

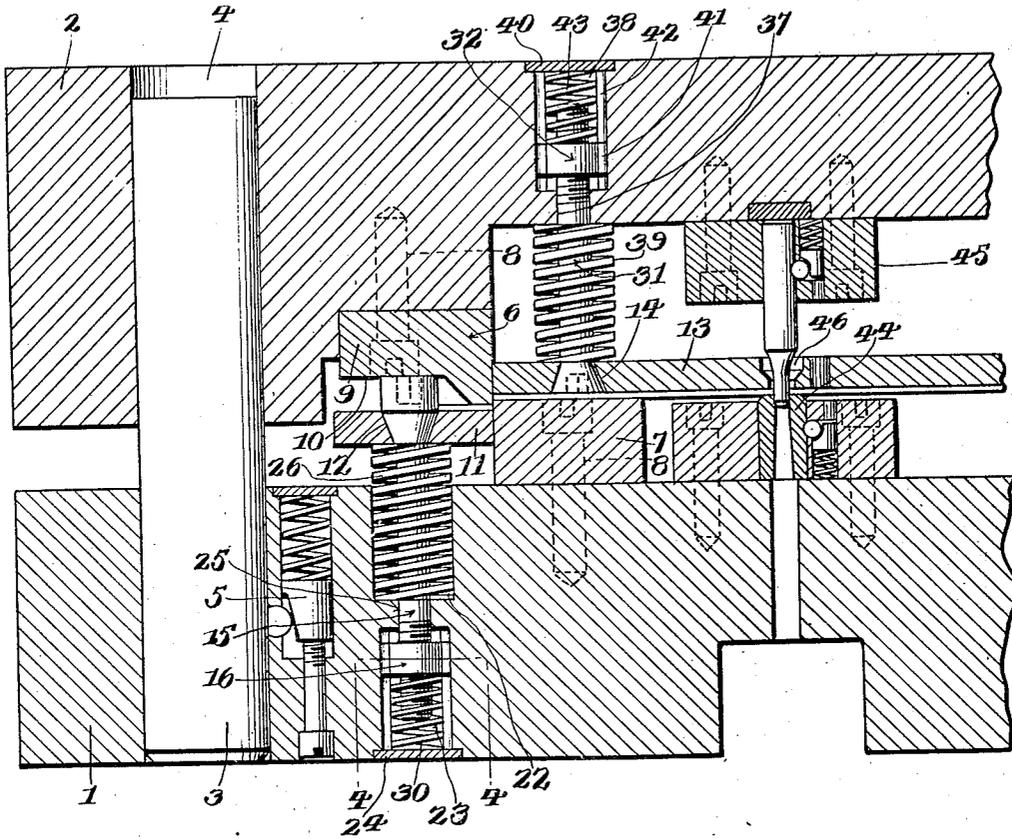
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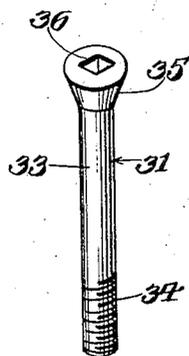
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REMOVABLE STRIPPER APPLIANCE

Filed Oct. 27, 1927

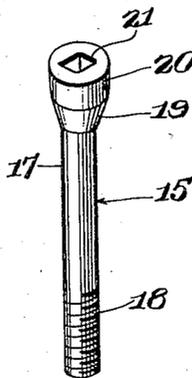
*Fig. 1.*



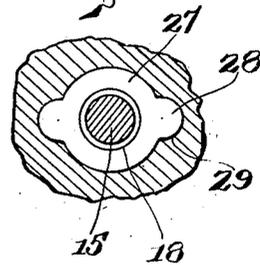
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## REMOVABLE STRIPPER APPLIANCE.

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This invention relates to a removable stripper appliance for die presses.

Heretofore it has been the practice to secure stripper plates into a die press, on both male and female, by running screws from the top and from the bottom into the tappet hole of the stripper plate, making it necessary when cutting edges become dull to remove the die out of the press for grinding, and to overcome the die removal it is one of the objects of this invention and to this end the invention resides, in providing in a manner as hereinafter set forth, means whereby it is possible to remove the stripper plates from the die when the upper part of the die is held in an elevated position by the ram of the press, and after the removal of the stripper the die can be ground easily.

A further object of the invention is to provide, in a manner as hereinafter set forth, means to eliminate the employment of a gauge for holding the sheet metal in position for cutting and with said means forming a part of the removable stripper appliance.

