April 4, 1950 C. WILLERS 2,503,144

ENCLOSURE GUARD

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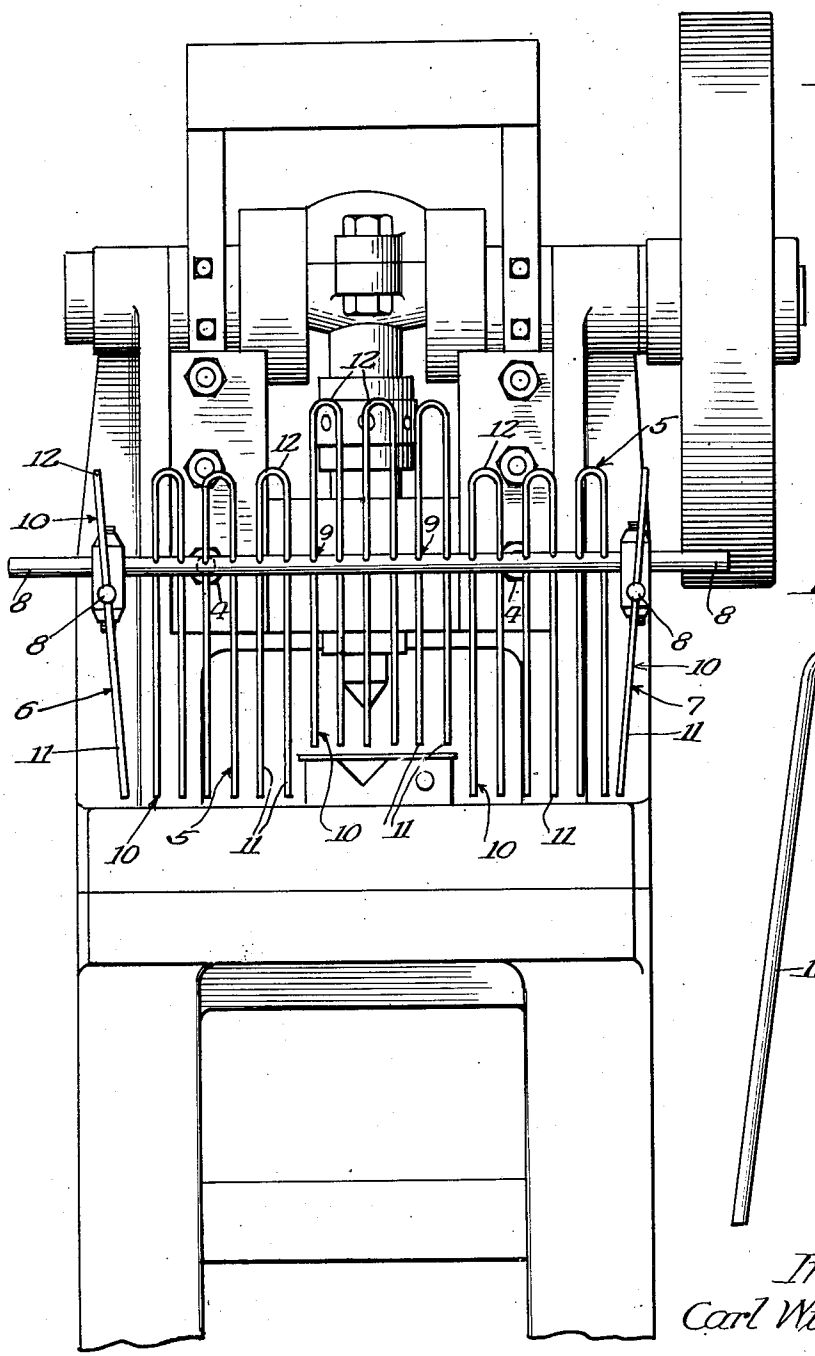


