Mar. 13, 1923.

1,447,987

W. M. JOHNSON

SAFETY GUARD FOR PRESSES

Filed June 28, 1922

2 sheets-sheet 1

Fig. 1.

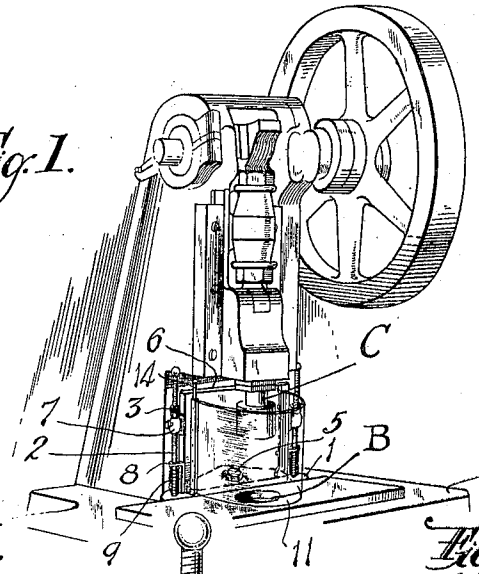


Fig. 3.

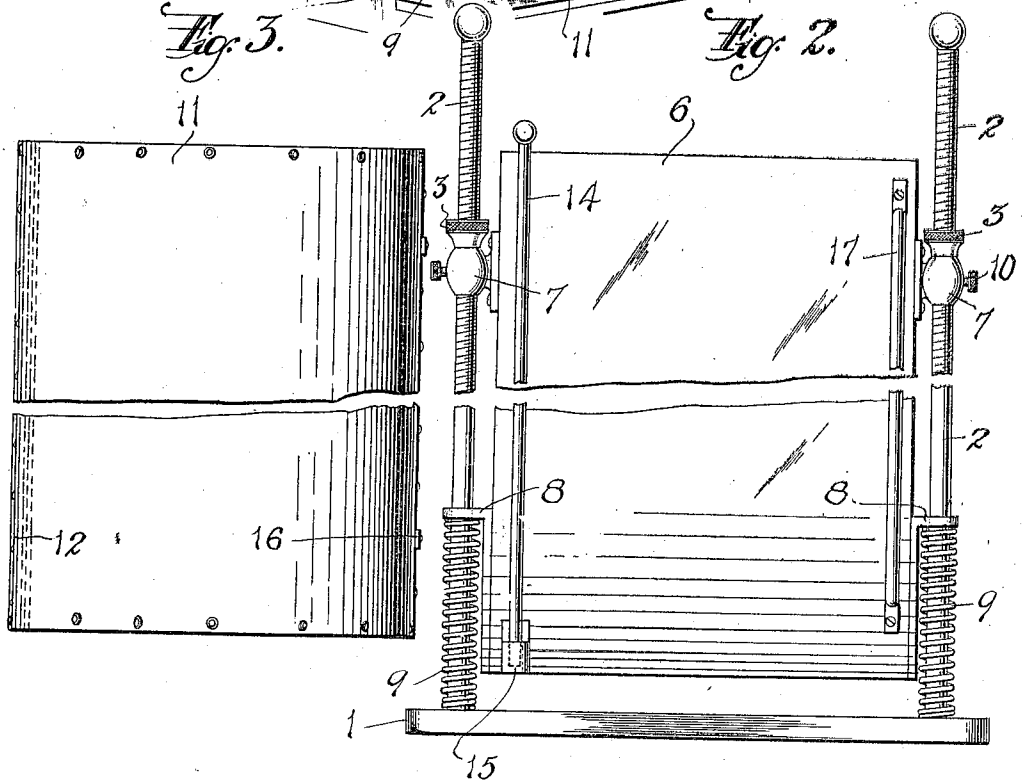


Fig. 2.

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Fig. 5.

