

May 21, 1940.

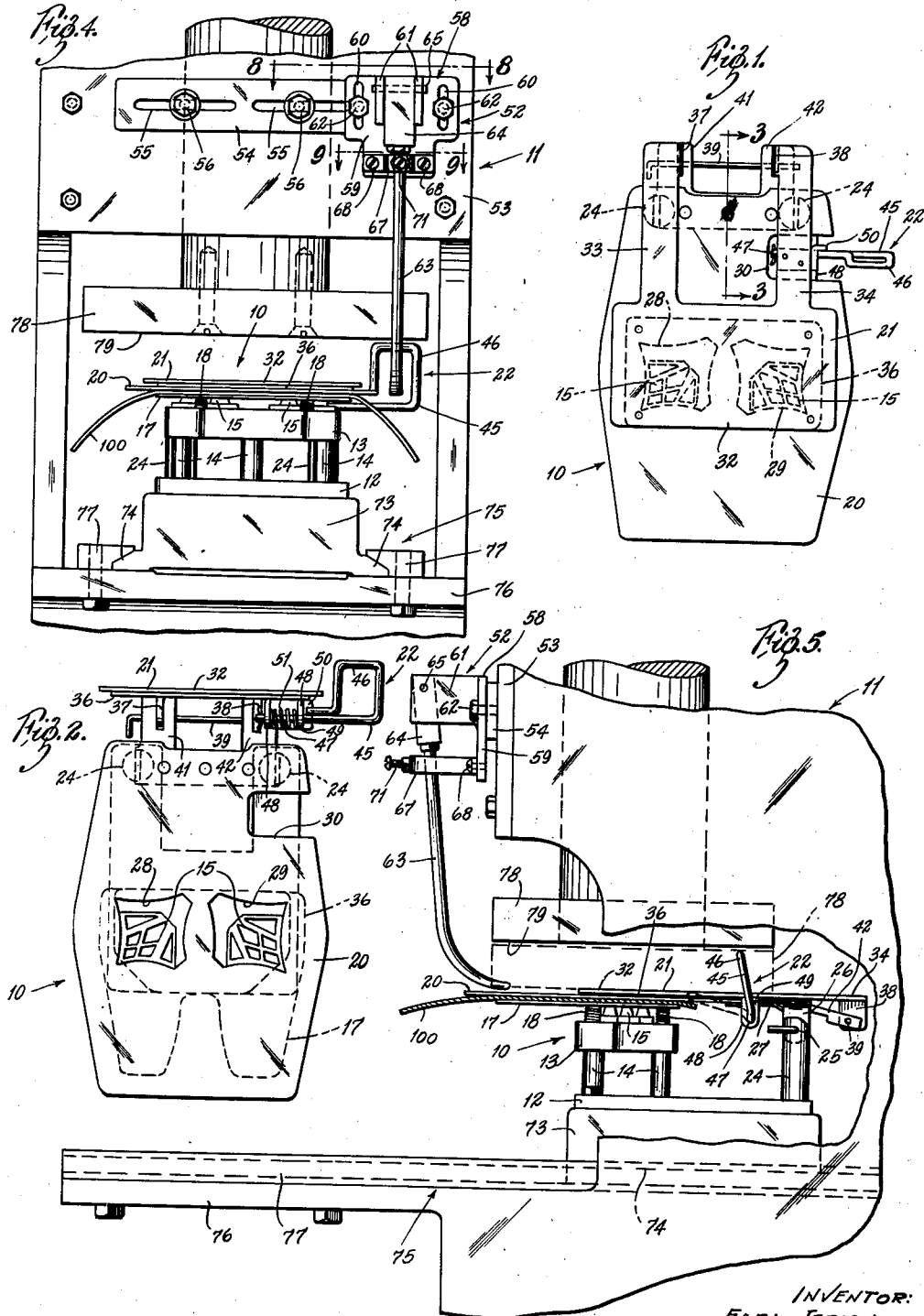
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DIE