Fig. 1

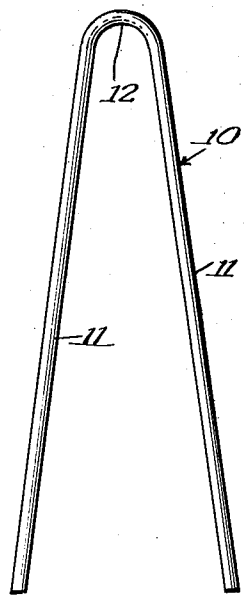


Fig. 2

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Fig. 3

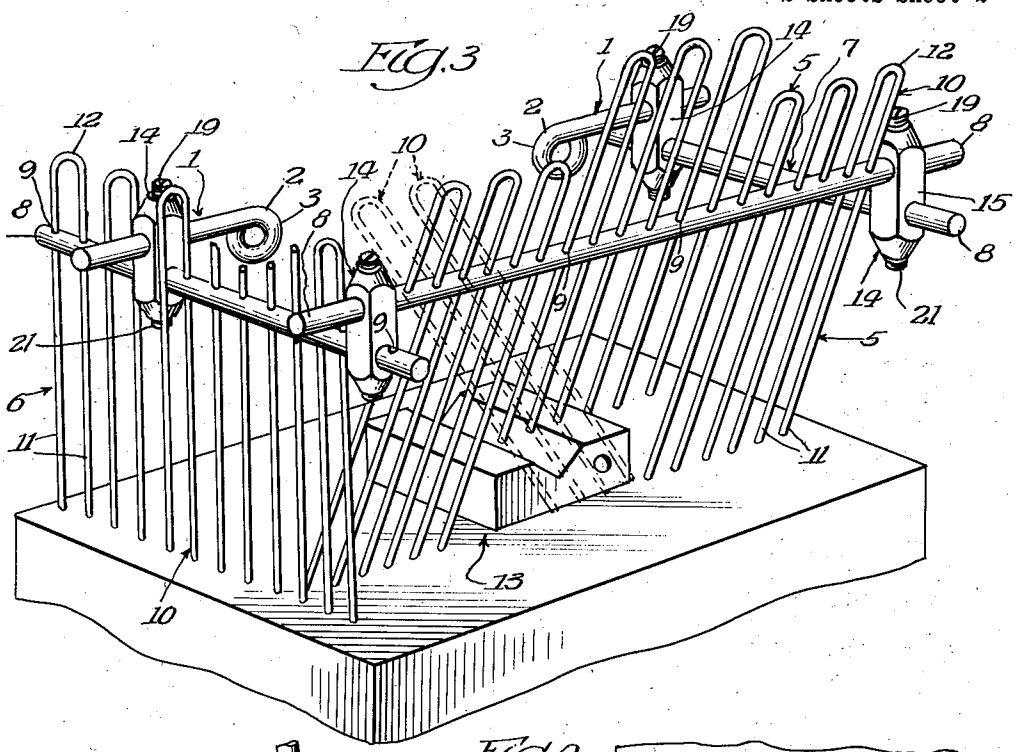


Fig. 4

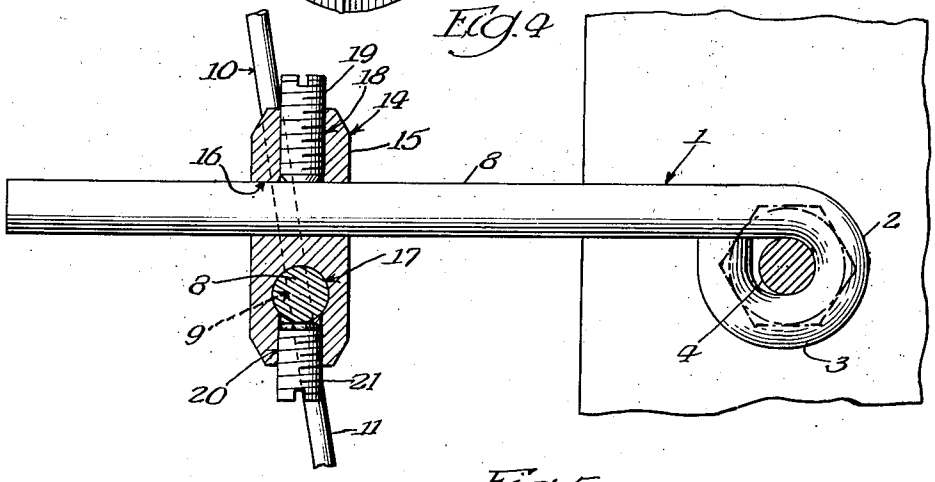
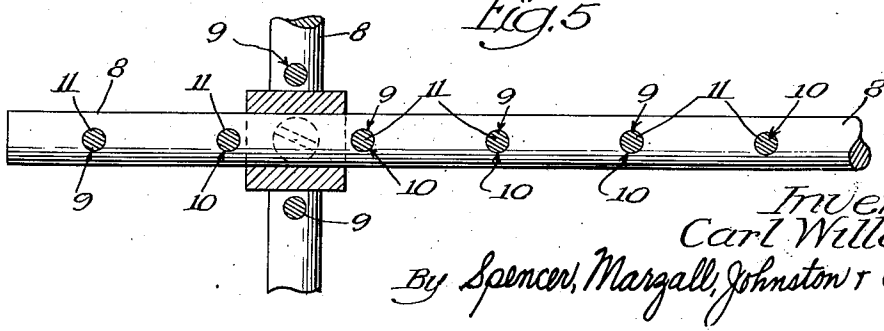