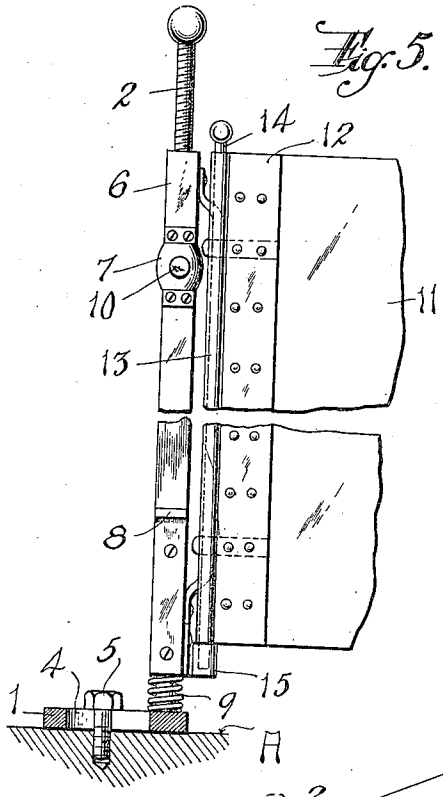


Fig. 4.

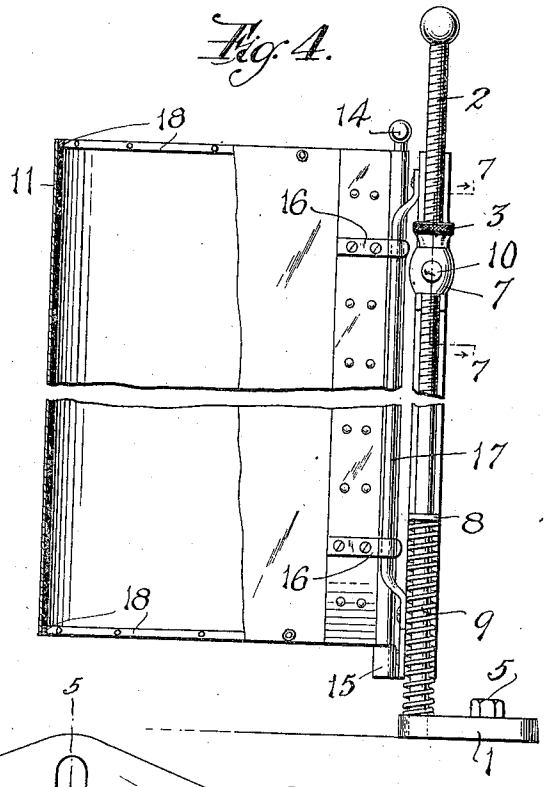


Fig. 6.

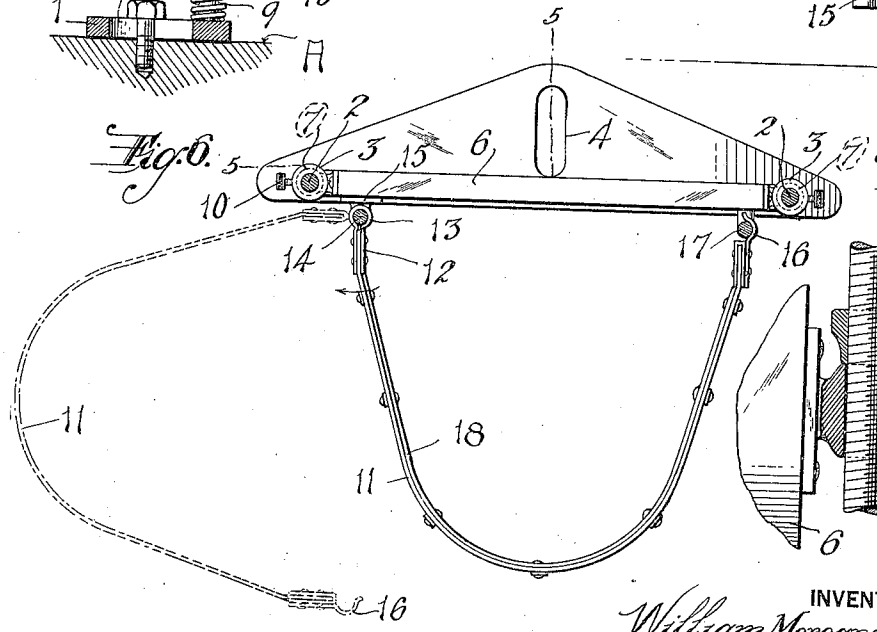


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM MORGAN JOHNSON, OF NEWARK, NEW JERSEY.

SAFETY GUARD FOR PRESSES.

Application filed June 28, 1922. Serial No. 571,579.

To all whom it may concern:

Be it known that I, WILLIAM MORGAN JOHNSON, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Safety Guards for Presses, of which the following is a specification.

