Nov. 1, 1932. A. W. ALTVATER 1,885,169

ORNAMENTING DIE

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Fig. 2.

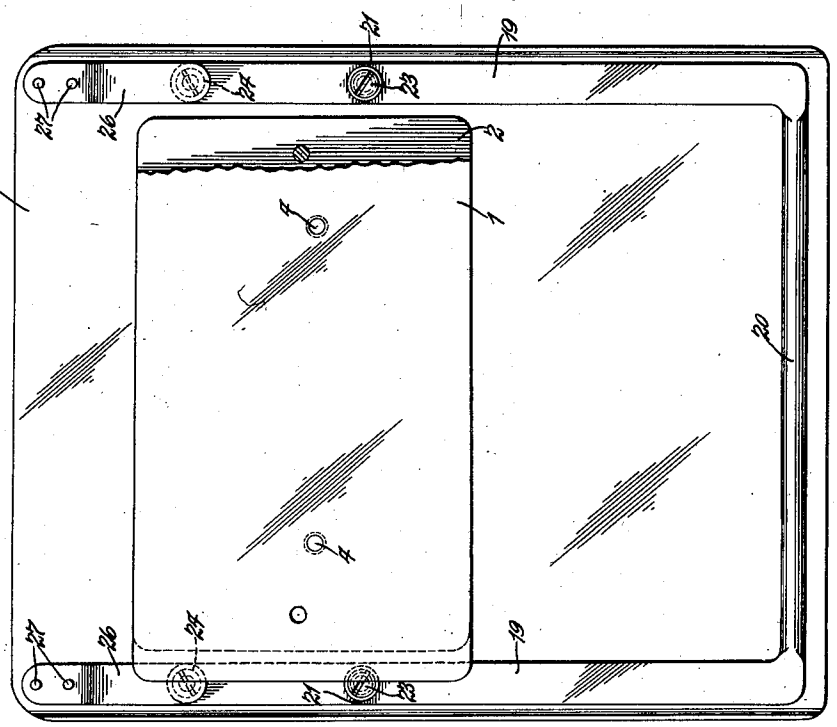
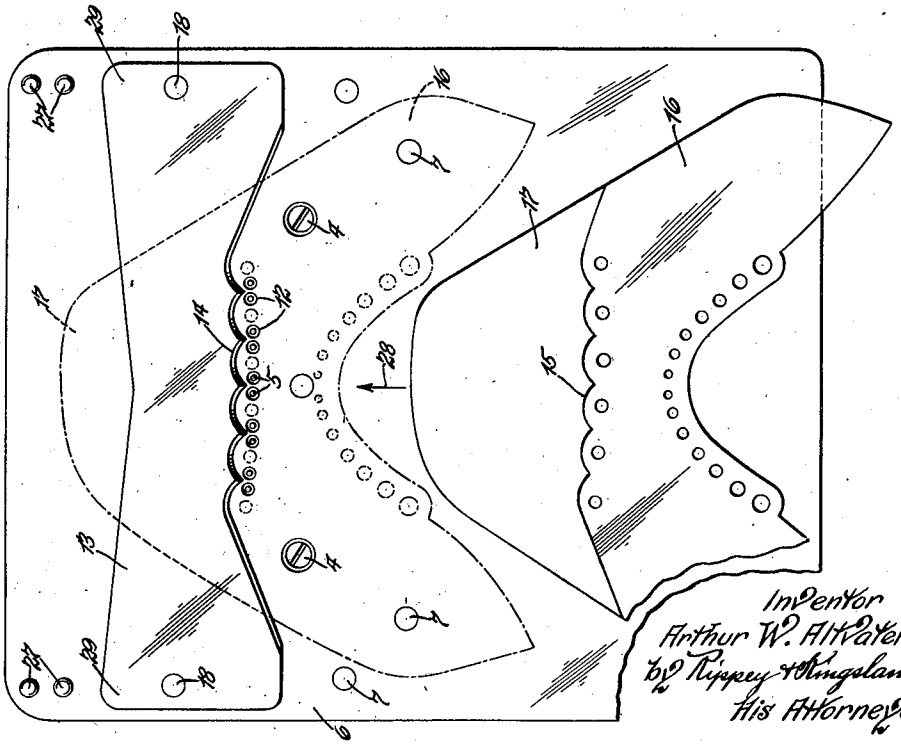


Fig. 1.



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ORNAMENTING DIE

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Fig. 3.

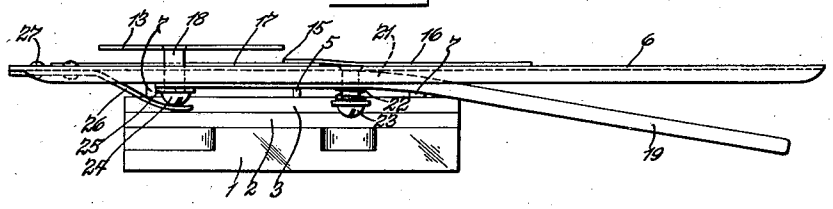


Fig. 4.

