July 4, 1939. B. W. FREEMAN 2,164,452

DIE

Original Filed Dec. 30, 1936 3 Sheets-Sheet 1

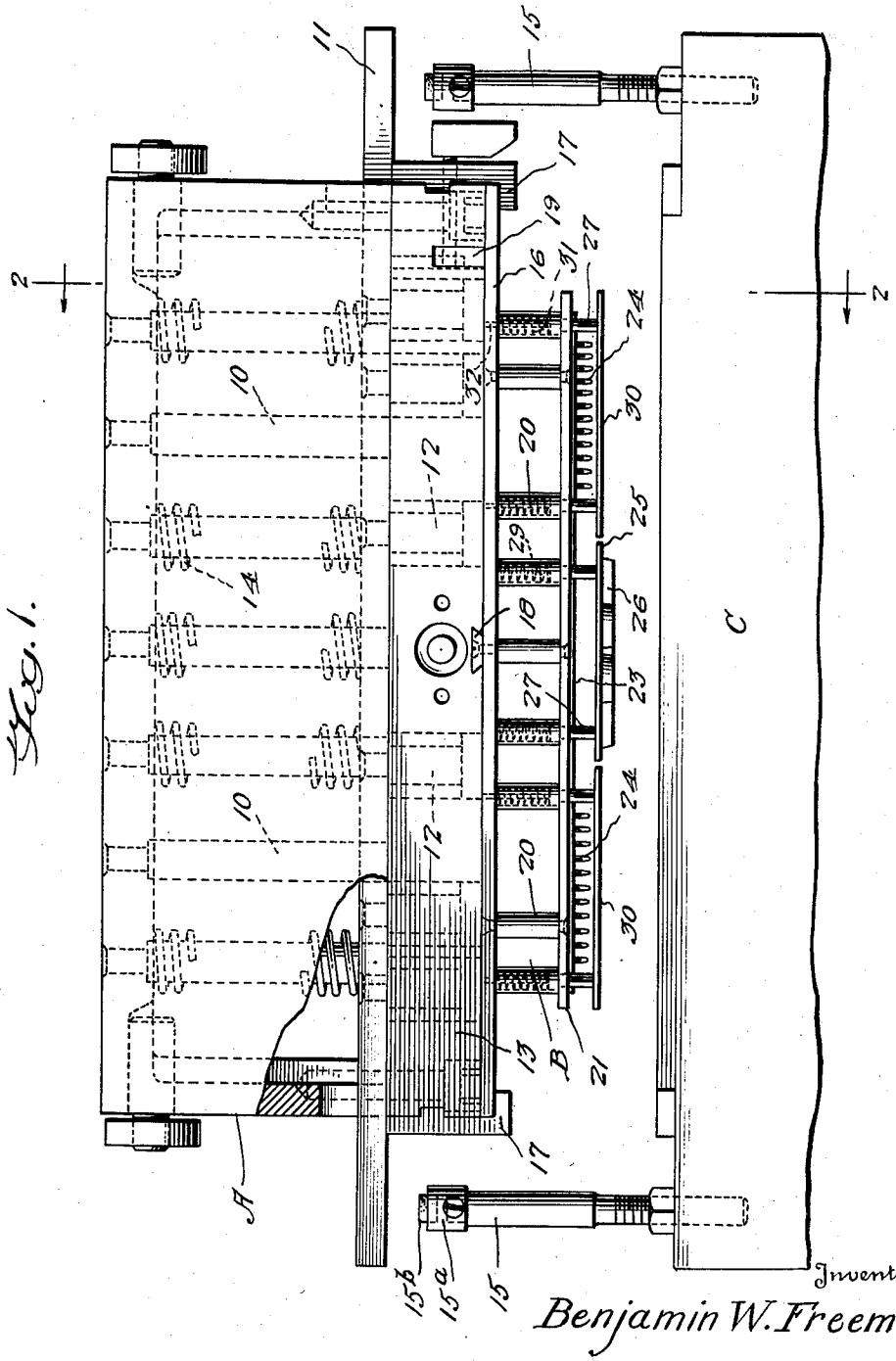


Fig. 1.

Inventor

Benjamin W. Freeman

By Riordon & Riordon

Attorneys

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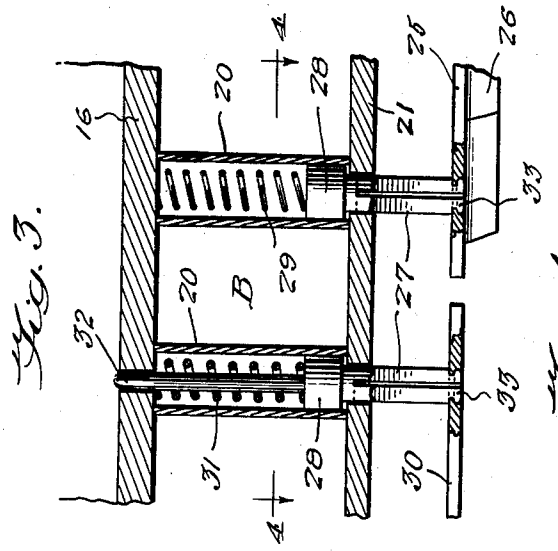


Fig. 3.

