

J. M. JONES.
SAFETY GUARD FOR STAMPING PRESSES.
APPLICATION FILED MAY 13, 1910.

1,006,775.

Patented Oct. 10, 1911.

2 SHEETS—SHEET 1.

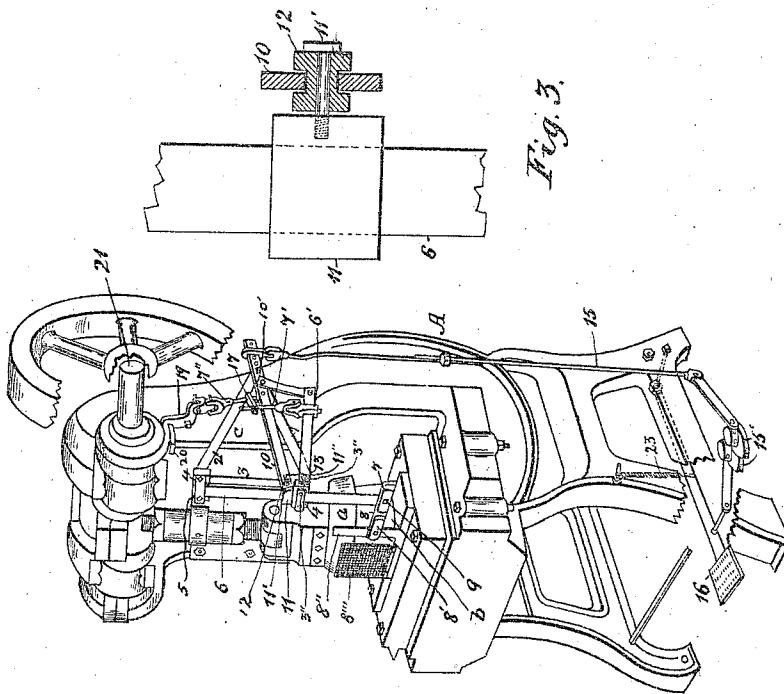


Fig. 2.

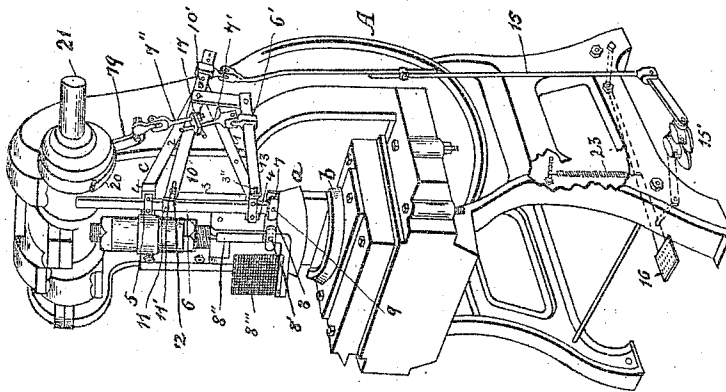


Fig. 1.