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3 Sheets-Sheet 1



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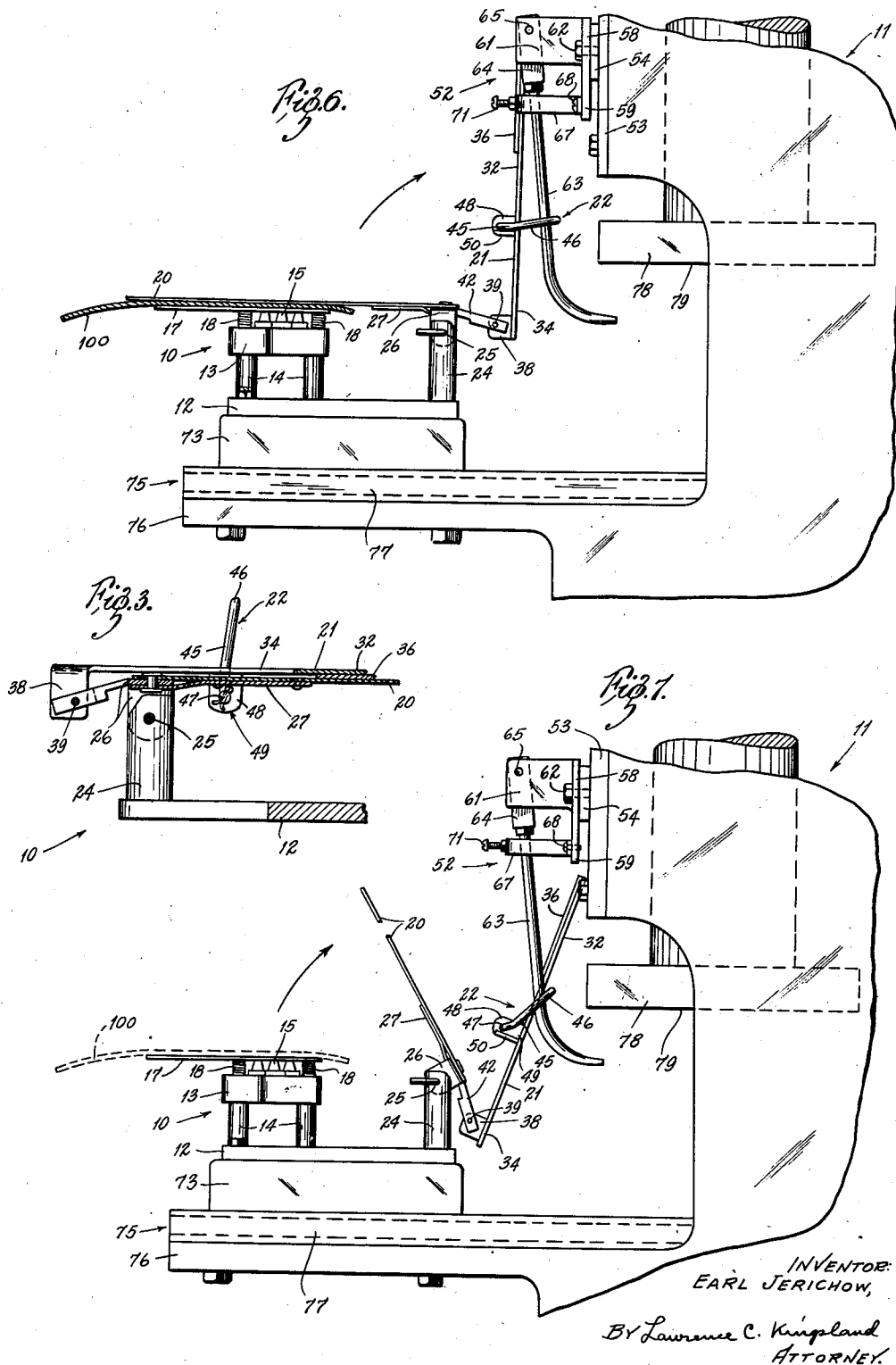