Further objects of the invention are to provide, in a manner as hereinafter set forth, a removable stripper appliance for the purpose referred to which is simple in its construction and arrangement, strong, durable, compact, readily installed, thoroughly efficient in its use, permitting of the convenient removal of the stripper plates when desired to grind the dies, and comparatively inexpensive to set up.

With the foregoing and other objects in view the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

Figure 1 is a fragmentary view in section of a press showing the adaptation therewith of a removable stripper appliance for the male and female dies thereof.

Figure 2 is a perspective view of the coupling member of a stripper plate of the male die.

Figure 3 is a perspective view of the cou-

pling member for the stripper plate of the female die.

Figure 4 is a section on line 4—4 Figure 1.

Referring to the drawings in detail 1 denotes the stationary element and 2 the shiftable element of a die press and the former has coupled therewith a guide pin 3 for the shiftable element 2 and said guide pin 3 travels in a guide opening 4 formed in the shiftable element 2. A coupling means for the guide pin 3 is indicated at 5 and which is carried by the stationary element 1. The male die of the press is indicated at 6 and is connected to the shiftable element 2. The female die of the press is indicated at 7 and which is carried by the stationary element 2. Holdfast devices 8 are employed for fixedly securing the dies 6 and 7 in position. The die 6 includes a reduced portion 9 whereby a part of the lower face thereof will be positioned in a plane above the remaining portion of said lower face and that part of the lower face of the die 6 which is positioned above the remaining part of said lower face is indicated at 10 and provides an abutment.

The stripper plate for the die 6 is indicated at 11 and it is formed with an inverted conical shaped opening 12. The stripper plate for the die 7 is indicated at 13 and is formed with a conoidal shaped opening 14.

The stripper plate 11 is connected to the stationary element 1 by a coupling member, referred to generally at 15, in connection with a retaining nut 16 of the non-rotative type. The coupling member 15 includes a cylindrical shank 17 provided at its lower end with peripheral threads 18 and formed at its upper end with an inverted conical shaped head 19 terminating in a cylindrical extension 20 formed with a polygonal shaped socket 21. The head 19 seats in the opening 12 of the plate 11 and the extension 20 is positioned above the plate 11 and is of a diameter corresponding to the greatest diameter of the head 19. The extension 20 coacts with the raised portion 10 of the lower face of the die 6 for the purpose of lowering the plate 11. The element 1 is formed with a socket 22 which opens at the upper face of said element 1, and arranged below and spaced from the socket 22 is a socket 23 which is also formed in the element 1 and opens at the lower face thereof. The socket 23 is closed by a counter-sunk plate 24 secured in the lower face of the element 1. Communication

is established between the sockets 22 and 23 by a cylindrical opening 25 provided in the element 1. The non-rotative nut 16 is arranged in socket 23. The shank or stem 17 extends through socket 22 and into socket 23, as well as passing through opening 25. Arranged within socket 22 and interposed between the bottom thereof and the lower face of the plate 11, as well as surrounding the stem or shank 17 is a coiled controlling spring 26 for the plate 11 and the diameter of the spring 26 is substantially the same as the diameter of the socket 22. The non-rotative nut 16 is mounted on the threaded lower terminal portion of the shank or stem 17, and the latter projects below said nut 16 when the coupling member is employed to connect the plate 11 with the stationary element 1. Any form of non-rotative nut can be employed, but by way of example the nut 16 consists of a body portion 27 in the form of an annulus provided with diametrically disposed ears 28, travelling in grooves 29 offset from the wall of the socket and diametrically opposed. The ears 28 travelling in the grooves 29 prevent the nut 16 rotating relative to the stem or shank 17. Arranged within the socket 23 and interposed between the nut 16 and the plate 24 is a coiled controlling spring 30 acting as a positioning spring for the nut 16 or for the purpose of maintaining the nut 16 in elevated position when the nut is free of the stem or shank 17. The spring 30 also acts as a cushion for the coupling member 15.