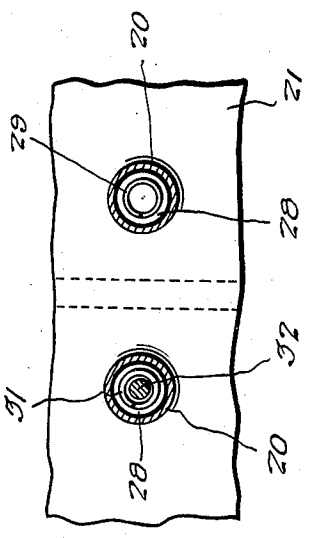


Fig. 4.

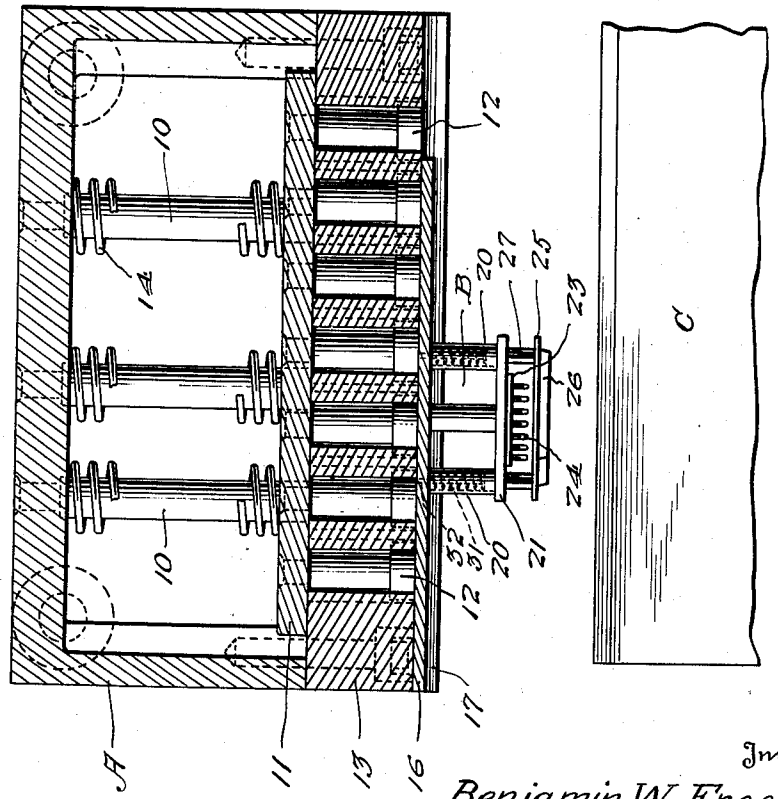


Fig. 2.

Inventor

Benjamin W. Freeman

By Riordan & Riordan

Attorney

July 4, 1939. B. W. FREEMAN 2,164,452

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Original Filed Dec. 30, 1936 3 Sheets-Sheet 3

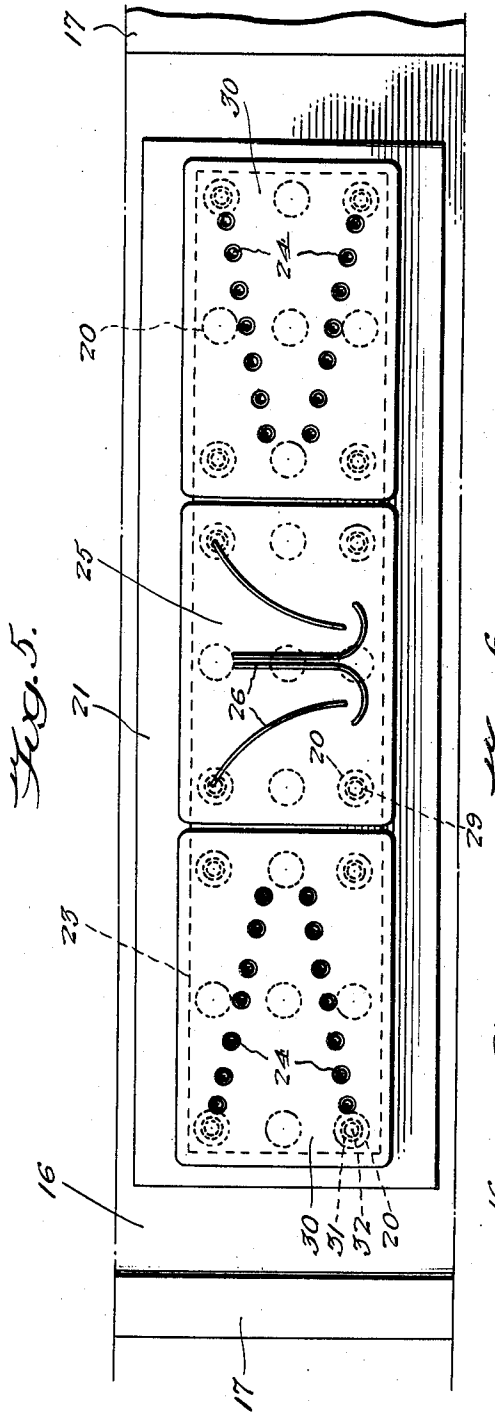


Fig. 5.