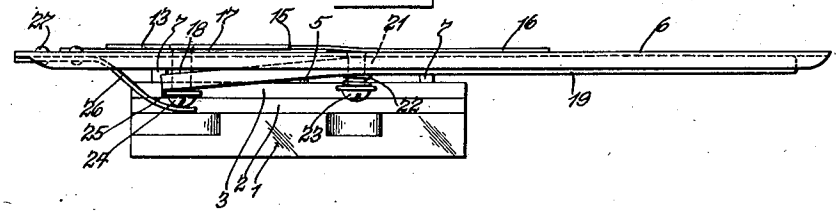


Fig. 5.

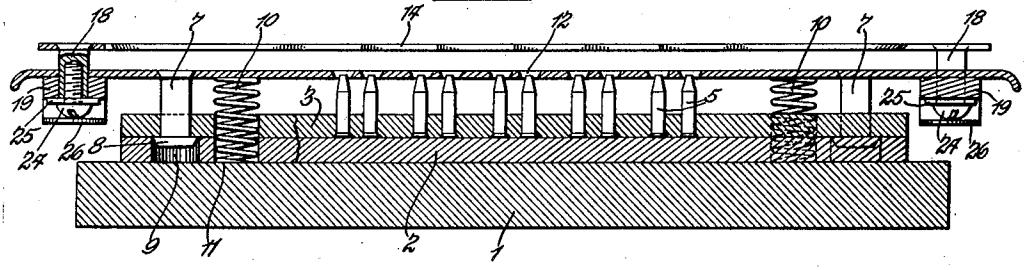
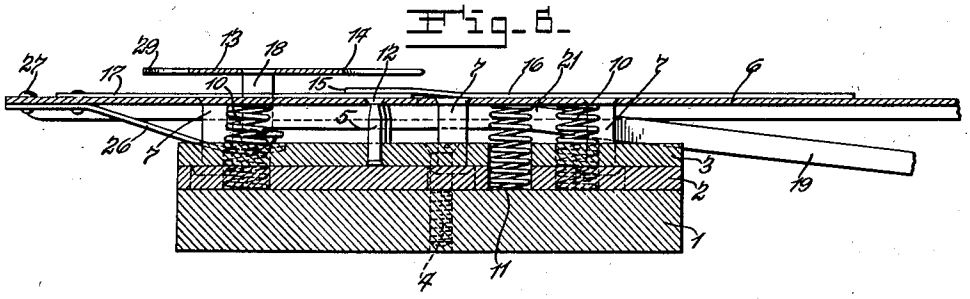


Fig. 6.



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ORNAMENTING DIE

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Fig. 6.

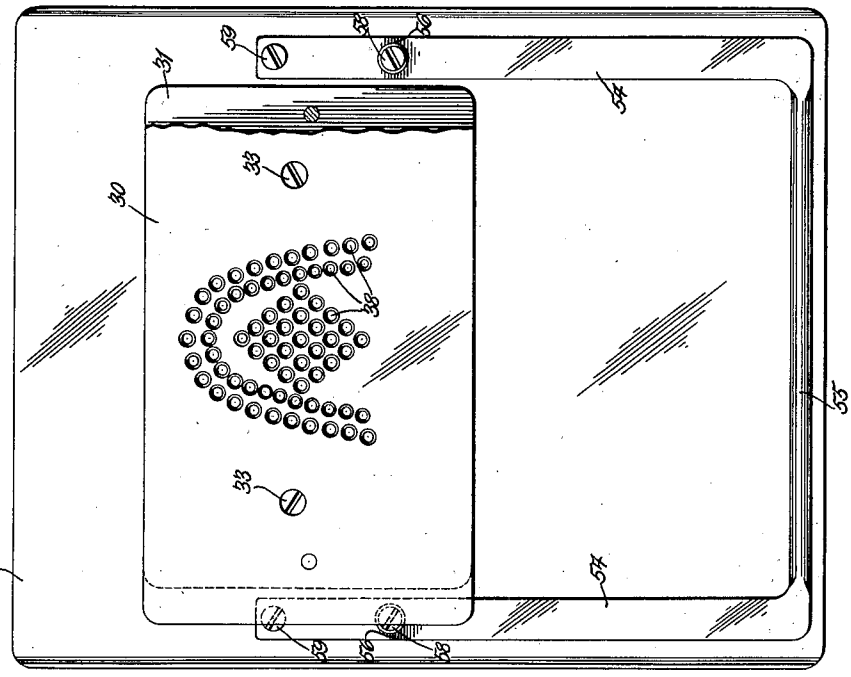
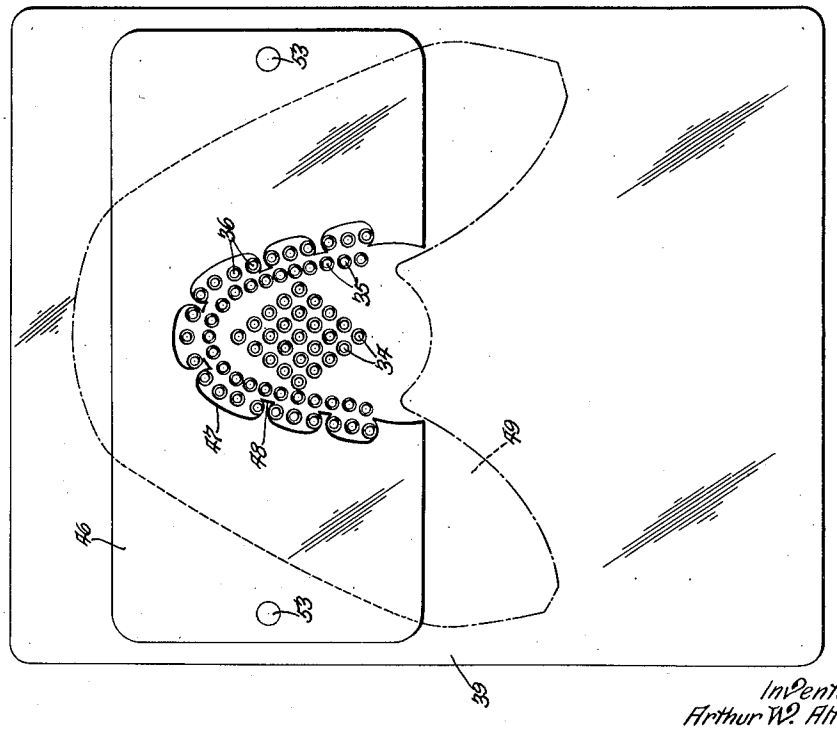


