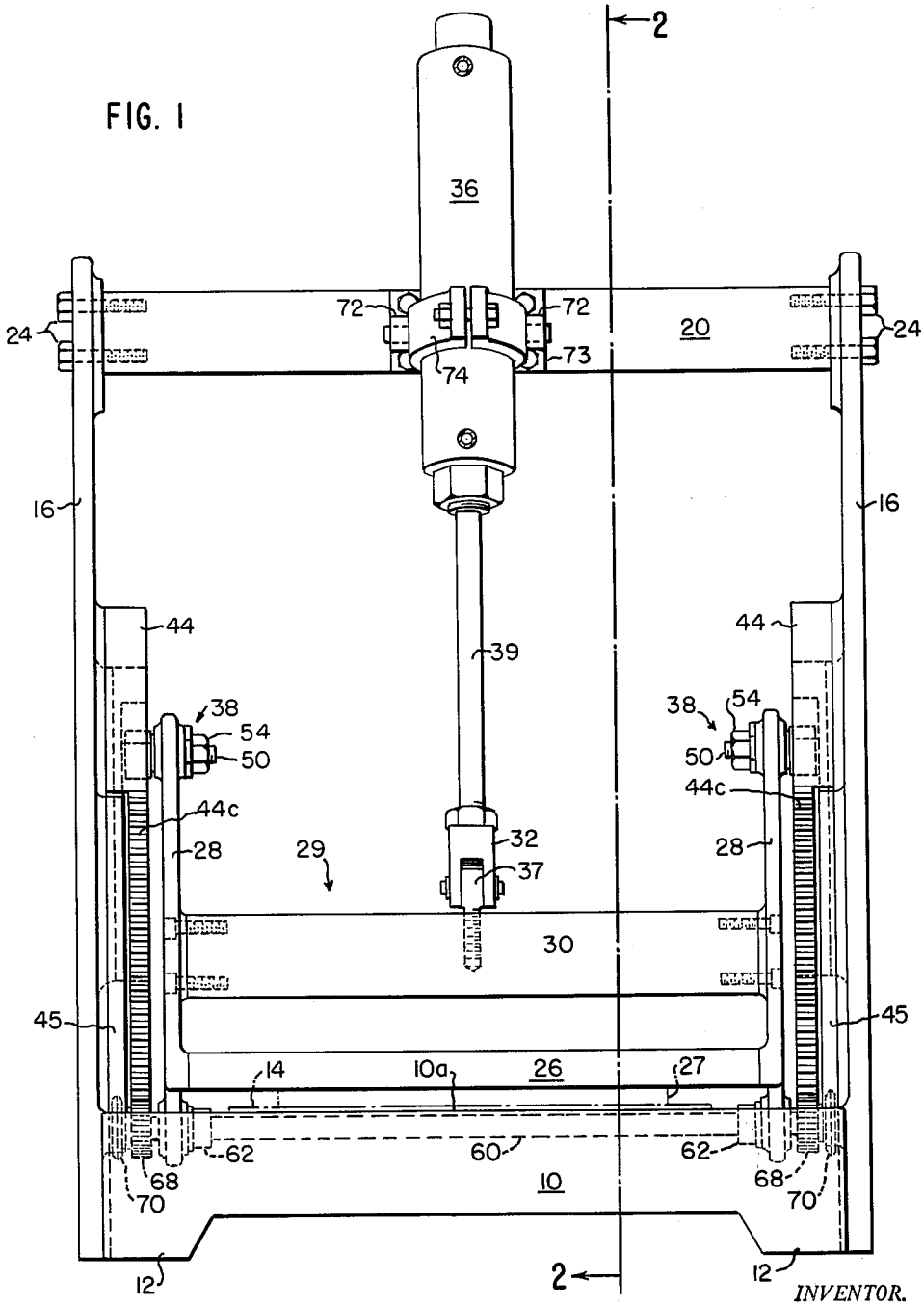
June 4, 1963 M. HURWITZ 3,092,023

LEATHER MARKING MACHINE

Filed Dec. 2, 1959 4 Sheets-Sheet 1

FIG. 1



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LEATHER MARKING MACHINE

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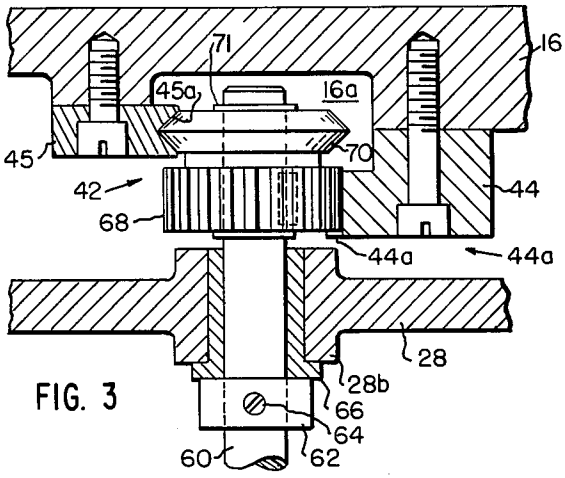