This invention relates to safety guards for presses, such as metal stamping presses, in which there are a plurality of relatively movable engaging parts or dies for operation upon work which is manually fed to said engaging parts by an operator, said guard being designed to prevent the operator's hands from becoming accidentally caught between and injured by said parts.

The primary object of the invention is to provide a safety guard of this character embodying novel features of construction especially for use with presses of the type in which the operator only feeds the work material to the dies and is not required to pass his hands between the dies to remove the finished work.

Further objects of the invention are to provide a safety guard of the character described adapted to be fixedly mounted in relation to the die which supports the work material to normally enclose the zone of engagement of the dies; to provide such a device which can be adjusted to permit material of different thicknesses to be passed between it and said die which supports the work material and at the same time prevent the fingers of the operator from entering between said dies; to provide a safety guard of this character having a portion removable or displacable to permit access to said dies when such is necessary; to thus provide a safety guard including a supporting frame adapted to be mounted on a press in fixed relation to the material supporting die, and a guard portion mounted on said frame to enclose the zone of engagement of said dies and adjustable relatively to said material supporting die; to provide such a safety guard in which a portion of said guard member is hingedly mounted to provide access to said dies, and to obtain other results and advantages as may be brought out by the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views,

Figure 1 is a perspective view of a safety guard constructed in accordance with my invention showing the manner of applying the same to one type of metal stamping press;

Figure 2 is an enlarged front elevation of the guard detached from the press with the shield of the guard member removed;

Figure 3 is a front elevation of the shield;

Figure 4 is a side elevation of the safety guard, portions of the shield being shown in section;

Figure 5 is a vertical sectional view taken on the line 5—5 of Fig. 6 with one of the guide rods removed and portions of the shield broken away;

Figure 6 is a top plan view of the safety guard, portions being shown in section, and

Figure 7 is a detail sectional view of the mounting of the body portion of the guard member on the guide rods.

For the purpose of illustrating the principles of my invention I have shown my safety guard used in connection with a well-known type of metal stamping and punching press which includes a table A, a lower work supporting die B and an upper reciprocating stamping or punching die C adapted to cooperate with the lower die B in stamping or punching sheet metal. In this form of press, the sheet metal to be operated upon is manually fed over the lower die B by the operator, and it is unnecessary for the operator to place his hands between the die members B and C to remove the finished work.

The safety guard embodying my invention comprises a frame including a base plate 1 adapted to be secured to the table A of the press and provided with a pair of spaced guide rods 2 rigidly secured at one end to the base plate and arranged at substantially right angles thereto. The rods 2 are threaded from their free ends for a portion of their lengths and are provided with nuts 3 to cooperate with the guard member of the safety guard. The base plate 1 may be secured to the table of the press in any suitable manner, but in the present instance I have shown the plate formed with a slot 4 through which passes a cap screw 5 into the table of the press, the slot 4 enabling the base plate to be adjusted relatively to the lower die B.

The guard member includes a body portion 6 which may be in the form of a board or sheet of metal, such as aluminum, the

said body portion being arranged between the guide rods 2 and having secured at its opposite longitudinal edges near one end thereof brackets 7 which are slidable on the respective guide rods 2. Adjacent the other end of said body portion are secured other brackets 8 also slidably mounted on the guide rods, said brackets 7 and 8 providing for adjustment of the body portion 6, of the guard member longitudinally of the guide rods 2 and preventing swinging of the body portion or binding of any of the brackets on the guide rods. Movement of the body portion 6 toward the free ends of the guide rods is limited by engagement of the brackets 7 with the nuts 3, and for the purpose of automatically influencing the body portion toward the free ends of the guide rods compression springs 9 are interposed between the brackets 8 and the base plate 1. To prevent vibration of the body portion 6 and movement toward the base plate 1 on the guide rods I may provide set screws 10 in the brackets 7 to engage the rods 2.

