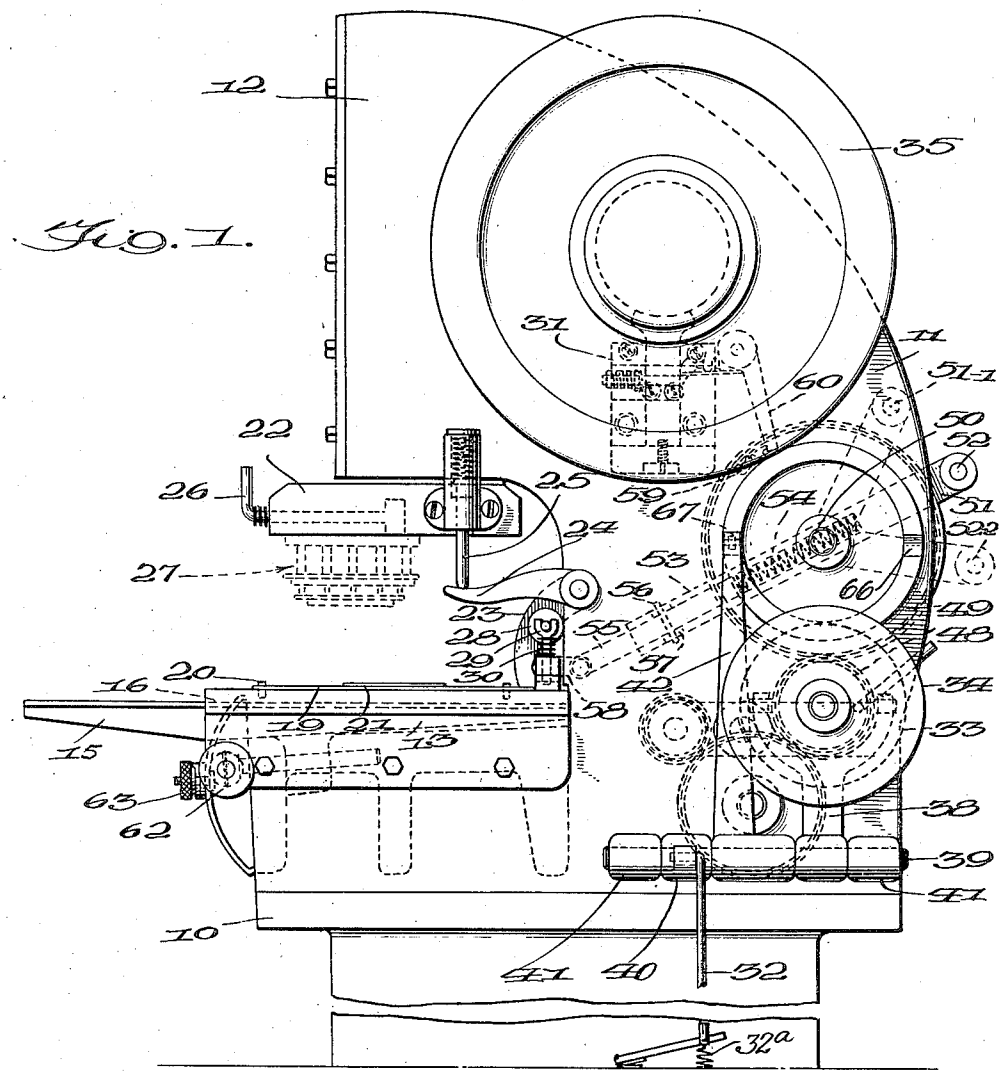
Feb. 12, 1935. B. W. FREEMAN 1,990,595

ORNAMENTING MACHINE

Filed Sept. 17, 1931 2 Sheets-Sheet 1

Fig. 1.