FIG. 3

FIG. 2

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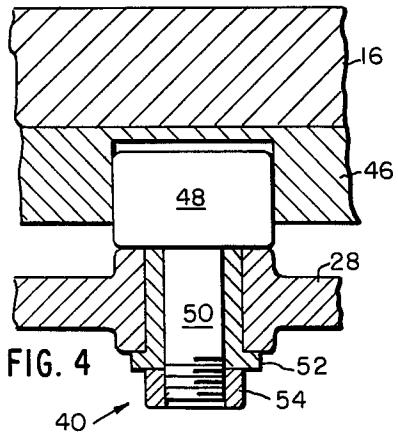


FIG. 4

FIG. 5

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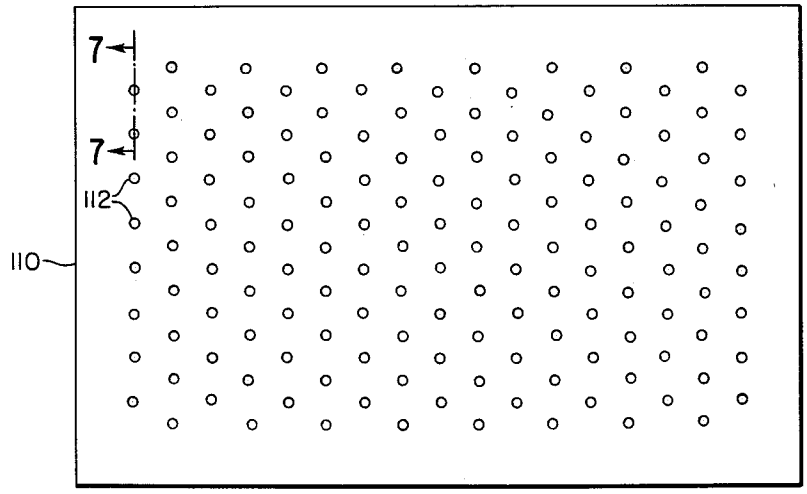
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June 4, 1963 M. HURWITZ 3,092,023

LEATHER MARKING MACHINE

Filed Dec. 2, 1959 4 Sheets-Sheet 4

FIG. 6



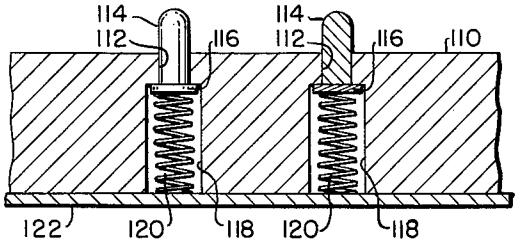


FIG. 7

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United States Patent Office 3,092,023 Patented June 4, 1963

3,092,023

LEATHER MARKING MACHINE

Max Hurwitz, Lynn, Mass., assignor to Maxam, Inc., Auburn, Maine, a corporation of Maine

Filed Dec. 2, 1959, Ser. No. 857,225
11 Claims. (Cl. 101—297)

My invention relates to an improved machine for marking leather, plastics, or other fabrics and more particularly relates to a machine for this purpose for use in marking leathers used in shoe making. Machines of this sort are used to delineate, on the fabric from which the shoe is to be manufactured, vamps, quarters, linings and the like for later cutting and stitching. These machines are also used to emboss the surface of shoe materials with ornamental effects. Such machines are also sometimes used for perforating leather or other materials to obtain ornamental effects. As used herein, and in the claims, the term "marking" is intended to include all of these various functions of printing, perforating, and embossing or the like on the surface of shoe materials, and the term "leather" is intended to include leather, plastic materials and textile and the like from which shoes are manufactured.

This application is a continuation-in-part of my copending application Serial No. 785,937 filed January 9, 1959, now abandoned, and entitled, "Leather Marking Machine."

Leather marking machines have been known for a number of years in the shoe industry. The earliest patent of which I am aware which shows such a marking device is Patent No. 1,753,884 issued April 8, 1930, to H. E. Edwards. A more representative showing of the construction used prior to my invention is shown in Patent No. 1,796,686 issued March 17, 1931, to H. E. Edwards. As shown in these patents, and more particularly in the latter one, the typical marking machine used prior to my invention consisted of a base having on one end a work supporting surface and on the other end an ink pad or the like for applying ink to the marking die. A die carrier or platen was generally pivotally mounted above the base by four links of equal length. Two of the links were attached to the front edge of the platen and to each side of the base and two to the rear edge of the platen and to each side of the base. The platen thus remained always in parallel relation to the base. The work surface and the ink pad were so located that by grasping a handle attached to the platen it could be pivoted on the links from engagement with the materials to be marked on the work surface to engagement with the ink pad or the like. Thus in use, materials to be marked would be placed on the surface, and a die would be placed on the platen. The handle attached to the die carrier would be moved to position the platen above the ink pad, in which position ink would be placed on the die and then moved so that the inked die carried the ink to the materials to be marked.