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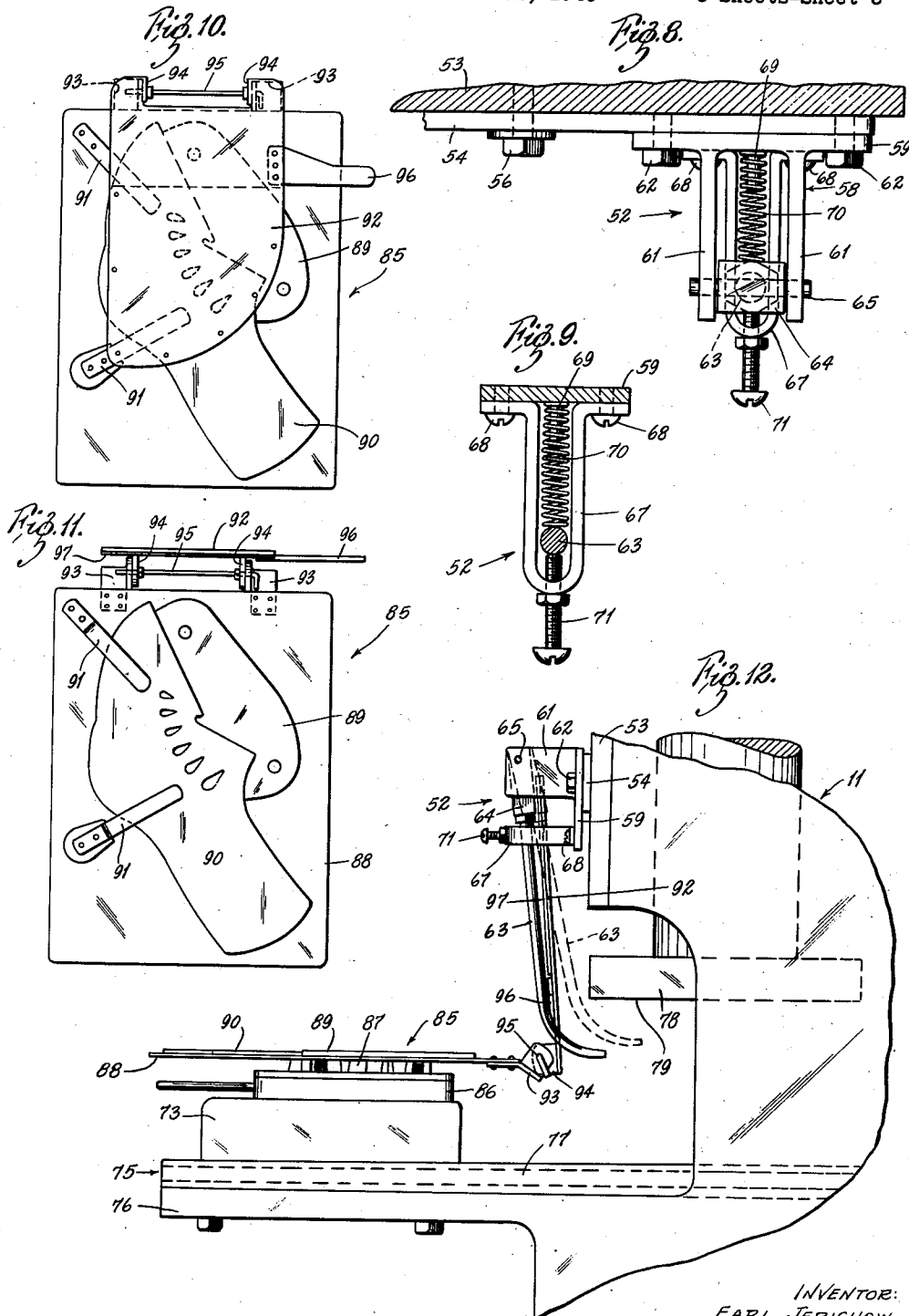
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3 Sheets-Sheet 3