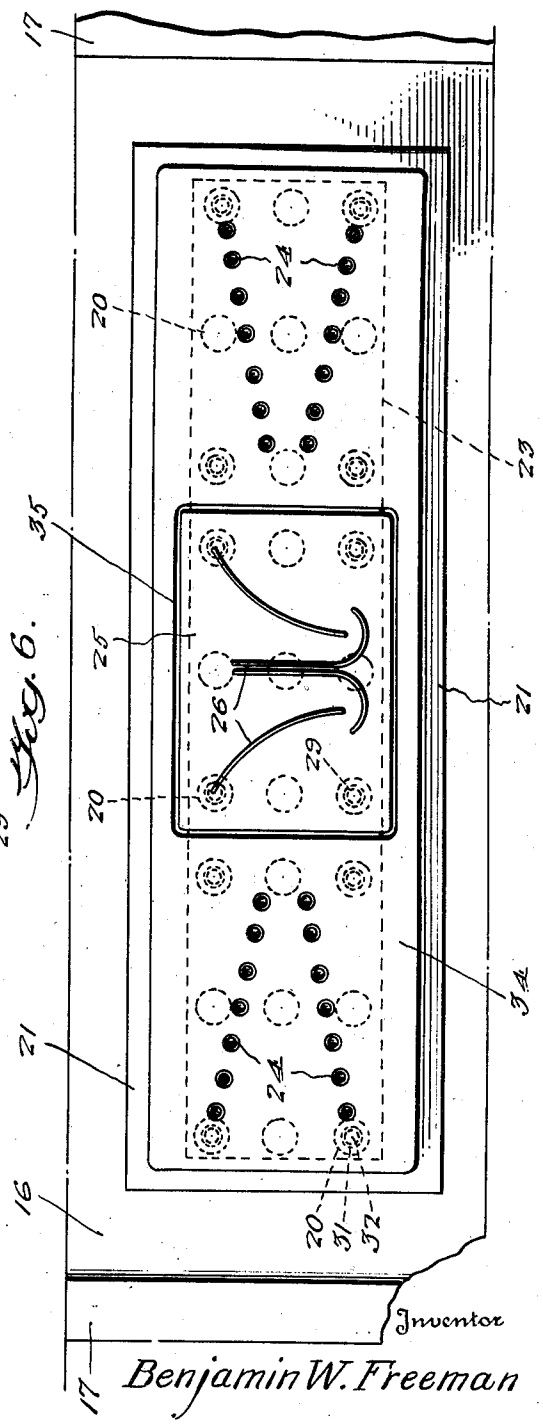


Fig. 6.

Inventor

Benjamin W. Freeman

By Riordan & Riordan

Attorneys

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UNITED STATES PATENT OFFICE

2,164,452

DIE

Benjamin W. Freeman, Cincinnati, Ohio

Application December 30, 1936, Serial No. 118,352
Renewed September 16, 1938

48 Claims. (Cl. 101—30)

This invention relates to shoe machinery, and more particularly to improvements in dies for use in ornamenting shoe uppers and shoe parts by forming cut-outs or perforations in portions thereof.

The illustrated embodiment of the invention is a type of die particularly adapted for operation upon shoe upper blanks, fitted or closed uppers, or the like, in which the work is marked with ink or pigment, at the same time or as part of a cycle of operations, during which the work is also ornamented by the perforating or cutting out of a design therein. These dies however are by no means limited to a combination of marking and cutting, but may be used for either operation per se.

Specifically, this invention relates to an improved die particularly designed for use in the type of machine disclosed in the Patent No. 2,047,198, to B. W. Freeman, et al. granted July 14, 1936, reissued as No. 20,294 on March 16, 1937 and in my copending application, Serial No. 83,796, filed June 5, 1936.

With many types of work, the pressure requirements for ornamenting and for stripping are very heavy and the machines described therein are designed to meet such requirements, particularly with relation to the stripping of the work from the die.

Conventional strippers usually include some mechanism directly associated with the die unit, e. g., a stripper plate mounted on springs which serve normally to maintain the plate in a position slightly advanced from the plane of the cutting edges of the die. The spring pressure must be so adjusted as to accommodate varying thicknesses of leather or material upon which the die operates, and difficulties arise in this connection, especially when marking edges are placed on the stripper. Thus, if the spring pressure is adjusted to mark and properly strip a light piece of calf skin, it would probably injure a heavy piece of leather. Obviously when the material is thick the stripper will be depressed more by the material, than would be the case with thin leathers.

Varying pressures are required with different characters of leather as well as with different thicknesses, and as the number of cut-outs or perforations in a piece of work is increased, the need for greater pressure likewise increases and such pressures are very difficult of attainment, if not impossible, with conventional stripping devices now in use.

Hence when a marking plate is also used for stripping purposes, difficulties are likely to arise in that too heavy an ink impression will be placed upon the work, assuming that a conventional type of stripper pressure applying means is utilized. Again, there are many instances in which it is desired to place a marking upon the work in a spaced relation to perforations, or to the exclusion of perforations and in such instances it is not necessary to strip at all, adjacent the marks. Since an ink marking element should not indent, nor in any manner perforate the work, it is merely necessary to effect a light printing contact between the marking elements and the work. However, conventional stripping pressures required for removing a piece of work from the cutters are greater than the pressure required for properly printing or applying an ink mark to the surface of the work. It is desirable that the ink be kept on the surface and not forced into the fibers of the leather, nor below the normal surface, in order to provide a nice, light legible mark which may be easily removed from the work under circumstances where removal of such marks is found desirable. Too great a pressure is also harmful, in that too much ink may be applied, and the applied marks are apt to be unnecessarily wide and blurry, aside from the danger of injuring the work.

Even in the absence of pressure difficulties, when the marking elements are mounted on the stripper plate, there is a tendency for the ink to smear, as the work is stripped from the die.