While there have been many modifications and improvements on the basic leather marking machine shown in Patent No. 1,796,686, which has just been described, prior to my invention almost all leather marking machines used in the shoe manufacturing industry operated on substantially this principle.

There have been a number of difficulties associated with leather marking machines of this general type. One of the more important of these is the fact that the platen and its associated die for marking or embossing the leather engages the leather surface while moving in an arc so that as the die engages the leather it is moving, at least to some extent, parallel to the general plane of the surface to be marked. The result of this is that the lines printed or embossed on the leather surface are not always as clean and sharp as desired. A further and perhaps greater difficulty with the arcuate printing motion of the dies of prior marking devices of the type described was variation in printing location resulting from variations in the thickness of the stock on which the marking was to take place. Variations in marking position also resulted from wear in the bearings supporting the platen. For these reasons, there were inherent inaccuracies in marking machines of this prior type. Still another problem of these prior marking machines is the complex nature of the movement of the platen. This made it relatively difficult to make the device wholly automatic in operation. Accordingly, prior marking machines have been either hand operated, as described, or in some cases they have been operated by treadles, and a few have been air operated. However, to my knowledge, machines of this type have not in general been operated automatically.

A desirable feature of prior marking machines, which I have retained in my invention, is that of providing visibility of the work piece. In the devices previously described, the platen and the die were completely removed from the work space so that the operator could remove the stock therefrom and place new stock thereon after marking had been completed. In my improved leather marking machine described hereinafter, I have retained this particular desirable feature, while yet overcoming some of the other undesirable features present in the prior devices.

Accordingly, it is a principal object of my invention to provide an improved leather marking machine. Another object of my invention is to provide an improved leather marking machine which will obviate smearing of lines to be marked by the die and which will eliminate inaccuracies in location of the marking on the stock even though there may be substantial variations in the stock thickness. Still another object of my invention is to provide a leather marking machine of the type described which permits operator visibility of the work area when the die and platen are out of engagement with the stock. Still another object of my invention is to provide a leather marking machine of the type described having improved means for inking the dies used by the machine so that the die is inked when it comes to rest in the open position and is ready for immediate use. Still another object of my invention is to provide a leather marking machine of the type described which is relatively simple and economical in construction but yet is sufficiently rugged for long term every day use in a shoe factory. Other objects of my invention will in part be obvious and will in part appear hereinafter.

My invention accordingly comprises the features of construction, combinations of elements and arrangement of parts which will be exemplified in the constructions hereinafter set forth, and the scope of the invention will be indicated in the claims. For a fuller understanding of the nature and objects of my invention, reference should be had to the following detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a front elevation of an improved leather marking machine made according to my invention, the particular machine illustrated being used for embossing and employing a heated platen or die carrier;

FIG. 2 is a vertical section taken along the line 2—2 of FIG. 1;

FIG. 3 is a section taken along the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary section taken along the line 4—4 of FIG. 2 showing the cam follower construction;

FIG. 5 is a side elevation with one side plate removed from a leather marking machine made according to my invention which illustrates the improved mechanism for

printing dies utilized with marking machines made according to my construction;

FIG. 6 is a plan view of an improved stock supporting base for the machine of FIG. 1; and

FIG. 7 is a fragmentary cross sectional view substantially along the lines 7—7 of FIG. 6.

In general, I have found that for the reasons previously given it is desirable to mount a platen or die carrier in such a way that it is moving vertically and at right angles to the stock supporting surface of the machine as the die is brought into engagement with the stock to be marked. This may be readily accomplished by supporting the platen on a vertically movable carriage, the carriage being supported and guided for movement, over its entire travel, in a vertical direction at right angles to the work supporting surface base. However, in order to provide the clear view of the work space which I have previously indicated as desirable, I have found that it is necessary to raise the platen vertically about twelve to fourteen inches to provide the necessary clearance. Such a long stroke makes automatic operation difficult and undesirable. It also substantially increases the size of the machine and makes it undesirable for use in certain factories where installation space is limited. Therefore, in accordance with the invention, I provide mounting means for the platen supporting carriage such that in the movement of the carriage from its marking position, the carriage is initially moved vertically in a straight line at right angles to the stock and sequentially tilted rearwardly of the base to a rest position in one continuous movement of the carriage. As will be apparent from the following description, an advantage of the machine incorporating the present invention is that the actuating means for lifting the carriage need only provide a total lifting movement of the carriage of about five inches in order to provide ample clearance for the operator to view and work at the stock supporting surface when the carriage is in the rest position. With this relatively short travel, it is possible to use readily available actuators such as an air motor to drive the marking machine, thus making the machine particularly adaptable to automatic operation. I have also found that by using a combined gear and V-roller support as part of the carriage support, side sway and skewing of the carriage between the two side supports can be substantially eliminated.

