Feb. 5, 1952 H. P. ELLIOTT 2,584,683

COMBINED STENCIL-MOISTENING AND STENCIL-BLOTTING APPARATUS

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Fig. 1.

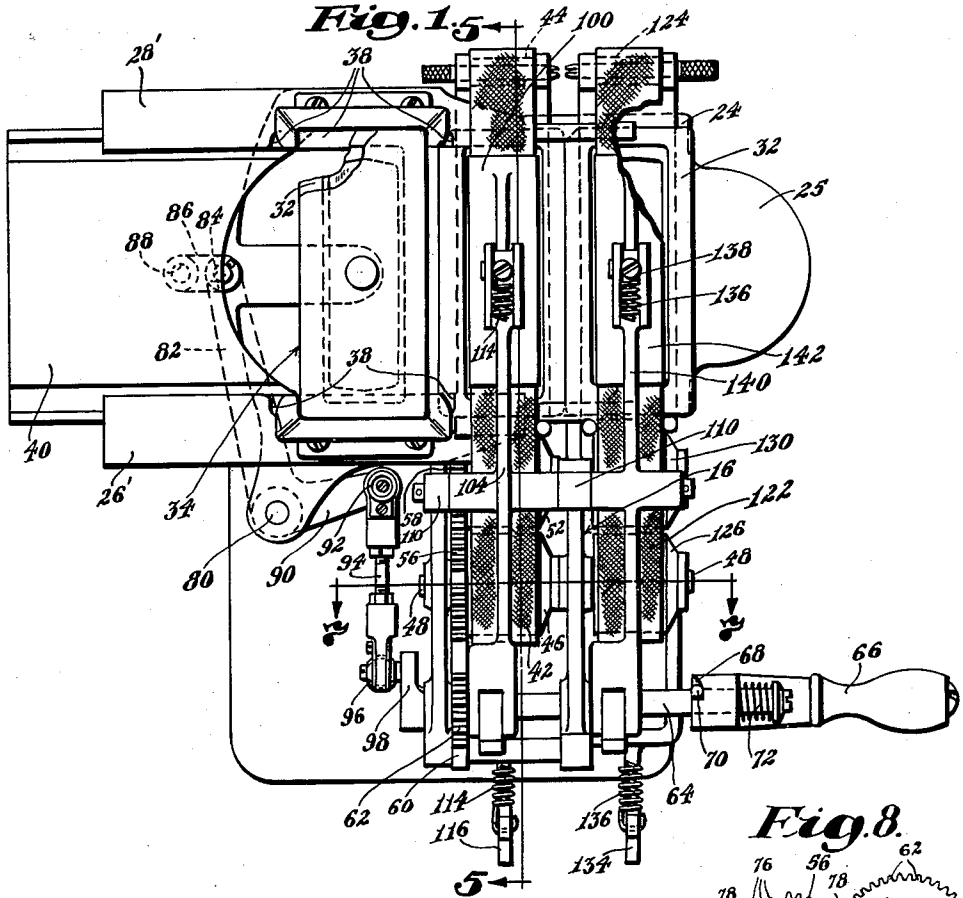


Fig. 8.

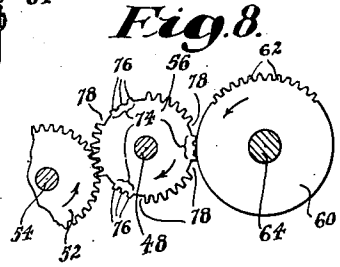


Fig. 9.

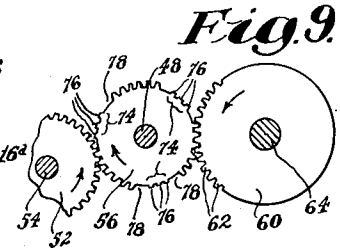
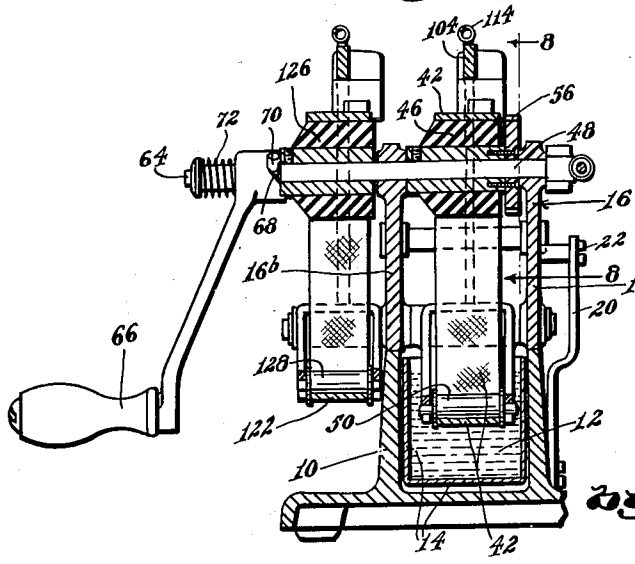


Fig. 7.