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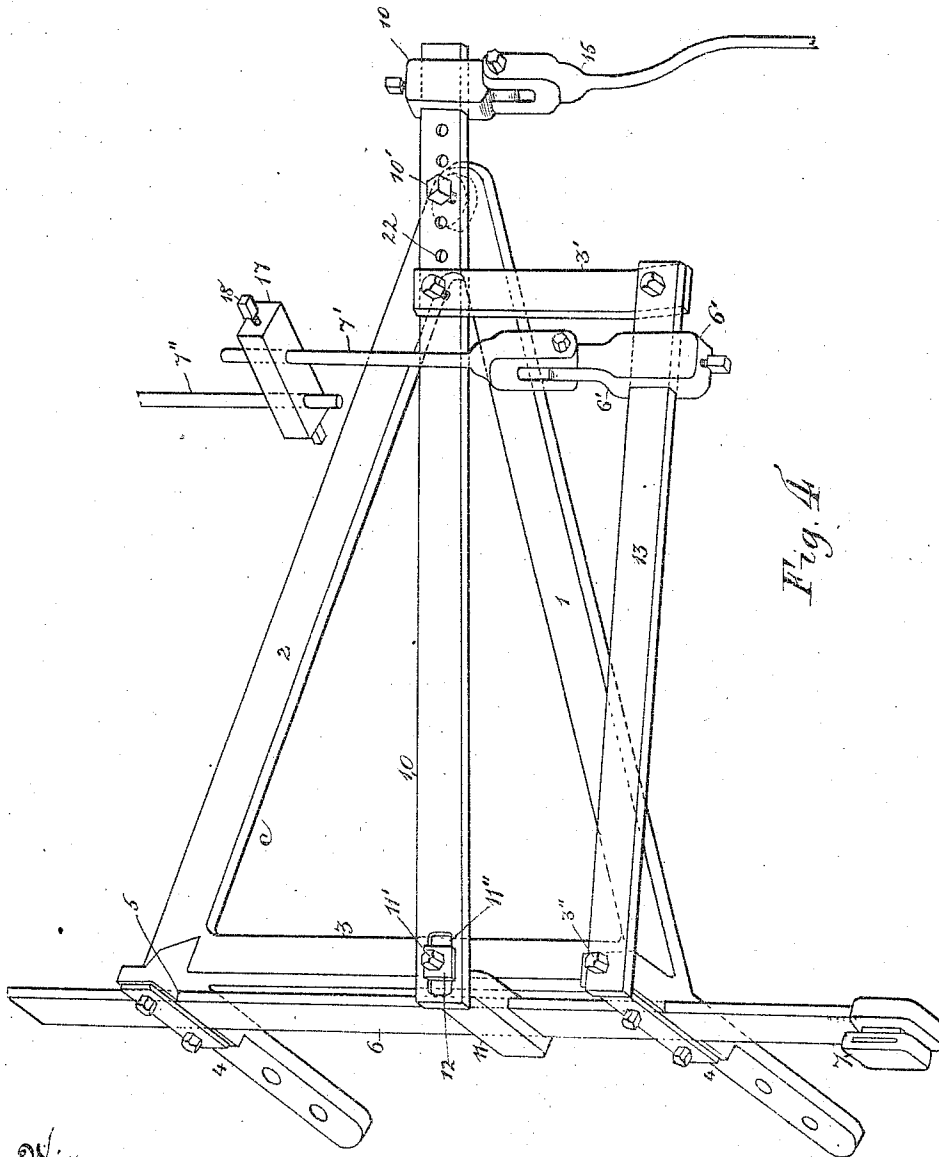


Fig. 4

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SAFETY-GUARD FOR STAMPING-PRESSES.

1,005,775.

Specification of Letters Patent.

Patented Oct. 10, 1911.

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To all whom it may concern:

Be it known that I, JAMES MELVIN JONES, a citizen of the Dominion of Canada; residing at present at No. 44 Henry street, Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Safety-Guard for Stamping-Presses; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

The invention relates to a safety guard and mechanism to operate it, to be attached to stamping presses or machines of that class where the fingers of an operator manipulating the same, are in constant danger of being caught in the machinery and wounded or amputated thereby.

The invention consists of a safety attachment to machines of the class specified that is calculated to prevent accidents to the operator for the reason that the safety guard will not allow the male die of the press to descend its full length of stroke to meet the lower die until the hand of the operator is out of danger as the guard, the clutch mechanism and the treadle all operate together.

The invention further consists in a frame attached to a stamping press, and machines of kindred nature where there is danger to an operator's hand, such as power paper cutters, power squaring shears, box corner machines and such machines as are operated by a foot treadle, the object of my guard being to prevent the unlatching of the clutch (which allows the male die to drop) until the operator's hand is out of danger position, and thus prevent his fingers from being caught between the dies.

I attain these objects by the mechanism illustrated in the accompanying drawing.

Figure 1, represents one style of a stamping press with my guard and operating mechanism attached, and the guard up or open. Fig. 2, is a similar view, but showing the male die up and the safety guard down to protect the front opening between the dies, and so render it impossible for the operator's hand to get between the dies when the male die descends. Fig. 3, is a section of frame lever, vertical bar, slotted bracket and hard metal bushing in the slot of said lever. Fig. 4, is perspective view of the central frame and lever attached.