In the solution of these problems, the machine of said applications, and the die of the present invention contemplate a stripping mechanism, wherein the pressure is applied by an arrangement independent of the die, this being accomplished by building a stripper pressure applying mechanism into the machine as distinguished from supplying each individual die with a self-contained complete stripping arrangement. The usual stripper plate, mounted in advance of the cutter may be retained, whenever necessary, that is adjacent the cutting edges, and this plate may be provided with marking ribs or not, depending on the ornamental pattern. In those cases where the ink marking is to be applied without regard to perforating, the stripper plate may be eliminated, and in the event that the pattern or design calls for perforations and markings side by side, the stripper plate need be only of such extent as is necessary to accommodate the cutter, and the marker may be left free.

A primary object of the present invention is the provision of a die with a structural design

to cooperate with such a "built in" pressure applying mechanism, and with a stripper plate resiliently mounted for normal location slightly advanced from the plane of the cutting edges of the die, but with a mounting of such a nature that little or no pressure will be exerted on the plate and hence on the work until the main stripping pressure is applied, i. e., the spring pressure of the resilient mounting will be so light as to effect no stripping, being sufficient merely to maintain the plate in advance of the cutting edges, when no resistance is offered thereto by engagement with the work.

In repairing or replacing cutter members, stripper plates and the like, considerable time and the use of tools is usually required, and it is another object of the present invention to improve the construction of dies, such that the stripper and marker plates may be rapidly detached from the die without the use of tools.

To this end a novel mounting for the stripper is utilized, in which resilient studs are detachably engaged with sockets in the stripper plate, and the same arrangement may be readily applied to the marking plate whereby same may be removed, replaced or entirely omitted.

To the attainment of the foregoing and other objects which will appear as the description proceeds, reference may be made to the accompanying drawings, in which:

Figure 1 is a front elevation partly in section illustrating a die mounted in the machine;

Fig. 2 is a side elevation partly in section on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged detail partly in section showing the mode of attaching the stripper and marking plates to the die unit, and illustrating the nature of the mountings for said plates;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a plan of one form of die unit, and

Fig. 6 is a similar plan of a slightly modified die unit.

Referring now more specifically to the drawings in which like reference numerals designate like parts, it will be observed that only such parts of the machine as are necessary to show the operation of the die unit have been illustrated.

The die carriage A which houses the mechanism for applying stripper pressures carries the die unit B, in operative relation to a work support C. The die carriage A is in the form of a hollow block reinforced internally by struts 10, any desired number of which may be utilized. Extending transversely of the interior of the carriage is a pressure plate or member 11, which forms the direct means for applying pressure to the stripper of the die. The ends of the plate 11 may project beyond the sides of the die carriage, and the side walls of the carriage are cut out to permit movement of this plate up and down within the carriage. This plate 11 carries a series of studs 12 on its lower side, which studs ride in suitable guide openings in the heavy base block 13 forming a bottom closure of the die carriage. Between the upper side of the plate 11 and the inner side of the top wall of the carriage A are a series of heavy springs 14, which are tensioned normally to maintain the end faces of the studs 12 substantially flush with the bottom outer surface of the carriage.

The work support C is a vertically movable plunger arranged to press the work upwardly against the die, thus effecting the ornamenting operation of the work. Posts 15 mounted on the work support are located to engage the extending ends of the plate 11 as the plunger rises, thereby raising the plate aginst the action of the springs 14, and at the same time raising the studs 12 within their guides. These posts 15 may be adjusted for the purpose of regulating the movement of the plate 11, this adjustment affording a means of controlling the compression of the springs 14 and hence the downward pressure as applied to the plate 11.

The posts at either side of the machine may be interconnected by means of a bar 15*a*, which bar may be rubber surfaced as at 15*b*, to minimize shock.

The die unit B, in the preferred form, comprises a base plate 16 by means of which the unit is secured to the base block 13 of the die carriage A. Sustaining lugs or flanges 17 may be provided to prevent springing of the die under the influence of the pressures applied by the plate 11. A dove-tail wedge 18 and a projecting, perforated lug or ear 19 may be utilized on the base plate 16, to cooperate with suitable locking means on the base 13, various forms of locking means suitable therefor being described and claimed in my above-mentioned application and patent, and in my Patent No. 1,990,597, granted February 12, 1935.

Secured to the base plate 16 by means of struts or sleeves 20 is a die block 21. A single block, suitably apertured for exit of chips or cuttings might well be used in lieu of the base plate 16 and die block 21 which are spaced apart by struts, but for economy in manufacture, as well as for facility in adjusting or varying the height of the die unit, the spaced plate 16 and 21 are preferable.

A cutter or tube plate 23 is detachably mounted on the die block 21, the latter being suitably perforated at the base of the tubes or cutting members 24 to permit expulsion of chips or cuttings. In the illustrated embodiment the tubes 24 are arranged in spaced groups, and intermediate these groups is a marking member comprising a plate 25 having marking edges or ribs 26 thereon. The plate 25 is resiliently mounted in the die by means of split pins 27 having bearing portions 28 which slide in certain of the sleeves 20, springs 29 being encased by the sleeves 20 to normally maintain the plate 25 in a projected position. The springs 29 are extremely light, no real pressure being required against the plate 25. In fact where the die operates downwardly as illustrated, the springs may be omitted entirely and the weight of the marking die will be sufficient to maintain it projected beyond the cutting edges where it may be inked without inking the cutting tubes. However, in order to insure that the edges 26 are advanced beyond the tubes, and in view of the fact that with some installations the die may be reversed to operate upwardly, it is preferred to use the springs.