Fig. 7.



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ORNAMENTING DIE

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Fig. 9.

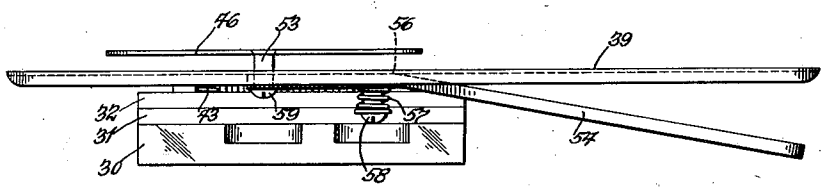


Fig. 10.

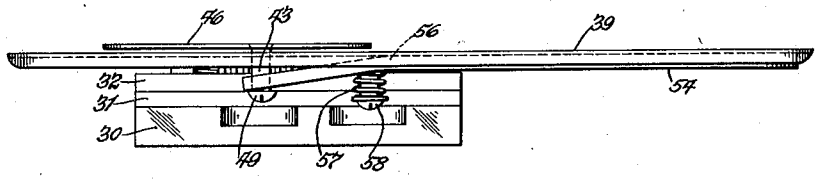


Fig. 11.

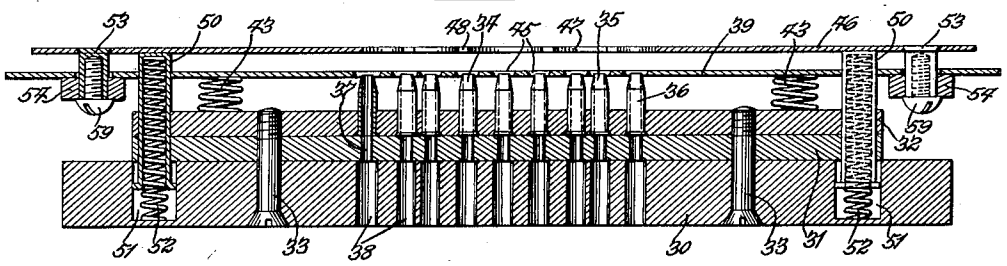
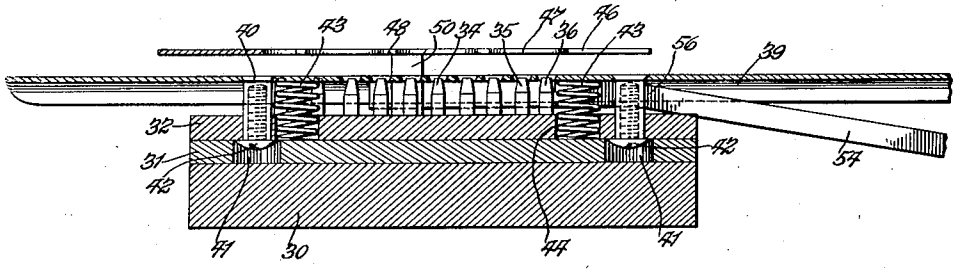


Fig. 12.