Inventor

Benjamin W. Freeman,

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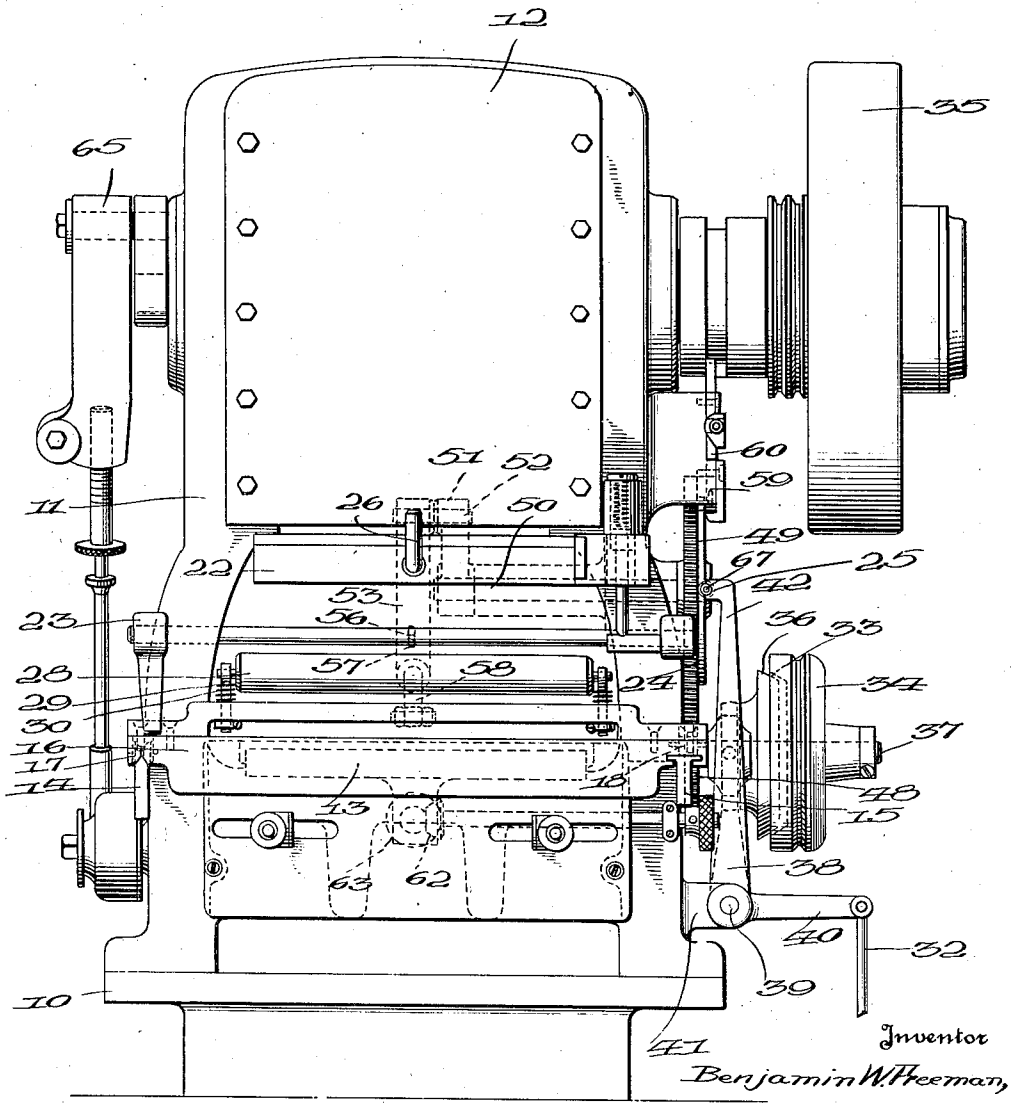
Attorneys

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ORNAMENTING MACHINE

Filed Sept. 17, 1931 2 Sheets-Sheet 2

Fig. 2.