Stripper plates 30 are provided for the perforating members 24, these plates being carried by split pins 27 having bearings 28, which operate in additional struts 20 as in the case of the marking member. However, the pins for the stripper have extensions 32 of a length to permit projection thereof through the base plate 16. Springs 31 encircle the extensions 32, within the sleeves.

The springs 31, like the springs 29, are preferably very light in construction, having sufficient strength only to position the stripper 30 slightly in advance of the plane of the cutting edges of the tubes. The springs 31 likewise may be

omitted, but are preferred, for the same reasons as given in connection with the springs 29.

All of the pins 27 are shaped at their extremities with knobs 33, and the plates 25 and 30 are provided with socket openings shaped to mate with these knobs. Since the pins 27 are split, it will be evident that the knobs and sockets cooperate as a snap fastener to detachably secure the respective plates in position.

While the preferred form, illustrated in Figs. 1–5 shows a die unit in which spaced groups of cutting members are provided with individual stripping plates 30, and a marking element is located between such groups, with of course no stripper, this arrangement is susceptible to modification, depending on the size, shape and style of die, and pattern. One such modification is illustrated in Fig. 6 wherein a single stripper plate 34 is provided for all cutting members, this plate being cut away as at 35 to permit free movement of the marking plate 25 with respect thereto. If desired, the plate 34, instead of being completely cut away to the shape of the entire marking plate, might readily overlap the marking plate 25, and be cut out in various shapes to accommodate the particular ribs 26, which of course may be of widely varying design.

The chips or cuttings which pass through the tubes 24 will normally escape over the edges of the die block 21, which is of a size normally to deflect them away from the work. The space between the base plate 16 and the die block 21 may however be enclosed except for openings at the ends thereof, or may be provided with a chip receiving drop or deflector, illustration of which will be found in my above-noted Patent 1,990,597.

From the foregoing description, the operation and advantages of the invention will be readily apparent. When the die unit is secured in operating position on the base 13 of the die carriage, the location of the pins 32 is such that they are opposed to the studs 12, the latter being of much greater cross sectional area than the pins 32 and so distributed throughout the base 13 as to permit a wide leeway to the die-maker in locating the pins 32.

As the studs 12 move away from the die, with the plate 11, clearance will be afforded in the block 13 adjacent the heads of the studs for the upper ends of the pins 32 on the stripper plate.

Little or no pressure is required for ink marking, and no stripping is required. Consequently, when there is relative movement between the plunger and work support C and the die carriage A toward each other, the marking elements 26 will touch the work lightly, yielding readily under continued pressure. This operation will be followed by the cutting out step as further relative movement occurs, and upon engagement between the stripper plate 30 and the work, the pins 32 will project up into the guide openings for the studs 12. The posts 15 will, by that time, have lifted or pushed the plate 11 upwardly to compress the springs 14, and carry the studs 12 away from the die base plate 16.

It will be observed that no equivalent for the pins or extensions 32 is provided in the marking portion of the die, and hence no pressure is applied to the marking plate. This entirely eliminates any danger of smearing, indenting or otherwise injuring the work.

After an operation has been performed on the work, the plunger or work support C and carriage A separate, whereupon the springs 14 will push the plate 11 and studs 12 toward the die unit and against the projecting ends of the pins 32, thereby pushing the stripper plate 30 outwardly to remove the work from the cutting elements.

Many economies in the manufacture of dies may be effected by the arrangement of this invention. Inasmuch as the means for providing stripping pressures is not required in an individual die, the die construction can be simplified by the elimination of conventional stripper springs and rubber strippers, by the reduction in the number of stripper posts and simplification of the various parts. As a matter of fact, instead of using conventional stripper posts it is preferred, as illustrated, to use the struts or sleeves which are normally present as a spacing means between the base plate 16 and the die block 21. By the simplification and reduction in number of stripper posts, or omission of the latter, it is possible to locate the pins 32 at points on the die hitherto thought inaccessible, due to the small space provided.

Marking plates, stripper plates, and the like can be made in sections corresponding to the work to be cut and marked and may be provided with operating surfaces having portions higher at some points than at others, thereby accommodating the plate to laminated work such as appliques, overlays, foxings, saddles and the like, which in a shoe upper form a surface varying in level.

A marking plate made in sections, will adjust itself readily to care for varying levels or thicknesses of the work without exerting greater pressures on high points than on low points of the work surface, or in other words, the marking will be uniform throughout. Again, an even distribution of pressure is obtained regardless of the particular die used and tendency toward rocking or tilting of the stripper is avoided. This prevents binding of the stripper plate with attendant failure to strip.

It is, of course, not essential that a single die unit including both marking and cutting elements be provided, since the several marking and cutting sections might readily be made independent of each other, or combined by arranging certain tubes to project through the marking plate if desired.

It is to be understood that the embodiment of the invention shown and described herein is intended as illustrative rather than limiting, as many modifications within the scope of the invention will occur to those skilled in the art. For example, the arrangement of the die may be such as to cut up instead of down, that is the operative elements of the machine and die may be reversed whereby the plunger of the machine which applies pressure to effect the ornamenting operation may push the work down against the die instead of up against it, as in the illustrated embodiment; the relative movement between the die carriage and the work support may be obtained by moving the die carriage toward a fixed work support; and the die itself may be made with a single base plate or block instead of a die block spaced by struts from the base plate as described herein.