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UNITED STATES PATENT OFFICE

ARTHUR W. ALTVATER, OF UNIVERSITY CITY, MISSOURI

ORNAMENTING DIE

Application filed May 22, 1931. Serial No. 539,153.

This invention relates to ornamenting dies for producing ornamental effects on shoe uppers, shoe parts and other materials designed and adapted to be ornamented by dies of this type.

This machine is designed and adapted specially to operate upon shoe uppers and shoe parts, as well as other materials having appropriate shapes for engagement with the gage device of the die, so that said gage device will engage and hold the materials in proper position for operation of the die, and will also function as a gage to facilitate, expedite and assure proper adjustment and location of the materials. For brevity, shoe uppers, shoe parts and other materials are, in many places in this specification, designated as "the work". Accordingly, wherever the designation "work" is used in this specification and in the appended claims, it is intended to include shoe uppers, shoe parts, and all other materials upon which the die may operate.

Objects of the invention are to provide an ornamenting die including a support upon which the work is supported during the operation of the die in position to be acted upon by the die elements so as to cut through the work or produce other ornamental effects thereon, in combination with a gage device adapted to engage and hold the work upon said support during the operation of the die; to form and arrange said gage device so that said gage device will clamp upon and retain the work upon said support and, at the same time, engage an opposing edge of the work to facilitate, expedite and assure the proper adjustment and location of the work for operation of the die; to provide means whereby said gage device may be conveniently operated in order to locate and gage the work preparatory for operation of the die and to clamp the work upon the support to prevent the work from becoming accidentally displaced before the die is operated; and to provide means whereby parts of the die may be removed and replaced and interchanged so as to adapt the die for operation upon work of different shapes, and also to make it possible to mount different ornamenting dies and gages upon the same base member.

Various other objects of the invention will appear from the following description, reference being made to the accompanying drawings, in which—

Fig. 1 is a plan view of one form of die constructed in accordance with the present invention and showing, in solid lines, before proper location on the die, a shoe upper of the construction upon which this die is designed to operate and, in broken lines, a shoe upper located for operation of the die.

Fig. 2 is an inverted plan view of the die showing the actuating device for the gage.

Fig. 3 is a side elevation of the die having a shoe upper thereon in position for operation of the gage to locate the shoe upper accurately and precisely.

Fig. 4 is a side elevation similar to Fig. 3 showing the gage in its operated position.

Fig. 5 is an enlarged vertical transverse sectional view of the die, the gage being shown in front elevation.

Fig. 6 is an enlarged vertical front to rear sectional view of the die and gage.

Fig. 7 is a plan view of a die and gage of different form from the die and gage shown in the preceding views of the drawings.

Fig. 8 is an inverted plan view of the die shown in Fig. 7.

Fig. 9 is a side elevation of the die shown in Figs. 7 and 8, the gage being in its unoperated position.

Fig. 10 is a side elevation similar to Fig. 9, showing the gage in its operated position.

Fig. 11 is an enlarged vertical transverse sectional view of the die and gage of this alternative construction.

Fig. 12 is an enlarged vertical front to rear sectional view of this modified form of die and gage.

The invention as shown in Figs. 1 to 6, inclusive, comprises a base 1 of strong and rigid construction, an auxiliary base element 2 seated on the base 1, and a die supporting base element 3 rigidly seated upon the auxiliary base element 2. In the embodiment of the invention shown, the members 1, 2 and 3 are separate and detachable from each other and are secured together in rigid relationship by screws 4 passing through holes in the

members 2 and 3 and having their lower threaded portions screwed into threaded holes in the base member 1 and having their heads engaging the upper portion of the member 3.

A series of die elements 5 are rigidly secured to the member 3 and project upwardly therefrom. The die elements shown are perforating dies and their form may be varied as desired so as to form perforations of any desired size and shape in the work. These die elements are rigid in the member 3 and further rigidity is obtained by the construction shown in Fig. 5, in which the lower ends of said die elements are against the upper surface of the auxiliary base member 2.

The work support comprises a plate 6 attached to the upper ends of pins or screws 7. The pins or screws 7 extend through holes in the die base member 3 and have heads 8 on their lower ends operating in holes 9 in the auxiliary base member 2. Thus the pins or screws 7 are mounted for vertical sliding movements through the member 3 and the heads 8 limit extent of upward movement thereof. A series of springs 10 are mounted in holes 11 through the members 2 and 3 and have their lower ends supported by the base member 1 and their upper ends engaging and supporting the plate 6. These springs 10 are thus held from displacement and yieldingly support the plate 6 in its uppermost position, in which the upper ends of the dies 5 are in alinement with or extend into holes 12 through the plate 6. The springs 10 yieldingly support the plate 6 in such a position that the ends of the dies 5 are not above the upper surface of the plate 6 because such an arrangement might interfere with the proper movement of the work to and from position on and along the plate 6.

In the specific arrangement and relationship of the dies 5 shown in Figs. 1 to 6, inclusive, said dies are nearly in a straight row, although their arrangement and relationship may be varied as desired without departure from the invention.