Fig. 5



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ENCLOSURE GUARD

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2 Claims. (Cl. 74—612)

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This invention relates in general to enclosure guards for machines, and particularly to enclosure guards for punch presses.

Among the important objects of the invention is the provision of an enclosure guard provided with vertical pins (preferably formed in the shape of hairpins) adjustably and removably mounted in apertured rods, and held in position in the apertures in the rods by frictional engagement of the pins because of the elasticity or resiliency of the pins, particularly because of the inherent tendency of the pins to spread, and the particularly novel manner of constructing certain fittings or devices for securing the rods in position whereby the rods are permitted to be shifted adjustably in various angular positions, whereby there is provided an enclosure of simple and economical construction permitting various size openings to be had and various angular adjustments to be provided.

Numerous other objects and advantages will be apparent throughout the progress of the specification which follows.

The accompanying drawings disclose a selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a front elevational view of a machine, such as a punch press, and showing the invention applied thereto:

Fig. 2 is a detail view of one of the pins formed in the shape of a hairpin;

Fig. 3 is a detail perspective view of the improved guard arranged in assembled position and showing the manner in which the pins may be shifted to provide a material receiving opening, also the manner in which the rods may be positioned to effect angular adjustment;

Fig. 4 is a detail vertical sectional view showing the manner in which the rods are supported by a fitting, the manner in which the rods may be secured to a part of the machine frame, also the manner in which the pins may be adjustably positioned with respect to an apertured rod; and

Fig. 5 is a detail plan section showing the attachment of the rods by a fitting, and the spacing of the apertures for receiving the hairpin-like pins.

The particular enclosure guard herein shown for the purpose of illustrating the invention comprises side attaching rods 1, 1 having the ends 2 thereof bent over in hook-like formation as indicated at 3, Fig. 3, and providing a central opening or aperture through which a bolt 4 may pass. A threaded opening is provided in a stationary part of the machine frame to receive threadedly

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the bolts or studs 4 for locking the rods 1 rigidly to the machine. The enclosure guard, as herein shown, is made in three sections including a front section 5, a side section 6 (to the left, Fig. 3), and a right side section 7, having the pins 10 omitted in Fig. 3.

Each of the sections 5, 6 and 7 includes a rod 8 having a plurality of apertures 9 extending therethrough. The apertures 9 are preferably equally spaced and are adapted to receive pin members 10. The pin members 10 may comprise single rod-like members, but they are preferably made so as to form two legs 11, 11 integrally connected at their upper ends by an arcuate portion 12, Fig. 2. Two adjacent holes or apertures 9 in a rod 8 receive the legs 11, 11, as clearly shown in Figs. 1 and 3. The legs 11, 11 of the pin members 10 preferably are spread apart, as clearly shown in Fig. 2, so that when the legs 11 are received in adjacent openings 9 the legs will be in relative parallel position, as shown in Figs. 1 and 3. The spreading apart of the legs as shown in Fig. 3 causes the legs to have pressure exerted against the sides of the holes or apertures 9 and, therefore, tend to secure the pin members 10 in proper adjusted position. The pin members 10 may be raised or lowered to suit circumstances. Pin members 10 on the front section 5 may be raised, as clearly shown in Fig. 3, to provide a receiving opening 13 through which the material may be fed to the press. The pin members 10 in the side sections 6 and 7 may be raised to provide material receiving openings in the side members if the material is to be fed from either side. Also, the pin members 10 in each section 6 and 7 may be raised to provide openings in each side thereof and in alignment so as to permit material to be fed completely through the machine from one side to the other.

