, in the borough of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Clutch-Trips, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates to clutch-actuating devices, and particularly to devices of this sort which are designed to act as safety appliances against any accidental movement of the clutch mechanism to bring it into its operative position. In power-driven machines, 15 such as the various types of presses, the conditions of use require constant starting and stopping, which is generally effected by some form of clutch interposed between the machine and the power-shaft. Certain power-presses, and particularly those in connection with which this invention is designed to be employed, are brought to a stop after each complete cycle of operations, and during such 25 stops it is frequently necessary for the operator to insert his hands between parts of a press where in case the press should be accidentally started up they would be instantly crushed.

30 The object of this invention is to provide a clutch-trip which shall be simple in construction and may be easily attached to a machine and which shall obviate such dangers as that just referred to, while at the same time permitting the press to be started and stopped in the usual manner—that is, by the actuation of a treadle, through which it is customary to effect the throw of the clutch in starting and stopping the machine.

40 In the drawings, Figure 1 is a side elevation of a power-press to which the clutch-tripping mechanism is applied, the clutch being shown in section, which section is indicated by the line $x x$ of Fig. 2. Fig. 2 is a detail front elevation of the upper part of the power-press, showing the driving mechanism of said 45 press. Fig. 3 is a detail elevation, partly in section and on an enlarged scale, of the tripping device shown in Fig. 1. Fig. 4 is a view similar to Fig. 3, showing another and preferred form of tripping device.

50 The particular power-press which has been chosen to illustrate and explain this inven-

tion is a common form of stamping-press and, as shown in the drawings, comprises a supporting-frame a , upon which is mounted a 55 standard or upper frame b , the latter having preferably formed therein a table c , upon which the work is carried, and a solid portion d , in which the reciprocating die or pressure-block e is guided. Power is furnished to 60 said press from a pulley or driving member f , which is adapted to be coupled by a clutch g to the driven member or shaft h , having its bearings in frame b and which in turn transmits power to a crank-pin i through a crank 65 j . The reciprocating block e is connected with the crank-pin i through an adjusting-link k , provided with a pivotal connection at l and the usual strap connection m . In the operation of such presses as soon as the work 70 is brought underneath the pressure-block on the table, which is generally done by the operator, the clutch is brought into its operative position and causes the die to advance upon the work, effect the proper change in 75 the same, and then to return to its initial position, one such movement of the block constituting a complete cycle of operation. When the block has returned to its first position, the clutch at the same time, if not previously, is 80 thrown to its inoperative position, the machine stops, the work is readjusted on the table by the operator, and the operation is repeated. In order to effect the throw of the clutch, a treadle n is usually provided, which is operatively 85 connected with the clutch, whereby the latter is under the control of the operator's foot. In the present case and in accordance with the invention a clutch-trip is interposed between clutch g and treadle n , which clutch- 90 trip will now be described.

A frame or housing o is secured to the press in any suitable manner, being attached in the present case to the solid portion d of the press-frame. Two rods p and q , movable in 95 said frame, are provided with springs p' and q' , coiled around the respective upper ends of said rods, which ends project outside the frame o . The upper ends of said springs bear against adjusting-nuts p^2 and q^2 , while their 100 lower ends bear against the frame o , adjusting-nuts p^3 and q^3 being also provided upon the lower ends of said rods, respectively. The rod q is provided with a block q^4 , which is se-

cured to the same and upon which a latch r is pivoted. Said latch is normally in engagement with a block p^4 , secured to rod p , and a spring r' , seated in block q^4 , is provided to hold nose r^2 of said latch outwardly against block p^4 . A conically-shaped block o' is secured to frame o , and the lower end of latch r is adapted to travel upon the same, thereby effecting the disengagement of said latch and block p^4 at a particular point in the downward movement of the same. Rod q is operatively connected with a treadle n , and for this purpose the lower end of said rod may be engaged with a slot in a lever s , having one end pivoted to a fixed pin s^2 , said lever being connected to treadle n by a link s^3 . Likewise a link t may be provided intermediate the clutch g and the upper end of rod p for operatively connecting said rod and clutch. Blocks p^4 and q^4 are preferably provided with adjusting-screws p^6 and q^6 in order that the position of said blocks upon rods p and q , respectively, may be varied when necessary to secure proper adjustment. To throw said clutch g into its operative position, the usual pressure is applied to the treadle, which effects, through link s^3 and lever s , the downward movement of rod q against the action of spring q' . The rod p , which is engaged by latch r , is also moved downwardly; but at a particular point (determined by the position of the adjusting-nuts) said rod will be released by the latch, which, owing to the engagement of the lower end of the same with block o' , is slightly rocked to effect such release, and said rod p , actuated by spring p' , springs back to its initial position. The downward movement of rod p effects, through link t , the proper throw of the clutch, whereby power is transmitted through said clutch to the reciprocating block e , and the upward movement of said rod p , following its release by latch r , throws the clutch into its inoperative position. The adjustment of said rod p , which is accomplished through the adjusting-nuts, is such that the operative position of the clutch is reached just previous to the release of said rod by latch r , and it will therefore be obvious that even though the pressure upon the treadle be continued it cannot affect the clutch, which will remain in its inoperative position until rod p is again moved down; but this latter cannot take place until the pressure is removed from the treadle to allow rod q to be raised by spring q' , by which latch r is returned once more to its normal position in engagement with block p^4 .