The gage device used with the die of Figs. 1 to 6, inclusive, comprises a plate 13 having its front edge that is rearwardly from the dies 5 formed and shaped to provide a gage 14 designed and adapted to be engaged by a similarly shaped edge 15 of the part 16 of a shoe upper, for instance, while the part 17 of the shoe upper extends rearwardly below the gage plate 13 and on the plate 6. Thus, the edge 15 of the part 16 of the shoe upper overlaps and is superimposed upon an edge of the part 17 of the shoe upper, so that the edge 15 constitutes an abutment edge or surface for engagement against the gage 14.

The ends of the gage plate 14 are attached to the upper ends of stems 18. The stems 18 extend for vertical sliding movements through the lateral marginal portions of the plate 6 (Fig. 5).

An angular bail-shaped lever comprising lever arms 19 and a connection 20 between the front ends of said arms 19 is operatively connected with the stems 18. The angles 21 of the arms 19 pivot and fulcrum against the underside of the lateral marginal portions of the plate 6 and are supported by springs 22 mounted on pins 23 attached to and extending downwardly from the lateral marginal portions of the plate 6. Thus, pivotal supports for the angular arms 19 are obtained, and these pivotal supports include the compressible springs 22. The pins 18 extend through the rear ends of the arms 19. Screws 24 are screwed into threaded holes in the lower ends of the stems 18 and support washers 25 against the lower sides of the arms 19. These washers provide means whereby operation of the arms 19 will depress the gage plate 13.

Leaf springs 26 have their rear ends attached to the rear marginal portions of the plate 6 by fasteners 27 and have their forward ends extended downwardly and forwardly under and against the lower ends of the screws 24. The power and energy of these springs 26 are utilized to raise the rear ends of the angular lever arms 19 and also to raise the gage plate 13.

The bail connection 20 between the front ends of the lever arms 19 is below and adjacent to the front end of the plate 6, so that said bail connection may conveniently be engaged and operated.

In the use of this die and gage, the work is placed upon the plate 6, as clearly shown in Fig. 1 of the drawings, and is moved rearwardly on and along said plate 6 in the direction of the arrow 28 so as to extend the part 17 of the work under the gage plate 13. The work is moved to position in which the abutment edge 15 is approximately below the gage 14. The operator then engages and raises the bail 20, thus operating the lever arms 19 on their fulcrum angles 21 and moving the gage plate 13 downwardly in opposition to the springs 26.

The construction and arrangement are such that the rear corners 29 of the gage plate 13 are moved into contact with the plate 6 before the intermediate portion of the plate 13, which includes the gage 14, is firmly engaged with the part 17 of the work. This initial downward movement of the gage plate 13 locates the gage 14 close to the gaging edge 15 of the work, so that the operator may easily gage and adjust the work with accuracy and precision for proper operation and use of the die. This is because the gage 14 has a definite predetermined relationship to the dies 5. The corners 29 of the gage plate function as stops to prevent the gage plate from being clamped tight upon the work before the work is properly adjusted while permitting movement of the gage close enough to the work to enable the operator to position the work prop-

erly with respect to the gage. After the work has been positioned in this manner, the lever arms 19 are further operated to press the gage 14 upon the work and against the edge 15. When the work has been thus located, it is in exact proper relationship to the dies and is ready for operation of the usual press mechanism.

The embodiment illustrated in Figs. 7 to 9, inclusive, comprises a strong and rigid base 30 having seated thereon an auxiliary base element 31 on which the die supporting base element 32 is secured. These base elements 30, 31 and 32 are separate and detachable and are secured together in rigid relationship by screws 33 extended upwardly through the base members 30 and 31 and having their upper ends screwed into threaded holes in the die supporting base member 32.

Series of die elements 34, 35 and 36 are rigidly secured to the member 32 and project upwardly therefrom. The die elements shown are cutting dies having their upper ends designed and arranged to cut through the work so as to form cut-outs or openings in the work. These dies 34, 35 and 36 may be varied as to form and arrangement. As shown, they are hollow, so that the pieces of material cut from the work pass downwardly through the dies and through holes 37 in the auxiliary base 31 and thence through holes 38 in the base 30. These die elements are rigid with the base member 32 and further rigidity is obtained by the construction shown in Fig. 11, in which the lower ends of said die elements are against the upper surface of the auxiliary base 31.

The work support comprises a plate 39 attached to the upper ends of stems 40 extending through holes in the die base member 32. The stems 40 are tubular and internally threaded. Screws 41 are screwed into the lower ends of the stems 40 and have their heads arranged to engage against the underside of the die base member 32 and operating in holes 42 in the auxiliary base member 31. These screws limit extent of upward movement of the plate 39 and permit downward movement thereof, as required to permit the work to be pressed against the cutting ends of the dies.