Similar reference characters refer to similar parts throughout the several views.

A, represents one form of a stamping press, of which there are several kinds, all of which can have my device attached thereto readily, a small modification only being required in some cases to be adapted to the peculiar make of the press.

The safety device mechanism consists of a triangular shaped frame *c*, formed of parts 1, 2, 3, which is provided with lugs 4, 4, by which it is bolted on to the upper part of the press A. There is a covered recess 5, forming a slot in each of the said lugs 4, 4, at the upper and lower front corners of the frame *c*, into which is made to slide vertically a smooth steel bar 6, having attached at its lower end a slotted bracket 7, into the slot of which is placed a horizontal guide bar 8, secured by a set screw 9. On the outer end of said bar 8, is a slotted bracket 8', through which is made to pass an L shaped safety rod 8'', to the horizontal portion of which is firmly secured a wire screen 8''', the two latter parts forming essentially the safety guard which is made to operate up and down in front of the space between the dies for the operator's safety, as will be more fully shown hereinafter.

A lever 10, is pivotally attached to the rear end of the frame *c*, by a pivot bolt 10', and its front end attached to a slotted bracket 11, on the vertical rod 6, and pivotally secured to the said lever 10, by a screw bolt 11', made to pass through a slot 11'', in the said lever 10; by this means the latter is enabled to have its forward end slide vertically on the perpendicular bar 6, the reason of which will be shown hereinafter. The said lever 10, is elongated backward from its pivotal point to the rear of the frame *c*, and connected to said end is a vertical connecting rod 15, which connects said lever 10, to the foot treadle 16, through means of the intermediate foot cranks 15', at the bottom. The lower horizontal bar 13, which is attached to the frame *c*, by a set screw 3'', and to the lever 10, by the vertical connection 3', has upon it a sliding bracket 6', to which is pivotally connected a connecting rod 7' the upper end of which passes through a bracket 17, and held thereon by a set screw 18, another short connecting rod 7'', has its lower end made to pass through the other end of the said bracket 17, and held thereto also by a set screw; the upper

end of the said connecting rod is fastened to the releasing latch 19 of the machine, which is held by the clutch 20, on the main driving shaft 21. The reason why the connecting rod 7', and 7'', are in two pieces made to pass through a bracket 17, is, that they may be accurately adjusted to suit the required distance between the bar 13, and the latch 19. It will thus be seen that there is a direct connection between the treadle 16, the safety rod or guard bar 8'', the lever 10, of the frame c, and the lock or latch 19, and clutch 20, so that when these parts are properly adjusted relatively to one another the male die a, cannot descend to the female die b, until the guard bar 8'', is down in front of the space between the dies as far as it will descend, and even if the operator's fingers accidentally or inadvertently get under the said guard bar, they will not be injured more than giving him a little pinch, as the clutch 20, will not release the latch 19, to allow the male die a, to descend with force, until the guard bar reaches its lowest point, at which the latch releases the clutch and the male die descends with sufficient impact to stamp anything placed on the lower die. It will thus be observed that the latch cannot be released to trip the press if there is any object under the guard bar such as an operator's hand, as all the parts, guard, treadle clutch and latch operate conjointly, so that if one part is prevented from moving, as by an obstacle being interposed in the path of the guard, none of the other parts can move.

It may be observed here that the lever 10, has its screw bolt 11', made to pass through a hard metal bushing 12, in the slot 11'', on said lever, to prevent undue frictional wear on said bolt. It may further be observed that the said lever 10, is provided with a series of bolt holes 22, which admits of finer adjustment of the stroke of the treadle to which it is attached. It will further be observed that, the guard bar 8, could be extended horizontally long enough to pass the dies and omit the right angled safety rod 8'', and the wire screen 8''', but to admit of the safety device to be adapted to different makes of stamping presses, I make the guard bar 8'', both vertical and horizontal so that it can slide up or down to vary the distance from the bottom die b, and for the greater security of the operator, attach a square of wire netting 8''', to fill the entire front space between the upper and lower dies a, b, respectively, thus giving double security to the hands of the operator.