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DIE

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16 Claims. (Cl. 164—93)

The present invention relates generally to die mechanism, and more particularly to a device for protecting the die cutter and presser member of the die machine which finds adaptation in the cutting of designs, and the like, in leather, or other material used as some part of the upper of a shoe.

Heretofore, it has been the custom to employ a strip of heavy paper between the clamp gauge plate of a leather-cutting die and the striker or pressure member of the machine with which the die is used in order to protect both the cutting edges of the die and the surface of the striker. The paper employed is either in the form of a roll and is fed continuously across the die through suitable automatic means, or it is in segments and is manually disposed over the die. Manifestly, there are numerous difficulties involved in the use of the heavy paper and there is, of course, the cost thereof. The present invention obviates the use of a paper protector.

It is, therefore, an object of the present invention to provide a novel die assemblage which eliminates the use of paper as a protecting medium for the die cutting edges and the face of the presser member of the machine on which the die is used.

Another object is to provide a novel die and die machine protector assemblage.

Another object is to provide a novel mechanism for automatically moving a cutting die and presser machine face protecting plate into and out of operative position.

Another object is to provide a novel device which is adapted to be disposed between the clamp gauge plate of a die and the striker of the machine upon which the die is employed.

Another object is to provide a die assemblage for cutting the leather of shoe uppers which includes means for protecting the die cutting edges and the face of the presser member of the machine in which the die assemblage is used having a novel mechanism for moving the protecting means into and out of protecting position.

Another object is to provide a novel die assemblage having a device for protecting the cutting edges of the die and the face of the presser of the machine on which the die assemblage is used which is automatically moved into and out of operative position.

Another object is to provide a novel device for protecting the cutting edges of a die and the face of the presser of the machine on which the die is used which is automatically moved into and out of operative position.

Another object is to provide a novel die and die machine protector assemblage which is efficient in its operation and which is readily manipulatable.

Other objects and advantages will be apparent from the following description, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a top plan view of an elevated die assemblage constructed in accordance with the teachings of the present invention, shown apart from the arm construction which automatically actuates the protector plate, and apart from the cut-out machine with which it is used;

Fig. 2 is a top view of the die assemblage shown in Fig. 1, the protector plate being shown in the vertical position;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is an end view of the die assemblage shown in Fig. 1 mounted in operative disposition on a cut-out machine and in cooperative relationship with the arm construction which automatically actuates the protector plate;

Fig. 5 is a side view of the die assemblage and cut-out machine shown in Fig. 4, a part of the cut-out machine being broken away for purposes of clarity;

Fig. 6 is a view similar to Fig. 5 with the die assemblage drawn out from beneath the presser member and the protector plate in vertical position as a result of such movement;

Fig. 7 is a view similar to the view shown in Fig. 6 with the clamp gauge plate raised into a position for the insertion or removal of a work piece;

Fig. 8 is a view on the line 8—8 of Fig. 4;

Fig. 9 is a view on the line 9—9 of Fig. 4;

Fig. 10 is a top plan view of a block die incorporating a protector plate;

Fig. 11 is a view similar to Fig. 10, the protector plate being raised; and,

Fig. 12 is a side view of the block die assemblage shown in Fig. 10 in operative relation to a presser machine and the arm construction forming a part of the present invention.

Referring to the drawings more particularly by reference numerals, 10 indicates generally an elevated die assemblage (Fig. 1) and 11 a conventional cut-out machine (Fig. 4), mounted in conjunction with which is the present protector device.

The die assemblage 10 includes a base plate 12, a die block 13 supported above the base 12 on posts 14, dies 15 supported in the die block 13, a stripper plate 17 mounted on pins (not shown) which extend into suitable wells in the die block

13 and yieldingly maintained in a position substantially flush with the cutting edges of the dies 15 through springs 18, and a clamp gauge plate 20. Operatively connected with the die assem-
 5 blage 10 is a protector plate 21 upon which is mounted a handle mechanism 22, forming part of the present invention.

The clamp gauge plate 20 is pivotally mounted on posts 24, which are secured to the base plate 12 remote from the posts 14, through a shaft 25
 10 extending through suitable apertures near the tops of the posts 24 and a bracket member 26 secured to the underside of the clamp gauge plate 20. A reinforcing plate 27 is secured to the
 15 bracket member 26 and to the underside of the clamp gauge plate 20. The clamp gauge plate 20 is cut away at 28 and 29 (Figs. 1 and 2) to provide openings surrounding the dies 15, and is cut away at 30 for the reception of a portion of the
 20 handle mechanism 22.

The protector plate 21 includes a rectangular portion 32 and extensions 33 and 34 (Fig. 1). A plate 35 of relatively soft metal is secured to the underside of the rectangular portion 32 of the
 25 protector plate 21, being held in place by brads or other suitable means whereby it may be replaced when worn. The extensions 33 and 34 terminate in side ears 37 and 38 which pivotally engage a shaft 39 mounted beneath extensions
 30 41 and 42 of the bracket member 26. The extensions 41 and 42 of the bracket member 26 extend at an angle to the horizontal plane of the main body of the bracket member 26 in order to dispose the protector plate 21 substantially
 35 horizontally when in operative position. The pivot axis of the protector plate 21, which comprises the shaft 39, is, therefore, disposed rearwardly of the pivot axis of the clamp gauge plate 20.