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Patented Feb. 12, 1935

1,990,595

UNITED STATES PATENT OFFICE

1,990,595

ORNAMENTING MACHINE

Benjamin W. Freeman, Cincinnati, Ohio

Application September 17, 1931, Serial No. 563,429

25 Claims. (Cl. 101—316)

This invention relates to shoe ornamenting machinery and more particularly to combined marking and cutting machines adapted for operation upon skins, upper blanks, fitted and closed uppers or the like, in which the work is marked with an ink or pigment at the same time, or as a part of a continuous cycle of operations during which the work is ornamented by perforating or cutting out a design therein.

Among the objects of the invention are the formation of ornamental designs in the work by the application of a stamped or printed marking which may simulate stitching, or may take the form of a design; by the production of ornamental cutouts in the work, or by combinations of both, and in marking and cutting simultaneously, or in sequence during a continuous cycle of operations.

Another object contemplates the application of markings to the work which may be used as a guide for subsequent operations, such as stitching, or aligning of the shoe parts with respect to the marked part.

The machine illustrated herein utilizes a movable, power driven carriage or table on which the work is supported, which table may be designed to the accommodation of various kinds of work, either flat skins or ring-like blanks, such as closed and fitted uppers. Power operated means are provided for moving a combined marking and cutting die unit into and out of ornamenting relation to the work and for moving the table into and out of operative position with respect to the die, a further object of the present invention being to provide an inking means for the marking die, which is mounted upon, or connected to the work table for movement therewith.

Still another object contemplates the provision of adjusting means whereby the amount of ink or pigment distributed on the marking die may be regulated so that any kind of a mark may be made, either light, heavy or medium. It is pointed out that while ink is generally used, this machine is well adapted to the use of other ornamenting materials than ink, examples being pigment, gold leaf, silver leaf, etc. Use of the term "ink" hereinafter and in the claims is intended to include any such equivalent material.

Various safety mechanisms, ensuring a predetermined cycle of operations and designed to minimize injury to an operator or to the work by preventing premature cutting operations form a feature of this invention, these safety mechanisms including a control mechanism for a main clutch which is designed to connect the movable plunger of the machine to a suitable source of power.

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

Fig. 1 represents a side elevation of the machine; and

Fig. 2 is a front elevation thereof.

In the preferred embodiment of the invention herein disclosed, there is illustrated a machine having a power driven plunger cooperating with a die unit (preferably mounted on the plunger for movement therewith, although such die might readily be mounted independently of the plunger), and the work support on which the work is positioned, with a backing member of paper or its equivalent between the work and the support. In order to properly align, gauge and position the work, abutments are located on the work support, although as illustrated in my co-pending application, Serial No. 478,264, filed August 27th, 1930, a movable gauge mask might readily be utilized either in conjunction with or in lieu of such an abutment.

Referring more specifically to the drawings in which like reference numerals designate like parts, it will be observed that the machine comprises generally a base 10 having an upwardly extending frame or casing 11, which terminates in a head portion 12, overhanging the front part of the base to provide an enclosure or throat within which is mounted a work and work table support, indicated generally at 13. Secured to the frame and extending from the support are guides 14—15 of which 14 is provided with a V-shaped upper surface and 15 with a T-shaped upper surface. Mounted for sliding movement on the guides is a work table or carriage 16 which is desirably, though not necessarily, provided with a pair of rolls 17 shaped to conform to the surface of the guide 14 and a pair of flat surfaced rollers 18 for cooperation with the guide 15.

The table carries a work positioning plate 19 which is located and held in position by a series of pins 20 extending into suitable openings of the plate. The plate 19 is provided with a work locating abutment 21.

A plunger 22 is mounted in the head 12, for vertical reciprocating movement into and out of ornamenting relation to the work. Extending transversely of the machine and adjacent the throat thereof is a shaft carrying at its ends levers 23 and 24. The lever 23 is adapted to co-

operate with table 16 or a suitable abutment thereon, and the lever 24 is positioned for engagement with a resiliently mounted pin 25 carried by the plunger 22. As the plunger descends, the pin 25 will engage the lever 24, to thereby rock the lever 23 and hold same in engagement with the table 16, thus insuring accurate positioning and retention of the table beneath the plunger. The resilient mounting of the pin 25 permits such operation in advance of actual engagement between the die and the work, allowing the plunger to continue its descent after the table has been positioned.