A series of springs 43 are mounted in holes 44 in the die base member 32 and have their lower ends seated on the auxiliary base member 31 and their upper ends engaging and supporting the plate 39. These springs are held from displacement and yieldingly support the plate 39 in its uppermost position, in which the upper ends of the dies 34, 35 and 36 are in alinement with or extend into holes 45 through the plate 39. The springs 43 yieldingly support the plate 39 in such position that the ends of the dies 34, 35 and 36 are not above the upper surface of said plate 39 because such an arrangement might interfere with the proper movement and adjustment of the work on and along said plate 39.

In the specific arrangement and relationship shown, the dies 34 constitute a cluster embraced within the loop formed by the arcuate series of dies 35 which, in turn, are embraced within the loop of the arcuate series of dies 36. Obviously, these dies 34, 35 and 36 may be arranged and mounted in different artistic and ornamental arrangements, and it will be understood that the arrangements shown are only illustrative.

The gage device used with this die comprises a plate 46 having in its front edge an opening, notch or space above the series of dies 34, 35 and 36. The work mounted on the plate 39 in proper relationship to the dies and to the gage may be visually observed through this notch, opening or space in the gage plate 46 and arranged in proper relationship to said gage plate in order to obtain the proper position of the work with respect to the dies. The marginal portion of the notch, opening or space in the gage plate 46 has gaging edges 47 and gaging projections 48 with respect to which any outlines, marks or demarcations on or along the work may be made to cooperate in order to aid, facilitate and expedite the proper placement of the work. This will be understood by reference to Fig. 7 of the drawings in which the work 49, shown by broken lines, will be recognized as a part of a shoe upper. The work 49 may have thereon any suitable outlines or markings adapted to be positioned with respect to the gage elements and the projections 47 and 48 so as to guide the operator in the accurate and precise placement of the work for subsequent operation of the dies.

The ends of the gage plate 46 are seated on the upper ends of spring barrels 50 (Fig. 11). These spring barrels 50 have their lower ends mounted for sliding movements in recesses 51 in the base 30. Said spring barrels extend upwardly for sliding movements through holes in the auxiliary base 31, the die base member 32 and the work support 39, and are supported by springs 52 having their lower ends seated on the bottoms of the recesses 51 and their upper ends bearing against the upper end walls of said spring barrels 50. The power and energy of these springs 52 are utilized to support the gage plate 46 yieldingly above and spaced from the plate 39 so as to permit the work to be moved to position along the plate 39 and under the gage plate.

The ends of the gage plate 46 are attached to the upper ends of stems 53, which extend for vertical sliding movements through the lateral marginal portions of the plate 39.

An angular bail-shaped lever comprising lever arms 54 and a bail connection 55 between the front ends of said arms 54 is operatively connected with the stems 53. The

angles 56 of the arms 54 pivot and fulcrum against the underside of the lateral marginal portions of the plate 46 and are supported by springs 57 mounted on pins 58 attached to and extending downwardly from the lateral marginal portions of the support 39. Thus, pivotal supports for the angular arms 54 are obtained, and these supports include the compressible springs 57. The pins 53 extend to the rear ends of the lever arms 54 and are retained in operative engagement therewith by screws 59 that are screwed into threaded holes in the lower ends of said stems.

In the use of this die and gage, the work is placed upon the plate 39 and is moved rearwardly on and along said plate to position above the series of dies 34, 35 and 36 and under the gage plate 46. The operator then engages and raises the bail 55, thus operating the lever arms 54 on their fulcrum angles 56 and moving the gage plate 46 downwardly in opposition to the springs 52.

The initial downward movement of the gage plate 46 locates the gage edges 47 and projections 48 close to the work, so that the operator may easily gage and adjust the work with accuracy and precision in operation and use of the die. The operator may be guided in gaging and adjusting the work by any outlines or marks or imprints on the work prearranged thereon in order to cooperate with these gage edges and projections 47 and 48. After the work has been positioned in this manner, the lever arms 54 are further operated to press the gage plate 46 upon the work preparatory for operation of the usual press mechanism.

From the foregoing, the construction, arrangement and operation of my invention and the different embodiments thereof will be clearly understood. The different gage devices and die members may be detached and others substituted in order to adapt the invention to various uses.

The invention may be varied otherwise than as specifically described without departure from the nature and principle of the invention. I do not restrict myself in any unessential respects, but what I claim and desire to secure by Letters Patent is:

1. A machine of the character described comprising rigid ornamenting dies, a movable support having holes therethrough for the projection of said dies when said support is moved, a gage device supported by said support for gaging and locating the work properly with respect to said dies, and means for operating said gage device to position against the upper side of the work that is mounted on said support.

2. An ornamenting die comprising a rigid base device, a die member rigidly attached to and projecting upwardly from said base device, a support for the work having a hole therethrough for the projection of said die element when said support is moved toward said base device, springs supporting said support at a distance from said base device whereby the work on said support is freely movable across said hole to position for operation of the die, a gage device, means carried by said support for supporting said gage device above said support to permit a part of the work to be passed between said gage device and said support, and means carried by said support for moving said gage device toward said support and into engagement with the work on said support.