The foot treadle 16 as shown is substantially the same as has been heretofore used on foot controlled stamping presses of the class specified in which the treadle has been used to withdraw the latch from the clutch

and allow the upper die to descend with great force on the lower die, a spring 23 being employed to raise the treadle after release of the foot pressure. In the operation of such presses there is danger to the operator, if he is not extremely careful, of having his fingers caught between the dies and smashed, rendering the amputation of fingers or sometimes of the entire hand necessary; but with my safety device, it is impossible for the operator to have his fingers caught between the dies as on account of the aforesaid mentioned connections and safety device the latch 19, cannot be withdrawn from the clutch 20, until such time as the safety guard bar 8'', moves downward to guard the space between the dies.

It may be observed that my safety guard device may be adapted to all stamping presses worked or operated by a foot treadle to work the locking and releasing latch, some presses merely requiring a slight modification of the safety parts which will not alter the essential features of the invention.

Having thus described my device and its advantages, what I claim as my invention and desire to secure by Letters Patent, is,

1. In combination with a stamping press, a safety guard attachment, comprising a frame secured thereto, a rod made to slide vertically in brackets attached to the frame, a lever pivotally attached at its rear end to said frame, and its front end secured to the said vertical rod, an adjustable horizontal safety rod carried by the lower end of the said vertical rod, and adapted to pass in front of the dies and means to connect the said lever with the treadle and the latch of the operating clutch, forming a positive connection between the parts to lower the safety rod and guard opposite the space between the dies before the latch releases the clutch to cause the male die to drop—thus insuring safety to the operator.

2. In combination with a latch, clutch and treadle of a stamping press, an intermediate frame attached to the press, a lever pivotally secured to the said frame, its front end removably attached to a bracket, a rod made to slide vertically in brackets carried by the frame, a connection between the treadle and said lever and from said lever to the operating latch of the press for the purpose of preventing the latch from operating the clutch until the safety guard rod is moved down in front of the space in front of the dies.

3. The combination with the latch and clutch and treadle of a stamping press, of a safety guard attachment comprising a frame secured to the press, a rod sliding vertically in brackets on said frame, a guard carried by said rod, a bracket mounted on said vertical rod, a lever pivotally mounted on said frame and connected to the treadle

and latch of the press, a hard metal bushing carried by said bracket, said lever being formed with a slot in which said bushing is seated, said lever being formed with a plurality of pivot receiving holes whereby the fulcrum point of said lever may be varied.

4. In combination with a stamping press, a frame, (c), bolted to the press, a vertical rod, (6), made to slide vertically on the said frame, a safety horizontal guard bar, (8), slidably attached to the said vertical rod, (6), a lever, (10), made to slide on the front vertical bar, (6), and its rear end portion pivotally attached to the rear of the triangular frame, (c), and connected to the treadle, (16), a horizontal bar, (13), having its front end attached to the lower portion of the frame, (c), and its rear end connected to the back portion of the lever, (10), a sliding block, (6'), on said horizontal bar, (13), and means to adjustably connect the said horizontal bar, (13), to the latch, (19) of the clutch, (20), to operate the safety guard rod and screen vertically before the

dies, the said parts all operating simultaneously to prevent accident to the operator.

5. In combination with a stamping press, a frame, (c), carrying a vertical bar, (6), a horizontal guard device secured thereto, bars, (13, 3') secured to the frame, (3), and lever, (10), an adjustable connecting rod between the bar, (13), and the latch, (19), and connection, (15), between the said lever, (10), and the treadle, (16), by which the male die, (a), cannot drop on the under die, (b), until the safety guard (8'') and screen, (8'''), are down to their lowest point to cover the space between the dies, the mechanism operating simultaneously to prevent the latch from withdrawal until the space between the dies is protected.

Signed at Hamilton, Ontario, this 20th day of April, 1910.

JAMES MELVIN JONES.

In the presence of—

E. S. GILBERT,
W. BRUN.