A locking mechanism 26 is provided on the plunger 22, for the attachment of a combined marking and cutting die, illustrated at 27.

The details of the table, positioning plate and die structure are more fully disclosed and claimed in a co-pending application, Serial No. 563,428, of even date herewith.

An inking roll 28 is supported by resiliently mounted brackets 29 extending upwardly from the table 16 adjacent the rear or inner edge thereof. Springs 30 serve to hold the brackets which are mounted for vertical movement, and the roll 28 normally in upwardly spaced relation to the table, and at such a height as to permit the roll to engage the marking die 27 upon movement of the table. The brackets 29 are adjustable vertically to permit regulation of the amount of ink applied to the die, whereby the resulting mark on the work may be either light, heavy or medium, as desired.

It will be evident then that as the table moves outwardly for placement of work thereon, the roll 28 will ink the die 27, which inking will be repeated as the table is moved inwardly to bring the work under the die.

In order to move the table there is provided a treadle rod 32, which is normally held in its upper position by any suitable spring means 32*a*, as is conventional, the purpose thereof being to return the rod to its original position after it has been depressed. When the rod is moved downward, it actuates a friction clutch, indicated generally at 33. This friction clutch comprises an outer drum or pulley 34 which is continuously driven by a constantly rotating main pulley 35. The inner drum 36, which is ordinarily stationary, is moved under the influence of the treadle rod 32 and connections therefrom, into engagement with the outer revolving drum 34, for rotation thereby, both drums turning freely on a shaft 37. The connections from the treadle rod 32 to the drum 36 comprise a lever or yoke 38, which is keyed to a shaft 39, freely mounted in two extending bosses 41 and to which shaft is also pinned the treadle lever 40.

Attached to the inner drum 36 of the friction clutch is a gear 48 which meshes with a larger gear 49, keyed to a shaft 50. On the shaft 50 is also keyed a crank lever 51 carrying a pin 52 which connects the crank lever to a hollow sleeve 53 forming part of a telescopic arm. The arm is completed by a rod 55 slidable in the member 53 and abutting against the spring 54, located therein. This rod 55 carries a pin 56, operating in a slot 57 and effective to limit the movement between the sleeve 53 and the rod 55. The member 55 is connected to the table 16 by a link 58.

The gear 49 carries an adjustable dog 59 effective, when it reaches a predetermined position to engage and move the clutch release lever 60, thereby initiating actuation of a single revolution clutch 31 to connect the pulley 35 to a main operating shaft and actuating mechanism (not shown) for effecting reciprocation of the plunger 26. Details of this operating mechanism and clutch arrangement are more fully disclosed in my co-pending applications, Serial Nos. 478,264, and 563,427.

The support 13, while normally rigid in the machine, is removable therefrom and adjustable therein, an adjusting mechanism indicated at 62 and 63 being provided. A paper feed mechanism 65 controls the step by step feed of a sheet of backing paper over the surface of the work support and beneath the work placed thereon. The surface of the table is preferably of brass or some material softer than the edges of the cutting die.

From the foregoing description, the operation of the machine will be readily apparent.