3. An ornamenting die comprising a rigid die element, a work support having a hole therethrough for the projection of said die element, means supporting said support in position in which the upper surface thereof is beyond the end of said die element, a gage device, springs supporting said gage device spaced from said support a distance sufficient to permit the work to be inserted between said gage device and said support, and a lever element for moving said gage device to gaging position with respect to the work.

4. A die of the character described comprising a rigid ornamenting die, a movable work support having a hole therethrough for the projection of said die when said support is moved, a gage device mounted above said support for gaging and locating the work properly with respect to said die, means for supporting said gage device spaced above said support a distance to permit the work to be placed between said gage device and said support, and lever means for moving said gage device to gaging position with respect to the work.

5. A device of the character described comprising a rigid support, a rigid die projecting from said support, a movable work support having a hole therethrough for the projection of said die when said work support is moved toward said first support, a gage device located above said work support for gaging and locating the work properly with respect to said die, means for supporting said gage device spaced from said work support a distance to permit the work to be extended between said gage device and said work support, a lever, and means operatively connecting said lever with said gage device whereby said lever will move said gage device to gaging position with respect to the work after the work has been placed between said gage device and said work support.

6. A device of the character described comprising rigid ornamenting dies, a movable support having holes therethrough for the projection of said dies, a gage device having a gaging edge adapted to engage a projecting portion of the work that is extended between said gage device and said work support, means for supporting said gage device spaced from said work support to permit the work

to be extended between said gage device and said work support, and means for operating said gage device to gaging position for engagement of said gaging edge with said projecting portion of the work when the work is extended between said gage device and said support.

7. An ornamenting die comprising a rigid die member, a work support having a hole therethrough adapted to receive said die member when said support is moved toward said die member, a gage device for gaging the work on said support in proper position with respect to said die member, means for guiding said gage device, and a lever for moving said gage device toward said work support to gaging position with respect to the work on said support.

8. An ornamenting die comprising a base member, a die rigid with and projecting from said base member, a work supporting member having a hole therethrough for the projection of said die, a gage device, means supported by one of said members for supporting said gage device spaced above said supporting member a distance sufficient to permit the work to be passed between said gage device and said work supporting member, and a lever for moving said gage device toward said work supporting member to gaging position with respect to said work.

9. A die of the character described comprising a base, a die projecting rigidly from said base, a work support having a hole therethrough for the projection of said die, means mounted on said base supporting said support for movement toward and from said base, a gage, guides engaging said work support and controlling movement toward and from said work support, a spring supported by said work support for supporting said gage spaced from said work support, and a lever for moving said gage to gaging position with respect to the work on said support.

10. A device of the character described comprising a base, an ornamenting die projecting rigidly from said base, a work support having a hole therethrough for the projection of said die, springs supporting said work support above said base, guides for guiding said work support in its movements toward and from said base, a gage device, means in connection with said work support for supporting said gage device spaced from said work support a distance to permit the work to be passed between said gage device and said work support, and a lever co-operating with said work support for moving said gage device toward said support.

11. A die of the character described comprising a base, a die projecting rigidly from said base, a work support having a hole therethrough for the projection of said die when said die is moved toward said base, springs for supporting said support spaced from said base and for moving said support from said base, guides engaging said base and guiding said support in its movements toward and from said base, a gage above said support, guides in connection with said support for guiding said gage in the movements of said gage toward and from said support, means for moving said gage to gaging position toward said support, and springs for moving said gage from said support.

12. An ornamenting die comprising a rigid die element, a movable support for the work having a hole therethrough for the projection of said die element, a gage device having a gaging edge for abutting against a projecting portion of the work located on said support, means for supporting said gage spaced from said support, and a lever for operating said gage to gaging position toward said support.

13. A device of the character described comprising ornamenting die elements, means rigidly supporting said die elements, a work support movable toward and away from said supporting means and having holes therethrough for the projection of said die elements, springs for supporting said work support and moving said work support from said supporting means, a gage member, gaging means in connection with said gage member for gaging the work on said support, springs supporting said gaging member spaced above said work support, guides engaging said gaging member and said work support for guiding said gaging member in its movements toward and from said work support, and a lever engaging said guides for moving said gage device toward said work support.

14. A device of the character described comprising a rigid die, a work support for supporting the work for movement toward and from said die and having a hole therethrough for the projection of said die, a gage device, means for supporting said gage device spaced above said support a distance to permit the work to be extended between said gage device and said support, gaging means on said gage device for gaging the work on said support, guides for guiding said gage device in its movements toward and from said support, and a lever for moving said gage device toward said support.

15. In a device of the character described, a movable work support, a die for cutting the work when said support is moved in one direction, a gage device, springs supporting said gage device for movement toward and from said work support, guides engaging said gage device and said work support and guiding said gage device in said movements, and levers engaging said guides and fulcruming against said support for moving said gage device toward said support.