The section 6 may be secured to the supporting rod 8 by means of a fitting 14. Other fittings 14 may be provided for securing the rods 8 of the front and side sections together, Fig. 3. The fittings 14 each comprises a body portion 15 which is relatively square or rectangular in horizontal cross section. The fitting 14 is preferably of a size slightly less than the distance between apertures 9 so that the fittings may be received in between the legs 11, or between each pin member 10, as desired. The body 15 is provided with a horizontal opening 16 therethrough, Fig. 4, so as to receive a rod 8. An opening 17 is also formed through the body 15, and this latter opening is preferably at right angles with respect to the first opening and spaced therefrom, as clearly

wardly on the members 10 or by tapping them gently with a tool. The pin members 10 are maintained in adjusted position by frictional contact with the apertures 9. The arcuate end 12 of the members 10 tends to cause the spreading apart action of the legs 11, but inasmuch as the apertures or holes 9 are relatively elongated, the lower part of the legs, that is the part which extends downwardly below the rods 8, will be maintained in parallelism.

The invention provides, therefore, an enclosure guard to protect the machine operator, and the enclosure guard as a whole is relatively flexible because of the innumerable positions and adjustments which may be had. It is not necessary to have separate locking devices for each pin member 10 because each pin member 10 is maintained in its adjusted position by frictional contact with the material surrounding the apertures at the outer sides of the apertures. The fittings 14 comprise a solid body 15 which is provided with spaced holes arranged at right angles. One section may be locked to its cooperating adjacent section by merely tightening an upper set screw 19 or a lower set screw 20. Said screws may be provided with slots in their outer ends so that they may be tightened or loosened by a screw driver. In actual practice, however, it has been found advantageous that the said screws be the so-called "Allen" screws which consist of a socket provided in the outer end of a screw. These latter screws are operated by means of an angle wrench having an end fitting into the socket.

Changes may be made in the form, construction and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fall fairly within the scope of the following claims:

The invention is hereby claimed as follows:

1. A closure guard for machines comprising a rod having a plurality of spaced holes extending therethrough, pin members formed in a hairpin-shape having the legs thereof slidably passing through said holes, the legs of the hairpin-shaped members being frictionally engaged in said holes for adjustment therein, a relatively rectangular fitting having a cross-sectional measurement less than the distance between a pair of said holes and capable of being positioned between the legs of the pin member when the legs of a pin member are in adjacent holes, said fitting member having spaced upper and lower holes extending horizontally therethrough, one of said latter holes being located at a 90 degree angle with respect to the other hole, and a screw member threadedly engaging a threaded opening formed in the upper and lower ends of the fitting and adapted to extend into the respective latter holes so as to lock a rod in a hole when a cooperating screw member is screwed in position in the fitting.

2. An adjustable enclosure guard to enclose certain operating parts of a machine so as to protect the hands of a machine operator from said operating machine parts and comprising a plurality of sections, each section comprising a rod having a plurality of apertures extending therethrough and spaced lengthwise of the rod, pins adapted to pass through said apertures and adapted to be adjustably positioned in said apertures longitudinally of the pins, means for creating relative friction between the sides of the apertures and the pins by the engagement of the pins with the material surrounding said apertures so as to maintain the pins in relative adjusted position, and

means for adjustably connecting the sections together, said last named means comprising a body having a horizontal opening therethrough to receive slidingly and pivotally the rod of a certain section, said body having a threaded hole extending longitudinally of the body at one end and communicating with the said opening, a set screw threadedly engaging the hole to lock said rod in said opening, said body having a second horizontal opening therethrough at an angle to the first opening to receive slidingly and pivotally the rod of another section, there being a threaded hole in the other end of the body in communication with said second opening, a set screw threadedly engaging said second hole to lock a rod of a section in said second opening, and means to secure a said section rigidly to a stationary part of a machine, said last named means including a round rod terminating in an eye to receive an attaching fastener.

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The following references are of record in the file of this patent:

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Publication: Advertisement in Modern Industrial Press, by the Strand Mfg. Co., Inc., 609 West Lake St., Chicago 6, Ill., issue of 1946, page 49.