By the use of a second cam and inking roller used as a part of the cam follower, I have also found it possible to ink the die while on its up stroke so that upon returning to engagement with the stock, the die is properly inked and the use of ink pads, rollers for the ink pads or ribbon type pads is eliminated.

As best seen in FIGS. 1 and 2, my marking machine includes a base member **10** having supporting feet **12** formed integrally therewith. The upper surface **10***a* of the base member **10** supports the stock to be marked which is indicated at **14**. The sides **16** of the device are secured to the base member at its rear edge by bolts or cap screws passing through the threaded holes shown at **18** in FIG. 5 The rear edges of the side members are joined by cross pieces **20** and **22** as shown in FIGS. 2 and 5. As best seen in FIG. 1, these cross pieces are secured to the sides by cap screws **24** or by similar devices. In this manner, the base **10** with the work supporting surface **10***a* and the side members **16** are formed into an integral unit and support thereon the movable carriage which carries the platen, the guiding cams and the actuating elements.

For purposes of ease of explanation, the inking mechanism illustrated in FIG. 5 has been eliminated from the drawings in FIGS. 1 and 2. In these figures, the platen **26** is shown only as a rectangular metallic block. It will be understood of course that dies of the conventional type used in marking machines may be attached to this block, or heating elements might be inserted in the platen and embossing dies attached to the block to emboss decorative effects or other markings upon the stock. The platen itself is shown in FIGS. 1 and 2 with an embossing die **27** attached thereto and is supported between two substantially triangular members **28**, which form the sides of the vertically movable and tiltable carriage generally indicated at **29**. The side members **28** are secured together by the cross member **30**, which, as shown in FIG. 1, is attached thereto as by cap screws. A clevis **32** secured to one end of the piston rod **34** forming a part of the air motor **36** supports the cross piece **30** by engaging the eye bolt **37** secured therein and thereby also supports the carriage. It will be observed that vertical upward movement of the rod **34** from the position shown in FIGS. 1 and 2 will cause vertical movement of the cross piece **30** and the carriage **29** of which it forms a part.

As previously explained, it is desirable to move the platen **26** out of its marking position of FIG. 2 such that it is initially moved a substantial distance vertically at right angles to and out of engagement with the stock **14** and then is sequentially tilted rearwardly in order to leave the work surface **10***a* clear for the operator to view and to insert and remove stock. To this end, each side **28** of the carriage is provided with three cam followers (best shown in FIG. 2) generally indicated at **38**, **40** and **42**. The general construction of the cam followers **38** and **40** is illustrated in FIG. 4 and will be described in greater detail hereinafter. The construction of the cam follower generally indicated at **42** is illustrated in FIG. 3 and will also be described in greater detail hereinafter.

Each of the cam followers follows a cam which is formed by the members **44**, **45** and **46**, these members being secured to the inner surface of the side members **16**. As shown in FIG. 2, cam follower **40** engages the cam **46***a* formed in member **46**, while cam follower **38** follows the track formed by the members **44** and **45** and follower **42** follows the track formed by the member **44**.

As seen in FIG. 4, the cam follower **40** includes a cam roller **48** rotatably mounted on a shaft **50** passing through an eccentric bushing **52** in a boss on side member **28**. A clamp nut **54** is attached to a threaded portion of the inner end of the shaft **50**. As can be seen in FIG. 4, the cam **46***a* is a groove or track milled in the member **46**. As seen in FIG. 2, the track **46***a* has a lower straight portion extending at right angles to the general plane of the work supporting surface **10***a* of the base, an upper straight portion extending at an angle to the lower straight portion and upwardly and rearwardly of the base, and a curved portion connecting the upper and lower straight portions. Upon loosening the clamp nut **54**, the eccentric bushing **52** may be rotated to properly align roller **48** in the cam track **46***a*.

A cam **44***a* is formed by the members **44** and **45**. The lower forward edge of the member **44** which forms a portion of the cam **44***a* has a rack **44***c* formed thereon for about two-thirds of its height. The rack extends vertically in a straight line at right angle to the general plane of the work supporting surface **10***a*. The remainder of the edge of the member **44** is smooth and engages the roller member of the cam follower **38**, as shown in FIG. 2. As best seen in FIG. 2, the smooth front edge of the cam member **44** extends a substantial distance upwardly from the upper end of the rack in a straight line at right angles to the general plane of the work supporting surface and terminates in a portion curving rearwardly and upwardly of the base. Because of the guidance provided by the cam followers **38** and **40** in the tracks constructed as described, an upward and rearward force applied to cross member **30** through the clevis **32** will cause the carriage **29** to move from the full line working position to the dotted line rest position shown in FIG. 2. As the carriage moves upwardly, it will be initially moved in a straight line at right angles to the general plane of the work supporting surface **10***a*. After substantial movement in this manner, it will be tilted rear-

wardly. It will be observed that in the rest position of the carriage the platen 26 is tilted sufficiently relative to the work surface 10*a* to provide ample work clearance. It will also be observed that because of the design of the cams the final portion of the motion of the carriage from the dotted line to the full line position in FIG. 2, which occurs when the piston rod 34 is extended by the air motor 36, is at right angles to the general plane of the working surface 10*a*. Thus the die 27 moves vertically at right angles into engagement with the stock 14 with no lateral component of movement. As previously explained, this type of motion substantially improves the operation of leather marking as compared with the operation when machines of the prior type are used.