In order to provide against the accidental release of rod p and to increase further the reliability of the clutch-trip, it is preferable to provide an additional or second latch u , which may be pivoted upon block q^4 at u' and to which link s^3 is pivoted at u^2 . This second latch also engages block p^2 , and for this purpose a projecting lug p^5 is provided on said block, latch u being formed with an elongated nose u^3 , which is adapted to bear

upon said pin during the movement of said latch. A pin o^2 is provided in the frame o , which pin is engaged by the lower end of the latch u , thereby effecting the disengagement of said latch and lug p^5 upon the downward movement of said latch.

In the preferred form of the clutch-trip both latches r and u are employed. In this case the pressure on the treadle n is imparted to latch u at a point between lug p^5 and the pivotal or bearing point u' of said latch, which latch is thereby drawn downwardly and at the same time is gradually rocked by pin o^2 to release rod p . Rod q is also moved downwardly as before and the release of block p by latch r takes place as before, said release being substantially simultaneous with the release of rod p by latch u .

It will be obvious that the clutch-trip may be formed without latch r , inasmuch as the proper movement of rod p and the clutch may be effected solely through latch u ; but while either latch may be used alone it is preferred for the reasons stated above to use the pair of latches, although it will be understood that the invention is not limited to a form of clutch-trip which embodies them both.

I claim as my invention—

1. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, a latch carried by one of said rods and operatively engaging the other of said rods, means operatively connected with the latch-carrying rod to actuate said trip, and means operatively connected with the other rod for operating a clutch.

2. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, a latch carried by one of said rods and operatively engaging the other of said rods, means operatively connected with the latch-carrying rod to actuate said trip, means coöperating with said latch to effect at a predetermined point the disengagement of the same with the other rod, and means operatively connected with said other rod for operating a clutch.

3. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, a block carried by each of said rods, a latch pivoted upon one of said blocks and engaging the other of said blocks, means operatively connected with the latch-carrying rod to actuate said trip and means operatively connected with the other rod for operating a clutch.

4. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, a block carried by each of said rods, a latch pivoted to one of said blocks and normally engaging the other of said blocks, means operatively connected with the latch-carrying rod to actuate said trip, means coöperating with said latch to effect at a predetermined point the disengagement of the same with the block which it normally engages,

and means operatively connected with the other rod for operating a clutch.

5 5. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, two latches carried by one of said rods and normally engaging the other of said rods, means connected with one of said latches to actuate said latch and trip, and means connected with the rod engaged
10 by said latches for actuating a clutch.

6. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, two latches carried by one of said rods and normally engaging the other
15 of said rods, means connected with one of said latches to actuate said latch and trip, means cooperating with said latches to effect at a predetermined point the disengagement of the same with the rod which they engage,
20 and means connected with that rod for actuating a clutch.

7. A clutch-trip comprising a frame or housing, a spring-actuated rod movable in said frame or housing, a block secured to said rod
25 and having a projecting lug, a second spring-actuated rod movable in said frame or housing, a block secured to said second rod, a latch pivoted upon the second-named block and engaging the first-named block, a second
30 latch pivoted upon said second block and engaging said projecting lug, a trip-actuating arm secured to said second latch between its pivotal or bearing point and said lug, means cooperating with said latches to effect at a
35 predetermined point the disengagement of the same respectively with the first-named block and projecting lug, and means connected with the first-named rod for operating a clutch.

40 8. A clutch-trip comprising a frame or housing, two rods movable in said frame or housing, a coiled spring secured around each of said rods and bearing against the frame or housing adjusting nuts upon said rods, a latch

carried by one of said rods and normally en- 45
gaging the other of said rods, means operatively connected with the latch-carrying rod to actuate said rod and trip, means connected with the other rod to operate a clutch, and
50 means cooperating with said latches to effect at a predetermined point the disengagement of the same with said other rod.

9. A clutch-trip comprising a frame or housing, two spring-actuated rods movable in said frame or housing, a block carried upon each
55 of said rods, two latches pivoted upon one of said blocks one of which latches normally engages the other of said blocks, the other of said latches having an elongated nose, a projecting lug carried upon the other of said
60 blocks and normally in engagement with said other latch, means connected with said other latch between its pivotal or bearing point and said lug for actuating said latch and trip, projections or pins upon said frame or hous-
65 ing in engagement respectively with the ends of said latches, and means connected with one of said rods for operating a clutch.

10. In a power-press the combination with a driving member, a driven member, a clutch
70 interposed between said members, a pressure-block operatively connected with said driven member and a treadle, of a clutch-trip interposed between said treadle and clutch and comprising a frame or housing, two spring-
75 actuated rods movable in said frame or housing, a latch carried by one of said rods and operatively engaging the other of said rods, means operatively connected with the latch-carrying rod to actuate said trip, and means
80 operatively connected with the other rod for operating a clutch.

This specification signed and witnessed this 6th day of December, 1902.

WILLIAM A. MURPHY.

In presence of—

ANTHONY N. JESBERA,
LUCIUS E. VARNEY.