16. A device of the character described comprising ornamenting dies, a work support for supporting the work in position to be acted on by said dies when said work support is moved in one direction, means movably supporting said work support, a gage device, means movably supporting said gage device spaced from said work support, guides cooperating with said gage device and said work support to guide said gage device in said movements, levers fulcruming against the underside of said work support and engaging said guides for moving said guides and thereby moving said work support to gaging position, and a connection between said levers located below said work support.

17. A device of the character described comprising a series of rigid ornamenting dies, a work support having holes therethrough for the projection of said dies through said work support and into effective engagement with the work on said support, a gage, springs for supporting the gage spaced above said support, guides for guiding the gage in its movements toward and from said work support, and levers engaging said guides and fulcruming against said work support for moving said gage toward said work support.

18. A device of the character described comprising a series of rigid ornamenting dies, a work support having holes therethrough for the projection of said dies through said work support and into effective engagement with the work on said support, a gage, springs for supporting the gage spaced above said support, guides for guiding the gage in its movements toward and from said work support, levers engaging said guides and fulcruming against said work support for moving said gage toward said work support, and means for operating said levers simultaneously.

19. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to cut the work, a gage supported above said plate, and levers for moving said gage approximately perpendicularly toward said plate to gaging position adjacent to the work spread on said plate.

20. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to cut the work, a gage supported above said plate, levers for moving said gage to gaging position adjacent to the work spread on said plate, and springs for moving said gage away from the work.

21. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to engage the work, a gage supported above said plate, and a lever device pivotally supported below said plate for moving said gage approximately perpendicular toward said plate to gaging position adjacent to the work spread on said plate.

22. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to ornament the work, a gage above said plate, guides in connection with said gage extending through said plate, and levers pivotally supported below said plate and engaging said guides for moving said gage to gaging position adjacent to the work spread on said plate.

23. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to ornament the work, a gage above said plate, stems for supporting and operating said gage, springs engaging said stems for supporting said gage spaced above said plate, and levers pivotally supported at the under side of said plate and engaging said stems for moving said gage to gaging position adjacent to the work spread on said plate.

24. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to ornament the work, a gage above said plate, stems attached to said gage and projecting downwardly below said plate, springs for supporting said gage spaced above said plate, levers engaging said stems for moving said gage toward said plate in opposition to said springs, and elastic devices supporting said levers.

25. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to engage the work, a gage supported above said plate, elements in connection with said gage extending downwardly below said plate, and a lever device pivotally connected with said elements and cooperating therewith to move said gage downwardly and cooperating with said plate to limit extent of movement of said gage from said plate.

26. A rigid ornamenting die, a plate for supporting the work spread thereon and having a hole through which said die may project to engage the work, a gage above said plate, springs supporting said plate and said gage respectively for movements relative to each other and relative to said die, and a lever device connected with said gage for moving said gage toward said plate to position to gage the work spread on said plate.

27. An ornamenting die comprising a rigid base, a die element rigid with and extending from said base, a plate for supporting the work spread thereon and having a hole through which said die may project to engage the work, springs supported by said base and supporting said plate, a gage above

said plate, springs supported by said base and supporting said gage spaced from said plate, and a lever connected with said gage and operated to move said gage toward said plate to gaging position.

28. An ornamenting die comprising a rigid base, a die projecting from said base, a gage, springs supported by said base and yieldingly supporting said gage, guides in connection with said gage and said base guiding said gage in its movements toward and away from said base, a plate for supporting the work spread thereon between said gage and said die and having a hole through which said die may project to engage the work, springs supporting said plate, and a lever device for moving said gage toward said plate to gaging position adjacent to the work spread on said plate.

29. An ornamenting die comprising a rigid base, a die projecting rigidly from said base, a plate for supporting the work spread thereon and having a hole through which the die may project to engage the work, a gage above said plate, springs supporting said plate and said gage respectively for movements relative to each other and relative to said die, and a guide guiding said gage and said plate in their movements and preventing relative displacement thereof.

30. An ornamenting die comprising a rigid base, a die projecting rigidly from said base, a plate for supporting the work spread thereon and having a hole through which the die may project to engage the work, a gage above said plate, springs supporting said plate and said gage respectively for movements relative to each other and relative to said die, guides engaging both said plate and said gage and preventing relative displacement thereof, and a lever device for moving said gage to gaging position adjacent to the work spread on said plate.

31. A rigid ornamenting die, spaced work supporting and gaging plates above said die, springs supporting one of said plates spaced above the other, and means for operating and guiding said one of said plates relative to the other.

32. A rigid ornamenting die, spaced work supporting and gaging plates above said die, and a lever device pivotally supported otherwise than by the plate movable thereby for moving one of said plates approximately perpendicularly toward the other.

ARTHUR W. ALTVATER.