The die may function as a fixed die, and be secured to a fixed bed with the plunger coming down against it, or it may readily be used on a slide, or positioned to slide on a bed into and out of an operative position with relation to the plunger, which plunger as pointed out heretofore may readily push the work down over the ornamenting elements.

The features of the invention are, of course,

readily applicable to dies which cut or perforate only, or which mark without cutting.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a die of the class described, a base, cutting means on said base, marking means mounted on said base for yielding movement, stripping means independent of said marking means mounted for movement relative to said cutting means, said stripping means having a stud extending through the base and movable with said stripper to a position where one end projects beyond the plane of the base, said stud being effective to actuate the stripper.

2. In a die of the class described, a base, cutting means on said base, marking means mounted on said base for yielding movement, stripping means independent of said marking means mounted for movement relative to said cutting means, a stud extending through the base, said stud being detachably connected to said stripping means for movement therewith to a position where one end projects beyond the base, said stud being effective to actuate the stripper.

3. In a die of the class described, a base, a die block spaced from said base by hollow sleeves, cutting elements mounted on said die block, a stripper for said cutting elements, pins extending from said stripper through said die block, sleeves, and base whereby said stripper may be actuated exteriorly of said base, spring means within said sleeves normally urging said stripper away from said cutting elements, a marking member having studs extending through said die block into certain others of said sleeves, and spring means in said latter sleeves normally urging said marking member away from the die block.

4. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, and stripping means for said cutting means constructed and arranged for operation free and independent of said marking means.

5. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said units, and stripping means for each of said cutting units arranged in spaced relation to said marking unit for operation independent thereof.

6. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said units, and a common stripping means for all of said cutting units constructed and arranged to provide for free operation of said marking unit therethrough.

7. In a die of the class described, a base, cutting means thereon, stripping means for said cutting means, and means detachably mounting said stripping means on said base comprising a split pin having a knob-shaped protuberance at its end, said stripping means being provided with a socket shaped to mate with said knob-shaped protuberance, said knob-shaped protuberance being normally slightly larger in section than said socket, whereby it may be snapped into said socket and retained therein.

8. In a die of the class described, a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate and yieldably mounted on said base, said marking plate and stripper plate being constructed and arranged for free movement independent of each other.

9. In a die of the class described, a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate and yieldably mounted on said base, said stripper plate being constructed to at least partially surround said marking plate whereby said marking plate may operate freely therethrough.

10. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being cut away to provide clearance for free and independent passage of the marking means past the plane of said surface.

11. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being formed with openings through said surface to provide clearance for free and independent passage of the marking means past the plane of said surface.

12. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said cutting units, and a common stripping means for all of said cutting units, having a surface adapted to engage the work, said stripping means being cut away to provide clearance for free and independent passage of the marking means past the plane of said surface.

13. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said cutting units, and a common stripping means for all of said cutting units, having a surface adapted to engage the work, said stripping means being formed with openings through said surface to provide clearance for free and independent passage of the marking means past the plane of said surface.

14. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said cutting units, and stripping means for each of said cutting units having a surface adapted to engage the work, said stripping means being mounted in spaced relation to said marking unit and so positioned as to provide clearance for operation of said marking unit independently of the stripping means and past the plane of said surface.

15. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base and comprising a plate-like portion having marking protuberances thereon; and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being cut away to provide clearance for free and independent movement of said marking protuberances past the plane of said surface.

16. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base and comprising a plate-like portion having marking protuberances thereon; and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being formed with openings through said surface to provide clearance for free and independent movement of said marking protuberances past the plane of said surface.

17. A die of the class described for use in a

machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and marking means cooperative with and movable with relation to said cutting means, said marking means being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means resiliently mounting said marking elements on said base in a plane advanced with respect to the cutting means, said resilient mounting being proportioned and arranged to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said stripping means and said marking means being constructed, arranged and relatively positioned for operation free and independently of each other.

18. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and a marker plate cooperative with and movable with relation to said cutting means, said plate being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means resiliently mounting said plate on said base in a plane advanced with respect to the cutting means, said resilient mounting being proportioned and arranged to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said stripping means and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other.

19. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and a marker plate cooperative with and movable with relation to said cutting means, said plate being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means including light springs mounting said plate for yielding movement on said base, relative to said cutting means, said springs being proportioned and arranged to project said plate normally beyond said cutting means, and to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said stripping means and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other.

20. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and marking means cooperative with and movable with relation to said cutting means, said marking means being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means including light springs mounting said marking elements for yielding movement on said base relative to said cutting means, said springs being proportioned and arranged to project the marking elements normally beyond said cutting means and to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said stripping means and said marking means being constructed, arranged and relatively positioned for operation free and independently of each other.

21. A die of the class described comprising a base, cutting means on said base, work stripping means for said cutting means, and a plate cooperative with and movable with relation to said cutting means, said plate being formed with marking elements effective to ink mark the work during a cutting operation, mounting means for said plate having an amplitude of movement relatively greater with respect to the work than that relative movement between the work and the cutting means of the die which must penetrate the work in order to cut it, and spring means resisting movement of said mounting means insufficiently to build up a pressure during the penetration of work by said cutting means greater than required for ink marking the work without penetrating or indenting the same, said stripping means and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other.