As thus far described, my marking machine would operate satisfactorily, but with continued use and wear of the cam followers 38 and 40 there might be a tendency to side sway or a tendency for the carriage 29 to become jammed at an angle between the two sides 16. To insure that the platen 26 is always level and centered between the sides, I provide the mechanism illustrated in FIG. 3 as part of the cam follower 42. As shown therein, a shaft 60 extends between the two carriage side members 28 in parallel to the work supporting surface 10*a* and carries thereon collars 62 which are secured in position by the set screws 64. The shaft passes through a boss 28*b* formed on each carriage side member and sleeve bearings 66 are provided to insure free rotation of the shaft in the casting. A spur gear 68 is keyed to each of the outer ends of the shaft as shown in FIG. 3, this gear engaging the racks 44*c* described in connection with FIG. 2. The racks on each of the two side pieces are identical and both spur gears are keyed to the shaft 60. Thus, if the spur gears 68 are to remain in engagement with the rack 44*c*, both sides of the carriage must rise or descend at an equal rate. Thus, both sides of the moving portion of the marker device remain level at all times, an important consideration if all parts of the die are to simultaneously engage the stock. To insure that the carriage mechanism will remain centered between the two sides 16, I provide a roller 70 having a V-shaped outer periphery as shown in FIG. 3 on each end of the shaft 60. The rollers 70 are rotatably mounted on the shaft 60, and a pair of washers 71 maintain the rollers on the shaft. A bushing is engaged between each roller 70 and next adjacent gear 68. A washer is engaged with the side of each gear opposite the next adjacent roller to prevent movement of the gear inwardly of the shaft. The V-shaped outer periphery of the roller 70 engages a V-groove 45*a* formed in the rear edge of the member 45. The V-groove 45*a* extends parallel to the rack 44*c* and in cooperation with the rollers 70 assures that there will be no end play in the shaft 60; and since the carriage is supported by the shaft, there can be no side movement of the carriage. By the action of the spur gear 68 and rack 46*c* in combination with the V-shaped roller 70 and the V-groove 45*a*, the carriage mechanism in devices made according to my invention is held level and centered between the sides. This insures accurate marking of the stock when properly placed on the work table 10*a*. It also insures free movement of the cam followers in the cam tracks and substantially adds to the trouble free life of my machine.

As will be apparent from the path of movement indicated in FIG. 2 for the carriage mechanism, the clevis attached to the eye-bolt 37 in cross piece 30 must follow a similar path, and this is illustrated by the broken line showing of the clevis and the cross piece 30. This latter showing indicates the position of the clevis and the cross piece when the carriage is retracted. It will be observed that the clevis has not only moved upwardly but has also moved rearwardly. In order that the motor may accommodate this type of movement, I provide a trunnion mount for the motor. A pair of support arms 72 extend outwardly from a bracket 73 secured to the upper cross piece 20. The arms 72 pivotally support a ring 74 having trunnions thereon which also clamp about the body of the air motor 36. Thus, the air motor is free to rotate about a horizontal axis and this permits the clevis 32 to move to the rear when the motor is operated.

As thus far described, the operation of the device made according to my invention is as follows: With the carriage in its lowered full line position of FIG. 2, it will be observed that the cam follower 38 is engaged with the smooth upper front edge of the cam member 44 and is spaced a substantial distance downwardly from the upper curved portion of the cam. Correspondingly, the cam follower 40 is engaged with the straight portion of the cam 46*a* which extends upwardly at right angles to the working surface of the base. Also, the cam follower 40 is spaced downwardly from the curved portion of the cam a distance corresponding to the spacing of the cam follower 38 from the curved portion of the cam 44. The cam follower 42 is, of course, engaged at the lower end of the cams formed by the racks 44*c* and V-groove 45*a*. Upon actuation of the air motor 36 to withdraw the rod 34, there will be exerted on the cross bar 30 of the carriage an upward and rearward force due to the positioning of the air motor upwardly and to the rear of the cross bar and carriage. This force exerted by the air motor will cause the carriage to be moved upwardly away from the base 10. The cam followers 38 and 40 will thus move upwardly along the straight portions of their respective cam tracks so as to guide the initial movement of the carriage in a straight line and at right angles away from the base 10. Accordingly, during the initial movement of the carriage, the working surface of the die will remain parallel to the work supporting surface of the base. When the cam follower 40 reaches the curved connecting portion of the cam track 46*a*, the carriage will be pivoted about the shaft 62 so as to tilt the carriage rearwardly of the machine while at the same time continuing upward movement of the carriage. The upper portion of the cam track 46*a* will continue to guide the carriage into its tilted dotted line position. During the initial tilting of the carriage, the cam follower 38 will ride over the upper curved portion of the front edge of the cam 44, and, as shown in FIG. 2, the cam follower 38 in the rest position of the carriage will be spaced out of engagement with the cam 44. During the entire movement of the carriage from its working to its rest position, the shaft 62 will move in a straight line vertically upwardly at right angles to the working surface of the base 10, and the gears 68 and rollers 70 will maintain the shaft at all times parallel with the working surface of the base.