The handle mechanism 22 includes a handle 45 having a loop portion 46 and a stem 47 (Fig. 2). The stem 47 is pivotally mounted in legs 48
 40 of a bracket 49 secured to the extension 34. The bracket 49 includes a portion 50 (Figs. 1 and 2) which serves as a stop for the handle 45 to prevent its clockwise movement beyond the full line position shown in Fig. 5. A spring 51 has one end
 45 anchored against one leg 48 and the other end fixed to the stem 47 of the handle 45 to bias the handle 45 at all times into engagement with the stop 50.

An arm mechanism 52 is mounted on a cross piece 53 (Figs. 4 and 5) of the machine 11. The
 55 arm mechanism 52 includes a mounting plate 54 having spaced longitudinal slots 55, through which bolts 56 extend into the cross piece 53. A casting 58 includes a base 59 having spaced slots 60 therein, and spaced walls 61 extending from the base 59, and is secured to the plate 54 by
 60 bolts 62. An arm 63 of the hook configuration shown in Fig. 5 includes an upper enlarged portion 64 which is pivotally mounted on a pin 65 having bearing in the spaced walls 61. A U-shaped member 67 is secured to the base 59 of the casting 58 below the walls 61 in a position to receive the arm 63 between the legs thereof. Suitable screws, or the like, 68 anchor the U-shaped member in place. A post 69 is secured
 65 to the base 59 and extends between the legs of the U-shaped member 67 (Fig. 9). A helical spring 70 is disposed between the legs of the U-shaped member 67 having one end about the post 69 and the other end abutting the arm 63, forcing the arm 63 against an adjustable screw 71

which extends through the bight of the U-shaped member 67.

The elevated die assemblage 10 is shown in Figs. 4-7 as mounted on the conventional cut-
 5 out machine 11. The machine 11 includes a slide block 73 having flanges 74 which are disposed in a track 75 formed by a base 76 and strips 77. The track 75 extends beneath a presser or striker member 78 which has a flat horizontal face 79.
 10 The striker member 78 is mounted in a superstructure (not shown) to permit power-driven vertical movement thereof.

In Figs. 10-12, the present invention is shown applied to a flat block die assemblage 85. The block die assemblage 85 includes a die block base 15
 86, a die 87, a stripper plate 88, and a gauge plate 89 mounted on the stripper plate 88. The stripper plate 88 receives a work piece 90 positioned in respect to the die 87 by means of the gauge plate 89 and held in place by suitable
 20 clamp springs 91 secured to the stripper plate 88. A protector plate 92 is pivotally secured to the stripper plate 88 by cooperating hinge brackets 93 secured to the stripper plate 88 and hinge brackets 94 secured to the plate 92, and a shaft
 25 95 extending through suitable apertures in the brackets 93 and 94. An arm 96 is secured to one side of the plate 92 and extends laterally therefrom. A plate 97 of soft metal is secured to the face of the plate 92 which is adapted to contact
 30 the cutting edges of the die 87.

The die assemblage 85 is mounted on the machine 11 in the same manner as the die assemblage 10, that is, on slide block 73, although the base 86 may be constructed to cooperate directly
 35 with the track 75 if desired. The plate 92 functions in cooperation with the arm mechanism 52.

Operation

The elevated die assemblage 10 is fixed to the top of the slide block 73 by any suitable means. The arm mechanism 52 is bolted to the cross member 53 in line with the handle 45 of the die assemblage 10 (Fig. 4). The die assemblage 10
 40 is moved to a position beneath the striker member 78 just far enough to dispose the handle 45 to the right of the arm 63. The die assemblage 10 is then moved to the left into the position shown in Fig. 6, the arm 63 engaging the handle
 45 45 to pivot the protector plate 21 into a substantially vertical position.