22. A cutting and marking instrumentality for use with a cutting and marking operation wherein means is provided for developing stripping pressures exclusive of the cutter and marker, comprising a base, cutting means on said base, work stripping means for said cutting means, and marking means cooperating with and movable with relation to said cutting means, said marking means being formed with marking elements effective to ink mark the work during a cutting operation, mounting means for said marking means having an amplitude of movement relatively greater with respect to the work than that relative movement between the work and the cutting means of the instrumentality which must penetrate the work in order to cut it, and spring means resisting movement of said mounting means insufficiently to build up a pressure during penetration of work by said cutting means greater than required for ink marking the work without penetrating or indenting the same by said marking elements, said stripping means and said marking means being constructed, arranged and relatively positioned for operation free and independently of each other.

23. A cutting and marking instrumentality for use with a cutting and marking operation wherein means is provided for developing stripping pressures exclusive of the cutter and marker, comprising a base, cutting edges on said base, a marking plate resiliently mounted on the base in advance of the plane of the cutting edges, for

yielding movement upon engagement with the work piece, work stripping means mounted in the instrumentality and positioned to receive and transmit pressure to the work piece when engaged with the cutting edges and marking plate, to strip it from said cutting edges, the resilient mounting of the marking plate being such as to impart a marking pressure only to the work piece engaged thereby, independently of the aforesaid pressure receiving and applying means, said stripping means and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other.

24. A cutting and marking instrumentality for use with a cutting and marking operation wherein means is provided for developing stripping pressures exclusive of the cutter and marker, comprising a base, cutting edges on said base, a marking plate spring-mounted resiliently on said base in a plane normally in advance of the plane of the cutting edges, whereby relative movement between the parts of the instrumentality will press a supported work piece against the said parts to first depress the marking plate and then cut the work piece after the marking plate passes through the plane of the cutting edges, the spring means for resiliently mounting the marking plate being proportioned to apply a proper marking pressure to the work engaged thereby, and work stripping means arranged to receive and transmit a stripping movement to the work in addition to the spring means for the marking plate, said stripping means being actuatable by a machine mechanism independent of the marking plate, said marking plate and stripping means being constructed, arranged and relatively positioned for operation free and independently of each other.

25. A die unit for use in an ornamenting machine, comprising a base, cutting edges on said base, a resiliently mounted marker in said unit, the mounting thereof being constructed and arranged to yieldingly project the marking portion of the marker beyond the plane of the cutting edges, under a light pressure which will resist movement properly for effecting the marking of a piece of work, and work stripping means to receive and transmit a pressure to the work additional to the marking pressure of the resilient mounting for the marker, to strip the work from the die unit, said marker and stripping means being constructed, arranged and relatively positioned for operation free and independently of each other.

26. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and marking means cooperative with and movable with relation to said cutting means, said marking means being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, differential spring means, the lighter acting on the marking means, and the heavier acting on the stripping means in a direction to cause each of them to exert a stripping pressure on the work, said stripping means and said marking means being constructed, arranged and relatively positioned for operation free and independently of each other.

27. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, work stripping means for said cutting means, and marking means cooperative with and movable with relation to said cutting means, said marking means being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, differential spring means, the lighter acting on the marking means, and the heavier acting on the stripping means in a direction to cause each of them to exert a stripping pressure on the work, the lighter spring means being proportioned and arranged to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, and to maintain said marking elements normally in a plane advanced with respect to the cutting means, said stripping means and said marking means being constructed, arranged and relatively positioned for operation free and independently of each other.

28. A cutting and marking instrumentality for use with a cutting and marking operation wherein means is provided for developing stripping pressures exclusive of the cutter and marker, comprising a base, cutting edges on said base, a marker plate mounted on the base in advance of the plane of the cutting edges, for yielding movement upon engagement with the work piece, work stripping means mounted in the instrumentality and positioned to receive and transmit pressure to the work piece when engaged with the cutting edges and marking plate, to strip it from said cutting edges, spring means acting on the marking plate and work support respectively in a direction to cause each of them to exert a stripping pressure on the work, the mounting of the marking plate being such as to impart a proper marking pressure to the work piece engaged thereby independently of the aforesaid pressure receiving and applying means, said stripping means and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other.

29. A die unit for use in an ornamenting machine, comprising a base, cutting edges on said base, a marker mounted in said unit, with its marking portion normally positioned yieldingly beyond the plane of the cutting edges, spring means in said mounting proportioned to resist movement of the marker properly for effecting the marking of a piece of work, and work stripping means to receive and transmit a spring pressure to the work additional to the marking pressure of the resilient mounting for the marker, to strip the work from the die unit, said marker and stripping means each acting respectively under pressure in a direction to cause each of them to assist in the stripping of the work from the cutting edges, said marker and stripping means being constructed, arranged and relatively positioned for operation free and independently of each other.

30. In an ornamenting die unit, the combination with ornamenting means including a marking plate, having at least one marking die thereon, of means acting on the marking plate and independently thereof respectively for exerting a stripping pressure on the work, said marker and

stripper being constructed, arranged and positioned for free and independent operation.

31. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, stripping means for said cutting means constructed and arranged for operation free and independent of said marking means, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

32. In a die of the class described, a base, cutting means mounted thereon, marking means comprising a plate having marking elements thereon, independent of said cutting means also mounted on said base, stripping means for said cutting means constructed and arranged for operation free and independent of said marking means, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

33. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said units, and stripping means for each of said cutting units arranged in spaced relation to said marking unit for operation independent thereof, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

34. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said units, common stripping means for all of said cutting units constructed and arranged to provide for free operation of said marking unit therethrough, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

35. In a die of the class described, a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper arranged in juxtaposition to said marking plate, said marking plate and stripper plate being constructed and arranged for free movement independent of each other, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate.