When it is desired to perform an embossing operation, the stock which is to be embossed is placed on the work supporting surface of the base 10, it being assumed that electrical connections for heating the die 27 have been made to heaters mounted in the platen 26. After proper positioning of the work, the air motor 36 is operated to move the rod 34 outwardly of the air motor and exert a downward and forward force on the carriage. The carriage will then be moved downwardly toward the base, with the cam follower 40 in cooperation with the cam track 46*a* causing a pivoting movement of the carriage about the shaft 62. After sufficient downward movement of the carriage, the cam follower 38 will re-engage the cam 44. After the cam followers 38 and 40 have traveled around the curved portions of the respective cam tracks, it will be apparent that the working surface of the dies is again parallel to the work supporting surface of the base, so that the final downward movement of the die will be at right angles to the working surface of the base and thus the stock supported thereon.

It will be apparent that under certain conditions the leather marking machine made according to my invention may be operated automatically with stock being placed on the table and the valves controlling the air

supply to the air motor being under the control of a control mechanism.

As thus far described, I have not shown in the machines made according to my invention means for inking a printing die which would be attached to the platen **26**. In FIG. 5 I have illustrated inking apparatus for use with my invention. In this figure, a printing die **27'** is secured to the platen and is adapted to print a desired pattern on the stock **14'**. The leather marking machine shown in FIG. 5 is constructed in the same manner as that shown in FIGS. 1, 2, 3 and 4 with the addition of the inking mechanism to be more fully described below.

The die inking mechanism includes means for supplying the ink generally indicated at **76**, an ink roller **78** which transfers ink from the inking mechanism **76** to the lower surface of die **27'**, and a cam member **80** whose function is to guide the inking roller **78** across the lower surface of die **27'** as the carriage **29** lifts the die from engagement with the stock. The inking mechanism itself includes a bracket **82** which is secured as by bolts **84** to the side pieces **28** of the movable carriage. Bracket **82** carries thereon a long shallow pan **85** which contains the ink to be applied ot the die surface. A bearing block **86** is mounted in each end of the pan, and this bearing block journals the ends of the shafts **88** and **90**. Shaft **88** carries thereon an ink pickup roller **92** (shown dotted in FIG. 5), while shaft **90** supports thereon a transfer roller **94**. A large sprocket **96** is attached to one end of the shaft **88**, and this is connected by a conventional chain **97** to a smaller sprocket **98**, which in turn is keyed to the shaft **100** of a drive motor **102**. The drive motor, which may be a conventional electric motor, is mounted on a bracket **104** which is secured to the bracket **82** in any convenient fashion. During operation of the marking machine, the motor **102** is adapted to run continuously and cause the pickup roller **92** to rotate continuously through the ink which is to be applied to the inking roller **78**. A doctor blade **106** is provided to smooth the ink over the surface of the pickup roller. Additionally, the pickup roller **92** is caused to oscillate laterally about its longitudinal axis by forming a continuously helical groove (not shown) in the shaft **88** and causing this groove to engage a fixed pin. As the shaft rotates, the helical groove causes the shaft **88** and the roller **92** formed thereon to oscillate back and forth. The combination of this oscillating lateral movement and the doctor blade **106** insures a smooth coating of ink over the surface of the pickup roller **92** and transfer roller **94**. It will also be noted that because the ink supply means generally indicated at **76** is attached to the carriage side **28**, the entire ink supply moves with the carriage so that the ink roller **78** will be inked when the carriage is in its rest position (shown dotted in FIG. 5).