An operator manually raises the clamp gauge plate 20, which pivots about the pin 25, and deposits a work piece 100 in the desired position on the stripper plate 17 in respect to the dies 15.
 55 The clamp gauge plate 20 is manually lowered into contact with the work piece 90. The die assemblage 10 is moved from the position shown in Fig. 6 to the right to the position shown in Fig. 5. During this movement, the arm 63 cams the protector plate 21 into contiguous relation with the clamp gauge plate 20, an action which can be readily appreciated through an inspection of the relationship of the arm 63 and the handle 45, as shown in Fig. 6. The striking member 78 is brought into engagement with the upper surface of the protector plate 21 to force the cutting edges of the dies 15 through the work piece 100 and into engagement with the plate 36 forming part of the protector plate 21. The handle 45 is pivoted by the striker 78 during the latter's movement (Fig. 5) and, hence, does not obstruct the striker 78. The striker 78 is raised and the die assemblage 10
 60 65 70 75

withdrawn from beneath it to the position shown in Fig. 6, which movement automatically raises the protector plate 21 through engagement of the arm 63 with the handle 45. The clamp gauge plate 20 is raised and the work piece 100 removed. This cycle is, of course, repeated for subsequent work pieces.

The protector plate 21, through its plate 36 of relatively soft metal, saves the cutting edges of the dies 15 and preserves the integrity of the face 79 of the striker 78. Its movement into and out of operative position is entirely automatic and, therefore, requires no attention on the part of the operator who can give full time to accurately positioning the work piece. The protector plate 21 is quite economical in replacing the heavy paper formerly employed as a medium for protecting the cutting edges of a die and the face of the associated striker. The plate 36 is replaceable.

The flat block dies assemblage 85 is moved to and from a position beneath the striker 78 in the manner of the movement of the elevated die assemblage 10, that is, on the slide block 73 or on its base 86 as a slide block. In first moving the die assemblage 85 into position between the striker 78, the fixed arm 96 contacts the pivoted arm 63, pivoting it into the dotted line position of Fig. 12, the arm 96 then passing beneath the pivoted arm 63, whereupon the arm 63 returns to its normal position through the action of the spring 70.

In operative movement of the die assemblage 85, in movement to the left (Fig. 12), the free end of the arm 63 engages the arm 96 and pivots the protector plate 92 into the position of Fig. 12. The work piece 90 is removed, a new work piece 90 inserted, and the die assemblage 85 moved to the right beneath the striker 78, whereupon the plate 92 falls by gravity into contiguous parallel relation with the work piece 90. A spring, or the like, may be employed to insure return of the plate 92, but gravity return is the more simple.

For removal of the die assemblage 85 from the machine 11, it is but necessary to pivot the arm 63 by hand to a position for the arm 96 to clear it (Fig. 12).

The handle mechanism 22 is employed on dies used for cutting designs in work pieces, as completed uppers, or upper sections, which extend beyond the area of the die in draping relation (Fig. 4), for the arm 63 does not extend below the work piece level in its operation with the handle mechanism 22. An arm 96 is employed with the block die assemblage 85, for the work piece does not overhang and would not be struck by the lower-required position of the arm 63. When the handle or arm extends above the plane of the work piece, it must be pivoted to be depressed by the striker 78.

The present die assemblage may be modified within the purview of the present invention. Suitable material is, of course, to be employed for the several elements.

It is apparent that there has been provided a die assemblage and a protector device which fulfill all of the objects and advantages sought therefor. It is to be understood that the foregoing description and accompanying drawings have been given for purposes of illustration and example, and not for purposes of limitation, the invention being limited only by the claims which follow.

What is claimed is:

1. A die assemblage including a support, a die

mounted on the support, and a cutting edge protector plate pivotally mounted for movement into and out of contiguous relation with the die.

2. A die assemblage including a support, a die mounted on the support, a cutting edge protector plate pivotally mounted for movement into and out of contiguous relation with the die, and means for automatically moving the protector plate into and out of operative position.

3. A die assemblage including a support, a die mounted on the support, and a protector plate movably mounted in respect to the die and adapted to be disposed between the cutting edges of the die and a striker member.

4. A die assemblage including a support, a die mounted on the support, protector means mounted on the support adapted to be disposed between the cutting edges of the die and a striker member, and means for automatically moving the protector means into and out of operative position.