36. In a die of the class described, a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate, said stripper plate being constructed to at least partially surround said marking plate, whereby said marking plate may operate freely therethrough, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate.

37. In a die of the class described, a base, a marking plate mounted resiliently thereon comprising a plate having marking protuberances extending therefrom, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate, said stripper plate being constructed to at least partially surround said marking protuberances, whereby said protuberances may operate freely past the plane of the stripper plate, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate.

38. In a die of the class described, a base, a marking plate mounted resiliently thereon comprising a plate having marking protuberances extending therefrom, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate, said stripper plate having at least one opening therethrough in proximity to said protuberances whereby said protuberances may operate freely through the stripper plate, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate.

39. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being cut away to provide clearance for free and independent passage of the marking means past the plane of said surface, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

40. In a die of the class described, a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, and stripping means for said cutting means having a surface adapted to engage the work, said stripping means being formed with an opening through said surface to provide clearance for free and independent passage of the marking means past the plane of said surface, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

41. In a die of the class described, a base, a plurality of cutting units on said base, a marking unit adjacent said cutting unit, and a common stripping means for all of said cutting units having a surface adapted to engage the work, said stripping means being cut away to provide clearance for free and independent passage of the marking means past the plane of said surface, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation.

42. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact comprising a base, cutting means mounted thereon, marking means independent of said cutting means also mounted on said base, stripping means for said cutting means constructed and arranged for operation free and independent of said marking means, means effective to exert a relatively light pressure through said marking means, and means effective to exert a greater pressure through the stripping means than is exerted through the marking means, when the die is in operation, and means to secure said die in the machine against

movement in the direction of stripper movements.

43. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact comprising a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper arranged in juxtaposition to said marking plate, said marking plate and stripper plate being constructed and arranged for free movement independent of each other, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate, and means to secure said die in the machine against movement in the direction of stripper movements.

44. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact comprising a base, a marking plate mounted resiliently thereon, cutting means on said base having a stripper plate arranged in juxtaposition to said marking plate, said stripper plate being constructed to at least partially surround said marking plate, whereby said marking plate may operate freely therethrough, and means effective to exert a greater pressure through the stripper plate than is exerted by the resilient mounting for the marking plate, and means to secure said die in the machine against movement in the direction of stripper movements.

45. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, a work stripping plate positioned to remove work from said cutting means for an operation on the work, and marking means cooperative with and movable with relation to said cutting means, said marking means being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means resiliently mounting said marking means on said base in a plane advanced with respect to the cutting means, said resilient mounting being proportioned and arranged to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece throughout the cutting movement whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said work stripping plate and said marking means being constructed, arranged and relatively positioned for operation free and independent of each other, and said plate having an opening providing clearance for free and independent passage of the marking elements therethrough, into engagement with the work.

46. A die of the class described for use in a machine having a pressure applying plunger effective to produce relative movements between a supported work piece and the die, into and out of a cutting and marking contact, comprising a base, cutting means on said base, a work stripping plate positioned to remove work from said cutting means for an operation on the work, and a marker plate cooperative with and movable with relation to said cutting means, said plate being formed with marking elements adapted to receive ink and ink mark the work piece during a single operation in which the work piece is cut, means resiliently mounting said marker plate on said base in a plane advanced with respect to the cutting means, said resilient mounting being proportioned and arranged to develop a pressure sufficient only to provide a light contact of the marking elements with the work piece, throughout the cutting movement, whereby to properly ink mark the supported work piece as part of a single marking and cutting operation, said work stripping plate and said marking plate being constructed, arranged, and relatively positioned for operation free and independently of each other, and said work stripping plate having an opening providing clearance for free and independent passage of the marking elements and cutting means therethrough, into engagement with the work.

47. A cutting and marking instrumentality for use in a cutting and marking operation wherein means is provided for developing stripping pressures independently of the cutter and marker, comprising a base, cutting edges on said base, a marking plate resiliently mounted on said base for yielding movement upon engagement with the work piece, a stripper plate mounted in the instrumentality and positioned to receive and transmit pressure to the work piece when engaged with the cutting edges and marking plate, to strip it from said cutting edges, the resilient mounting of the marking plate being such as to impart a marking pressure only to the work piece engaged thereby, independently of the aforesaid pressure receive and applying means, said stripper plate and said marking plate being constructed, arranged and relatively positioned for operation free and independently of each other, and said work stripping plate having an opening providing clearance for free and independent passage of the marking elements and cutting edges therethrough, into engagement with the work.

48. A die unit for use in an ornamenting machine, comprising a base, cutting edges on said base, a resiliently mounted marker in said unit, the mounting thereof being constructed and arranged to yieldingly project the marking portion of the marker beyond the plane of the cutting edges under a light pressure which will resist movement properly for effective marking of a piece of work, and work stripping means to receive and transmit a pressure to the work additional to the marking pressure of the resilient mounting for the marker to strip the work from the cutting edges, said stripping means comprising a plate having an opening providing free clearance for passage of the cutting edges and the marking portion of the marker therethrough into engagement with the work during an ornamenting operation, said marker and stripping means being constructed, arranged and relatively positioned for operation free and independent of each other and said base having means cooperative with the ornamenting machine to accurately position and hold the die in the machine against movement in the direction of movement of the stripping means and marker.

BENJAMIN W. FREEMAN.