A shield 11 is mounted on the body portion 6 of the guard member and is adapted to cooperate therewith to enclose the zone of engagement of the die members B and C. The said shield may be of any suitable construction, but I preferably form the same of celluloid, mica, or wire mesh, so that the operator can watch the operation of the dies on the work, and said shield is preferably substantially semi-elliptical in cross-section as shown in Figure 6. The shield 11 is removably and hinged mounted on the body portion 6, and for this purpose I have shown a strip of sheet metal 12 returned upon itself to form a hinge sleeve 13, the said strip being riveted or otherwise suitably secured to one longitudinal edge of the shield. A hinge pintle or rod 14 is adapted to loosely fit in the hinge sleeve 13 and one end thereof removably fits within a socket member 15 secured to the body portion 6 adjacent the inner end thereof. With this construction it will be observed that by removing the hinge pintle 14 from the socket member 15 the shield 11 may be bodily removed from the body portion 6, and that the shield may be swung on the hinge pintle 14 away from the body portion, as shown by dotted lines in Figure 6, to provide access to the die members B and C or the work between the same. To hold the shield 11 against swinging, I may form the edge thereof opposite the hinge with catches 16 adapted to engage a keeper rod 17 mounted on the body portion 6. The said catches may be of any suitable construction but in the present instance are adapted to be held in engagement with the keeper rod 17 by the inherent resiliency of the shield 11. When the shield is made of mica or celluloid, I may provide the transverse edges thereof with reenforcing strips 18 of metal to protect the same against injury, and said strips also increase the rigidity of the shield.

In the operation of the safety guard, the same is secured to the table A of the press by means of the cap screw 5 with the guide rods 2 arranged at opposite sides of the lower die B. The shield 11 is then secured to the body portion 6 by means of the hinge pintle 14 and the body portion is adjusted by means of the nuts 3 and set screws 10 so that the lower edge of the shield is spaced a sufficient distance from the lower die to permit the work material to pass between the lower edge of the shield and the said die. It will thus be seen that the shield 11 encloses the zone of engagement of the die members B and C and prevents the fingers of the operator from entering between the said dies; and, furthermore, the safety guard being fixedly mounted with relation to the die member B, it is impossible for the hands of the operator to become caught between the safety guard and the said die member.

While I have shown a safety guard embodying certain details of construction, it will be understood that this is only for the purpose of illustrating the principles of the invention and that many modifications and changes can be made in the construction of the guard without departing from the spirit or scope of the invention. Therefore, I do not wish to be understood as limiting myself except as required by the following claims when construed in the light of the prior art.

Having thus described the invention, what I claim is:

1. The combination with a press including relatively movable engaging members, of a frame fixedly mounted relatively to one of said members, a guard member adjustably mounted on said frame to normally enclose the zone of engagement of said relatively movable members, and means for adjusting said guard member on said frame relatively to said one of said relatively movable press members to permit material of various thicknesses to be inserted therebetween.

2. The combination with a press including relatively movable engaging members, of a frame comprising a base plate having a pair of spaced guide rods mounted thereon, said base plate being adapted to be mounted on said press in fixed relation to one of said relatively movable members, a guard member slidably mounted on said rods to normally enclose the zone of engagement of said press members, said guard member being adjustable relatively to said one of said press members, and means for holding said guard member in adjusted position.

3. The combination with a press includ-

ing relatively movable engaging members, of a frame comprising a base plate having a pair of spaced guide rods mounted thereon, said base plate being adapted to be mounted on said press in fixed relation to one of said relatively movable members, a guard member body portion slidably mounted on said rods, and a shield removably mounted on said body portion to normally enclose the zone of engagement of said press members.

4. The combination with a press including relatively movable engaging members, of a frame comprising a base plate having a pair of spaced guide rods mounted thereon, said base plate being adapted to be mounted on said press in fixed relation to one of said relatively movable members, a guard member slidably mounted on said rods to normally enclose the zone of engagement of said press member, spring means for normally sliding said guard member in one direction away from said one of said press members, and means for adjusting said guard member in the opposite direction.

5. A safety guard for presses including a base plate having a pair of spaced threaded guide rods mounted thereon, a guard member slidably mounted on said rods to normally enclose the zone of engagement of said relatively movable press members, spring means for normally influencing said guard member in one direction, and nuts threaded on said rods for limiting said movement and adjusting said guard member in the other direction.

6. The combination with a press including a fixed member and a movable member to cooperatively engage said fixed member, of a frame having a pair of spaced guides and fixedly mounted on said fixed member, and a guard member slidably mounted on said guides and adjustable toward and from said fixed member, said guard member being adapted to normally enclose the zone of engagement of said fixed member and movable member of the press and independent of said movable member.

7. A safety guard for presses comprising a frame including a base plate having a pair of spaced guides thereon, a guard member body portion slidably mounted on said guides and carrying a pair of spaced rods, a curved shield to normally enclose the zone of engagement of a plurality of relatively movable engaging press members, and means at the edges of said shield for detachably mounting said shield on said rods on the body portion.

WILLIAM MORGAN JOHNSON.