The stripper plate 13 is connected with the element 2 by a coupling member, referred to generally at 31, in connection with a non-rotative nut 32. The member 31 consists of a stem or shank 33, having peripheral threads 34 at one end and at its other end formed with a conoidal-shaped head 35 formed with a polygonal shaped socket 36. The head 35 is seated in the opening 14 and the shank or stem 33 extends through an opening 37 formed in the element 2 and into a socket 38 which is formed into and opens at the upper face of said element 2. The nut 32 is mounted on the threaded portion 34 of the stem or shank 33. Interposed between the element 2 and the plate 13 and surrounding the shank or stem 33 is a coiled controlling spring 39. The socket 38 is closed by a plate 40 countersunk in the top of the element 2. The non-rotative nut 32 is of the same construction as the nut 16 and said nut 32 is formed with diametrically disposed ears 41, which travel in grooves 42 diametrically disposed with respect to the wall of the socket 38. A combined positioning and cushioning spring 43 is interposed between the plate 40 and the nut 32 and surrounds a portion of the stem or shank 33 of the member 31.

The sockets 21 and 36 are provided in the coupling members 15 and 31 respectively to

receive a suitable tool so that said members can be disconnected from the nuts 16 and 32.

The cylindrical extension 20 is employed instead of the ordinary gauge for positioning sheet metal for cutting. The spring 39 functions to retain the plate 13 at the desired position to associate with the female or lower die 7.

When the material is properly rested against the cylindrical extension 20 forming a part of the coupling member 15, and on the downward stroke of element 2, the portion 10 of the lower face of the male or upper die 6 will first engage the extension 20 and on a further downward movement of the element 2, the member 15 and plate 11 will be shifted downwardly to the position shown in Figure 1. The plate 13 is carried in set position downwardly when the element 2 moves in such direction. On the complete downward stroke of the element 2, the stripper plates 11 and 13 will be in the position as shown in Figure 1 relatively to each other.

When the cutting edges become dull it does not require the dies to be moved out of the press for grinding, as when the element 2 is in its elevated position the coupling members 15 and 31 can be conveniently removed from connection with the nuts 16 and 32 whereby the stripper plates 11 and 13 can be removed and the dies sharpened without detaching them from their fixed position.

A punching mechanism is carried by the elements 1 and 2, and indicated at 44 with respect to element 1 and at 45 with respect to element 2. The plate 13 is provided with an opening 46 for the passage of the punch of such mechanism.

It is thought the many advantages of a removable stripper appliance in accordance with this invention and for the purpose set forth can be readily understood, and although the preferred embodiment of the invention is as illustrated and described, yet it is to be understood that changes in the details of construction can be had which fall within the scope of the invention as claimed.

What I claim is:

1. A removable stripper appliance for dies comprising a threaded coupling member for extension through a stripper plate and provided at one end with a head engaging the plate, a non-rotative nut connected to the other end of said member for connecting the latter to a part of a die press in alignment with the die, a stripper plate controlling spring surrounding said member and adapted to bear against the plate, and a positioning spring for said nut.

2. A removable stripper appliance for dies comprising a threaded coupling member for extension through a stripper plate and provided at one end with a head engaging the plate, a non-rotative nut connected to the other end of said member for connecting the

latter to a part of a die press in alignment with the die, a stripper plate controlling spring surrounding said member and adapted to bear against the plate, and an extension projecting from said head and adapted to be engaged by the die on its downward movement whereby the plate and coupling member will be shifted downwardly in unison against the action of the controlling spring.

3. A removable stripper appliance for dies comprising a threaded coupling member for extension through a stripper plate and provided at one end with a head engaging the plate, a non-rotative nut connected to the other end of said member for connecting the latter to a part of a die press in alignment with the die, a stripper plate controlling spring surrounding said member and adapted to bear against the plate, a positioning spring for said nut, and an extension projecting upwardly from said head and adapted to be engaged whereby on the downward movement thereof the plate and coupling member will be shifted downwardly in unison against the action of said controlling spring.

4. A removable stripper appliance for dies comprising in combination, a stripper plate formed with a conoidal shaped opening, a

threaded coupling member extending through said plate and provided at one end with a conoidal shaped head seating in said opening, a non-rotative nut connected to the other end of said member for connecting the latter to a part of a die press in alignment with the die, a controlling spring surrounding said member and bearing against said plate, and a positioning spring for said nut.

5. A removable stripper appliance for dies comprising in combination, a stripper plate formed with a conoidal shaped opening, a threaded coupling member extending through said plate and provided at one end with a conoidal shaped head seating in said opening, a non-rotative nut connected to the other end of said member for connecting the latter to a part of a die press in alignment with the die, a controlling spring surrounding said member and bearing against said plate, and an extension projecting upwardly from said head and adapted to be impacted upon by a die on the downward movement thereof whereby said plate and coupling member will be moved downwardly in unison against the action of said controlling spring.

In testimony whereof, I affix my signature hereto.

MAX EMIL TOBELER.