The die inking roller **78** is supported on a bracket **108** which in turn is resiliently mounted on support member **110**. The support member in turn is fixed to the slider **112** which is adapted to slide along the track **114**, roller bearings **116** being provided between the slider **112** and the track **114**. The track **114** is secured to the outer surface of the sides **28**, near their lower edge, and insures that the path of motion of ink roller **78** remains parallel with the surface of die **27'**. Additionally, it will be observed that a cam follower **118** is provided as a part of the support member **110**. This cam follower follows the cam formed by the lower surface **80***b* of member **80** as indicated by the arrows. Thus, as the carriage **29** is raised by the action of air motor **36** from the position where the die **27'** is engaging the stock (as shown in FIG. 5) to the rest position, cam follower **118** follows the path of motion indicated by the arrows and in so doing causes the inking roll **78** to move outwardly along the lower surface of the die **27'** and in so doing inks this die. The cam follower **118** is prevented from following the return path via cam **80***c* formed in member **80** by the spring member **120**. This spring member operates as a "switch" permitting the cam follower to move from track **80***c* to the track **80***b* but not permitting it to move in the reverse direction.

When the carriage **29** reaches the rest position shown in FIG. 5, the roller **78** returns from the position where it is engaging the outer edge of the die **27'** to a position relative to the die **27'** as shown in FIG. 5, the die however being tilted in the rest position. There, although the die is in the rest position, the ink roll again engages the transfer roll **94** and is reinked for further use on the next stroke. When the machine is again operated, cam roller **118** follows the cam **80***c* formed in member **80** and cam **80***b* to the position shown in FIG. 5 and after the printing operation has been completed it is again inked in the manner described. Thus, each time the machine is operated the ink roller **78** traverses the lower surface of the die **27'** twice depositing thereon ink for the next operation. Additionally, in the rest position the inking roller **78** is recoated with ink and is ready for immediate use after the printing operation has taken place.

With reference to FIGS. 6 and 7, there is shown a modification of the base of the machine to provide resiliently retractable template means for engaging the periphery of stock on the work supporting surface of the base to accurately position the stock on the base. The work supporting surface of the modified base **110** is provided with a plurality of openings **112** in which may be inserted locating pins or template members **114**. The pins may be inserted in any desired openings **112** so as to provide a template conforming to at least a portion of the periphery of the stock to be positioned on the base. As can be seen in FIG. 7, the pins are supported by discs **116** which are received in a counterbore **118** coaxially aligned with each of the openings **112**, and a spring **120** resiliently supports each disc **116** at the upper end of the counterbore. A retaining plate **122** is suitably secured to the undersurface of the die **110** for retaining the springs **120** in the conterbore **118**. A particular advantage of the resiliently retractable template arrangement provided is that as the carriage of the machine is lowered to mark the stock supported on the die, the undersurface of the die or corresponding surface of the carriage will engage the upper ends of the pins **114** to move the pins inwardly of the base **110** as permitted by the springs **120**. This retraction of the pins inwardly of the base thus assures that the pins will not interfere with the movement of the die while at the same time will assure accurate positioning of the stock before, during and after the marking operation. While the template pins of FIG. 7 together with the modified table of FIGS. 6 and 7 provide adjustable template means for accurately locating work on the base, it will be apparent to those skilled in the art that the base may be provided with resiliently retractable template means of predetermined contour which will be complementary to and engageable with at least a portion of the periphery of work to be supported on the base.

Thus, I have provided an improved leather marking machine in which the die support or platen is moved vertically at right angles to and out of engagement with the stock and then is tilted backwardly to afford a clear view of the working space, all in one continuous movement. This is accomplished by mounting the platen on a carriage which is guided upwardly and backwardly under the lifting action of an air motor or similar device by cams and cam followers. In order to insure that the carriage remains level, I provide a combination of a spur gear and V-groove arrangement which insures that the carriage, and the platen and die supported thereby, will remain level and centered at all times. Thus, a simple standard air motor can be used to operate this device without the requirement of an excessively long stroke.

I have also provided a simple and efficient inking mechanism for use when it is desired to print on leather in which the inking roller is guided by a cam on the upward path of the carriage outwardly over the surface of the

die and returns from there to engagement with the inking mechanism. Thus, efficient printing operation is attained in a relatively inexpensive but ruggedly constructed machine. Further, ink pads of the fixed or ribbon type with their accompanying disadvantages are eliminated.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained; and, since certain changes may be made in above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A leather marking machine comprising, in combination, a base member having a stock supporting surface formed thereon, upright side members secured to said base member rearwardly of said stock supporting surface, a movable carriage, said carriage being substantially the width of the space between said side members and including carriage side members, a cross piece extending between and secured to said carriage side members, a platen secured to said carriage side members, said platen being adapted to receive and support a marking die on one surface thereof, a plurality of cam followers secured to each of said carriage side members, means forming a plurality of cams secured to the inner surfaces of said upright side members, said cams and said cam followers cooperating to limit the path of movement of said carriage with respect to said base between a first working position and second rest position and being operative to provide that the initial movement of said carriage out of said working position and final movement of said carriage into said working position will be in a straight line and at right angles to said stock supporting surface over a substantial distance, and means for moving said carriage along the path defined by said cams and cam followers.