With the work table in its forward position, the operator positions the work thereon, and then depresses the foot treadle (not shown) which is connected by the treadle rod 32 to the operating mechanism. Depression of the treadle rod actuates the lever 40 which partly revolves the shaft 39. This in turn causes engagement of the friction clutch drums 34 and 36 by movement of the yoke 38 and causes the gear 48 to revolve which in turn drives the gear 49 which is connected to the shaft 50, crank lever 51 and telescopic arm 53—55 to the table 16. As the gears rotate the crank lever 51 turns and pulls the work table to a rear position where it comes against a stop forming part of the frame of the machine. In this position the crank lever 51 is in the position indicated in Figure 1, and the clutch release dog 59 will strike the lever 60, causing actuation of the main clutch and consequent operation of the plunger 22, thus moving the die down and up. While the die is moving down and up the lever 51 is moving from the position indicated in dotted lines as 51—1 toward a position designated 51—2. During the movement of the crank from position 51—1 to 51—2 the die is moving, but will have come to rest by the time position 51—2 is reached. The work table, however, is not moving during this period as the spring 54 is being compressed during movement of the crank from position 51—1 to the median position of the crank indicated in solid lines. While the crank is moving from the median position to the position 51—2, the spring expands and the table is still at rest. During the movement of the die the clamping device 23—24—25 is functioning to lock the table in position.

The foregoing operation is of course possible only so long as the rod 32 is depressed and the clutch members 34—36 are in engagement. The treadle is necessarily equipped with means to return it to its original position when released by the operation, and accordingly the operator will have to ensure a continuous depression of the rod until the main clutch 31 has completed its movement.

In order to automatically control such operation and to relieve the operator from the need of holding her foot constantly on the treadle, a control rod 42 is keyed to the shaft 39, and carries roll 67 at its end, which normally rides on the side face of the gear 49, thus preventing the shaft 39 and the treadle rod 32 from returning to their original position. The gear 49 has a small depression or stop 66 formed therein and the several parts are so proportioned that just as the table 16 reaches its forward or outer posi-

tion the roll 67 will seat in the depression or stop. This will permit a restoration of the shaft 39 and treadle rod 32 to their original positions, thus withdrawing or separating the inside drum 36 of the friction clutch 33 from the outside drum 34. The gear 49 obviously makes but a single revolution from the time the roll 67 is withdrawn from the depression by the treadle rod to the time it again seats in said depression.

The entire operation of the machine is automatic, all parts being synchronized and operating in predetermined order, the only manual operation necessary being that of placing work on the table when the table is in its outer position and the subsequent treadling to initiate actuation of the machine.

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

1. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, and power driven means for moving said support between an operative position relative to said unit, and a position where the work may be accurately placed on the support.

2. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, and power driven means for moving said support between an operative position relative to said unit, and a position where the work may be accurately placed on the support, said unit moving means being synchronized with said support moving means whereby to effect movements of the die unit and support in predetermined relation.

3. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, power driven means for moving said support between an operative position relative to said die unit, and a position where the work may be accurately placed on the support, and means operatively connecting said die moving means and support moving means in synchronized relation whereby said die unit and support will move in predetermined sequence.

4. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, power driven means for moving said support between an operative position relative to said die unit, and a position where the work may be accurately placed on the support, and means to lock said support in operative position relative to said die.

5. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, power driven means for moving said support between an operative position relative to said die unit, and a position where the work may be accurately placed on the support, said die moving means being synchronized with said support moving means whereby to effect movements of the die unit and support in predetermined relation, and means to lock said support in operative position relative to said die.

6. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, power driven means for moving said support between an operative position relative to said die unit, and a position where the work may be accurately placed on the support, means operatively connecting said die moving means and support moving means in synchronized relation whereby said die unit and support will move in predetermined sequence, and means to lock said support in operative position relative to said die.

7. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die unit, means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

8. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, power driven means for moving said support between an operative positive relation to said die unit, and a position where the work may be accurately placed on the support, each of said die and support moving means including a clutch, and means connecting said clutches for operation in predetermined relation whereby movements of the die unit and support will be synchronized.

9. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die, each of said die and support moving means including a clutch, and said support moving means, including a resilient telescoping linkage attached to the support, and mechanism connecting said clutches for operation in predetermined relation whereby movements of the die unit and support will be synchronized.

10. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die, each of said die and support moving means in-

cluding a clutch, said support moving means including a gear mechanism operatively connecting said clutches for actuation in predetermined relation, and a resilient member connecting said mechanism to the support, whereby movements of the die unit and support will be synchronized.

11. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, said die moving means including a second clutch effective to initiate actuation of said die unit, and means controlled by said gear to actuate said second clutch.

12. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, said die moving means including a second clutch effective to initiate actuation of said die unit, means controlled by said gear to actuate said second clutch, and means including said gear to hold said member in clutch-actuating position for a predetermined period and thereafter to restore said member to its original position, whereby operation of said first clutch will be stopped.

13. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, and control means for effecting a synchronized relation between said die moving means and said support moving means, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, and means including said gear to hold said member in clutch-actuating position for a predetermined period and thereafter to restore said member to its original position, whereby operation of said clutch will be stopped.

14. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, and control means for effecting a synchronized relation between said die moving means and said support moving means, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, and means including a control member movable with said manual member and engageable with a stop on said gear whereby operation of said clutch will be stopped.

15. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, said die moving means including a second clutch effective to initiate actuation of said die unit, means controlled by said gear to actuate said second clutch, and additional means including a control member movable with said manual member and engageable with a stop on said gear whereby operation of said first clutch will be stopped.

16. In an ornamenting machine having a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means to move said support relative to said unit, said support moving means comprising a manually actuated member, a clutch actuatable by said member to initiate movement of said support, a gear controlled by said clutch and movable under the influence thereof, and a connection from said gear to said support effective to move the support during the rotation of the gear, said die moving means including a second clutch effective to initiate actuation of said die unit, means comprising a dog on said gear and a clutch control key engageable thereby to actuate said second clutch, and additional means including a control lever movable with said manual member and engageable with a stop on said gear whereby actuation of said first clutch will be stopped.

17. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, means movable with said support to apply ink to said unit, and power driven means for moving said support between an operative position relative to said unit and a position where the work may be accurately placed on the support and for simultaneously moving said support into and out of inking relation to said die.

18. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, means adjustably mounted on said support to apply ink to said unit, and power driven means for moving said support between an operative position relative to said unit and a position where the work may be accurately placed on the sup-

port and for simultaneously moving said support into and out of inking relation to said die.

19. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, means comprising an inking roll adjustably and resiliently carried by said support adjacent one end thereof for applying ink to said unit, and power driven means for moving said support between an operative position relative to said unit and a position where the work may be accurately placed on the support and for simultaneously moving said support into and out of inking relation to said die.

20. An ornamenting machine comprising a movable work support, means including a combined marking and cutting die unit to apply an ornamental pattern consisting in part of an ink impression and in part of perforations, to a work piece on said support, means to move said die unit into ornamenting relation with the work piece, means movable with said support to apply ink to said unit, power driven means for moving said support between an operative position relative to said unit and a position where the work may be accurately placed on the support and for simultaneously moving said support into and out of inking relation to said die, and means operatively connecting said applying means and said die moving means in synchronism.

21. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, and power driven means for moving said support into and out of operative relation to said unit, said unit moving means being synchronized with said support moving means whereby to effect movements of the die unit and support in predetermined relation, means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

22. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die unit, and means operatively connecting said die moving means and support moving means in synchronized relation whereby said die unit and support will move in predetermined sequence, and means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

23. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die unit, and means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

24. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die unit, said die moving means being synchronized with said support moving means whereby to effect movements of the die unit and support in predetermined relation, and means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

25. An ornamenting machine comprising a movable work support, a combined marking and cutting die unit, means to move said die unit into ornamenting relation with a work piece on said support, power driven means for moving said support into and out of operative relation to said die unit, means operatively connecting said die moving means and support moving means in synchronized relation whereby said die unit and support will move in predetermined sequence, and means operatively connected to said die and engageable with said support to accurately position said support relative to the die and to retain same in such position.

BENJAMIN W. FREEMAN.