5. A die assemblage including a support, a die mounted on the support, a protector plate pivotally mounted on the support adapted to be disposed between the cutting edges of the die and the face of a striker member for protecting the cutting edges of the die and the striker member, and means for automatically moving the plate into and out of operative position.

6. A die assemblage including a support, a die mounted on the support, a protector plate pivotally mounted on the support adapted to be disposed between the cutting edges of the die and the face of a striker member for protecting the cutting edges of the die and the striker member, a member pivotally connected to the plate, and a member fixed to the machine with which the die assemblage is adapted to be associated, said second member being adapted to engage the first member to automatically move said plate into and out of operative position.

7. A protector device for a die and a die machine including a plate pivotally mounted on a die, a first member connected to said plate, and a second member fixed to the die machine with which the die is employed, said second member being disposed in a position to be engaged by the first member.

8. A protector device for a die and a die machine comprising a plate pivotally mounted on the die assemblage for cooperative disposition relative to the die cutting edges, and means for automatically moving said plate into and out of operative position.

9. A protector device for a die assemblage and a die machine comprising a plate pivotally mounted on the die assemblage adapted to be moved into and out of a position overlying the cutting edges of the die, a member connected to said plate and extending therefrom, and an arm construction connected to the die machine including an arm disposed in cooperative relation to the member extending from the plate, said arm being adapted to pivot the plate through contact with the member to an inoperative position upon movement of the die from operative to inoperative position.

10. A protector device for a die assemblage and a die machine comprising a plate pivotally mounted on the die assemblage, a member pivotally mounted on the plate and extending above said plate in one extreme position of pivotal movement, and an arm construction connected to the die machine including an arm disposed in the path of the pivoted member, said arm being

adapted to engage the pivoted member to raise said plate to inoperative position upon movement of the die from a position beneath the striker member of the die machine to work piece replacement position, said pivoted member being adapted to pivot to a position below the surface of the plate upon contact by the striker member of the die machine.

11. A protector device for a die assemblage and a die machine comprising a plate pivotally mounted on the die assemblage, a member connected to the plate and extending therefrom, and an arm construction connected to the die machine including an arm pivotally mounted and resiliently urged to one extreme position of movement, said arm including a free end normally extending into the path of and below the member connected to the plate, said arm being adapted to be pivoted to a position above the plane of the said member to permit passage of the said member beneath the arm to dispose the arm and the member in operative relation.

12. A protector device for a die assemblage and a die machine comprising a plate pivotally mounted on the die assemblage, a member connected to the plate and extending laterally therefrom, and an arm construction adjustably connected to the die machine, said arm construction being adjustable vertically and laterally to position an arm forming a part of the arm construction in operative disposition to the said member connected to the plate, said arm being adapted to contact the member upon movement of the die assemblage to pivot the plate into inoperative position.

13. A protector device for a die assemblage and a die machine comprising a plate pivotally mounted on the die assemblage adapted to be moved into and out of a position overlying the cutting edges of the die, said plate having a plate of relatively soft material connected to that side

adapted to lie adjacent the die cutting edges, said soft plate being sufficiently extensive to overlie the cutting edges of the die, a member connected to said plate and extending therefrom, and an arm construction connected to the die machine including an arm disposed in cooperative relation to the member extending from the plate, said arm being adapted to pivot the plate through contact with the member to an inoperative position upon movement of the die from operative to inoperative position.

14. A plate adapted to be pivotally connected to a die assemblage, said plate having a plate of soft material connected to one side thereof, a member extending from said pivoted plate, and an arm construction adapted to be connected to a die machine, said arm being adapted to be disposed in a position to contact the member to raise the pivoted plate upon movement of the die assemblage to which the pivoted plate is connected from operative to inoperative position on the machine to which the arm construction is connected.

15. A die assemblage including a support, a die mounted on the support, a protector plate movably mounted in respect to the die and adapted to be disposed between the cutting edges of the die and a striker member, and means for automatically moving said protector plate into and out of operative protecting position.

16. A protector device for a die and a die machine comprising a plate member movably mounted with respect to a die, a first member connected to said plate member, and a second member connected to the die machine with which the die is employed, said element member being disposed in a position to be engaged by the first member for movement of the plate member into and out of operative relation with the die.

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