2. The combination defined in claim 1 in which the path of carriage movement defined by said cams is substantially initially a straight line at right angles to and vertical with respect to said stock supporting surface as said carriage leaves said first position, and then includes vertical, horizontal and rotational components to thereby position said carriage above and to the rear of said stock supporting surface and to tilt said platen rearwardly with respect to said surface.

3. The combination defined in claim 1 in which said means for moving said carriage includes an air motor pivotally mounted for movement about a horizontal axis and disposed upwardly and rearwardly of the working position of said carriage.

4. The combination defined in claim 1 in which one cam on each of said side members includes a toothed rack extending at right angles to said stock supporting surface, and at least one of said cam followers on each of said carriage side members includes a spur gear, one spur gear on each of said carriage sides being keyed to a common shaft extending across said carriage, said shaft being positioned such that said spur gears engage said rack during movement of said carriage to maintain the carriage level during movement thereof into and out of said working position.

5. The combination defined in claim 1 in which one cam on each of said side members includes a grooved face and at least one of said cam followers on each of said carriage side members includes a roller having a periphery shaped to mate with the groove in said face, means positioning one roller on each of said carriage side members in horizontally fixed relation thereto and for engagement of said groove and said roller.

6. The combination defined in claim 1 in which one cam of each of said side members includes a toothed rack and one cam includes a member having a grooved face, at least one of said cam followers on each of said carriage side members including a spur gear, and at least one of said cam followers including a roller having a periphery shaped to mate with the groove in said face, the spur gears on each of said carriage side members being keyed to a common shaft journalled in said carriage side members, said shaft being positioned such that said spur gears engage said racks during movement of said carriage, and means positioning one roller on each of said carriage side members in horizontally fixed relation thereto for engagement of said groove and the periphery of said roller.

7. A leather marking machine comprising, in combination, a base member having a stock supporting surface formed thereon, upright side members secured to said base member rearwardly of said stock supporting surface, a movable carriage supporting a marking die, means supporting said carriage in a first position between said side members with a portion of said carriage extending over said stock supporting surface, said carriage being at a height such that the die carried thereby is engageable with stock on said stock supporting surface, means for causing movement of said carriage from a first to a second position, means for inking said die as said carriage travels between said first and said second positions, said inking means including an inking roller carried by said carriage and normally positioned at one edge of the die carried thereby, means for causing movement of said inking roller across the face of said die as said carriage moves from said first to said second position, and means carried by said carriage for depositing ink on said roller prior to the movement thereof across the face of said die.

8. The combination defined in claim 1 which includes means for inking said die, said inking means including a track secured to said carriage side members and extending along said members parallel to the face of said die, an ink roller, support means slidably engaged with said track and supporting said ink roller for movement along said track, means for causing the ink roller support means to move along said track and thus causing said ink roller to roll across the face of said die in response to movement of said carriage between said first and said second positions, and means carried by said carraige for supplying ink to said ink roller.

9. The combination defined in claim 8 in which said means for causing movement of said ink roller support along said track includes a cam secured to each of said machine side members, and a cam follower secured to said ink roll support.

10. In a leather marking machine, a base having a horizontal stock supporting surface, said base being provided with retractable template means mounted for movement at right angles to said stock supporting surface and engageable with the periphery of stock supported on the surface to accurately position the stock, means biasing the template means in a vertically upward direction, a die engageable with stock supported on said stock supporting surface and with said retractable template means, a carriage mounting said die for vertical movement relative to said stock supporting surface and template means, and means for moving the carriage between a working position in which said die is engaged with said stock supported on said stock supporting surface and is engageable with said template means to effect at least partial retraction of the same and a rest position in which said die is spaced vertically from and inclined relative to said stock supporting surface, including guide means for guiding movement of the carriage

between said working and rest positions and provide that as the carriage is moved out of said working position it will be moved initially a substantial distance vertically and at right angles to said stock supporting surface and will then be tilted upwardly of said stock supporting surface and that the final movement of the carriage into said working position will be a movement of the carriage a substantial distance vertically and at right angles to the stock supporting surface.

11. A leather marking machine comprising, in combination, a base member having a stock supporting surface formed thereon, upright side members secured to said base member rearwardly of said stock supporting surface, a moveable carriage adapted to support a marking die, means supporting said carriage in a first position between said side members, with a portion of said carriage extending over said stock supporting surface, whereby a die placed on said carriage engages stock on said surface when said carriage is in a first position, means for causing movement of said carriage from said first position to a second position, and means guiding said carriage in traveling from said first to said second position in a path which is initially vertical and at right

angles with respect to said stock supporting surface and then includes horizontal, vertical and rotational components to thereby position said carriage above and behind said stock supporting surface and to tilt said carriage rearwardly with respect to its first position when in said second position, said last mentioned means including means forming cams secured to the inner surface of said side members and cam followers secured to said carriage for respective engagement with said cams, said cams being shaped to guide said carriage along said path between said first and second positions.

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