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COMBINED STENCIL-MOISTENING AND STENCIL-BLOTTING APPARATUS

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Fig. 2.

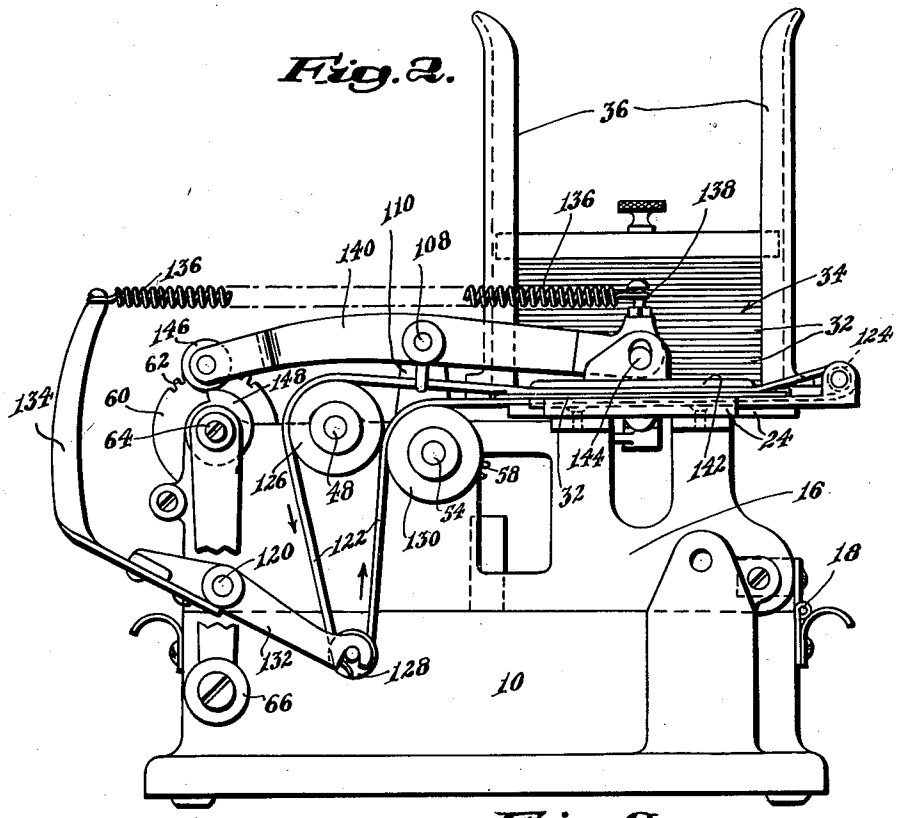
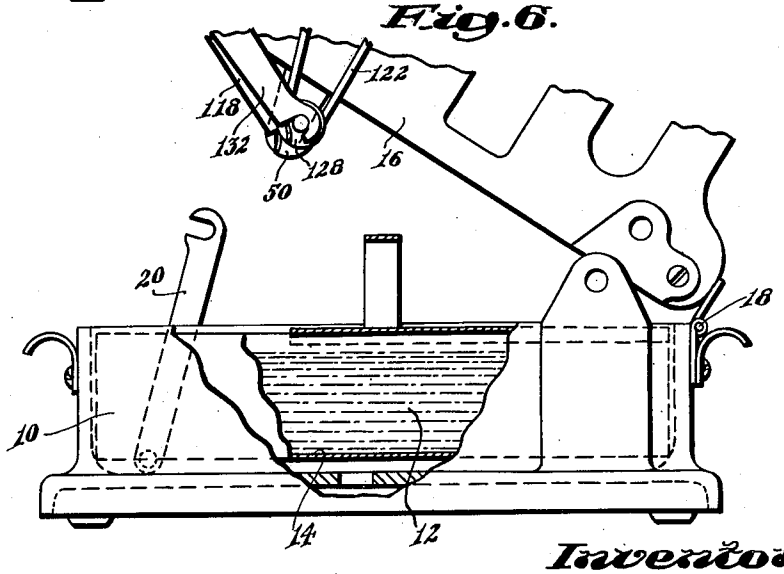


Fig. 6.



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COMBINED STENCIL-MOISTENING AND STENCIL-BLOTTING APPARATUS

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Fig. 3.

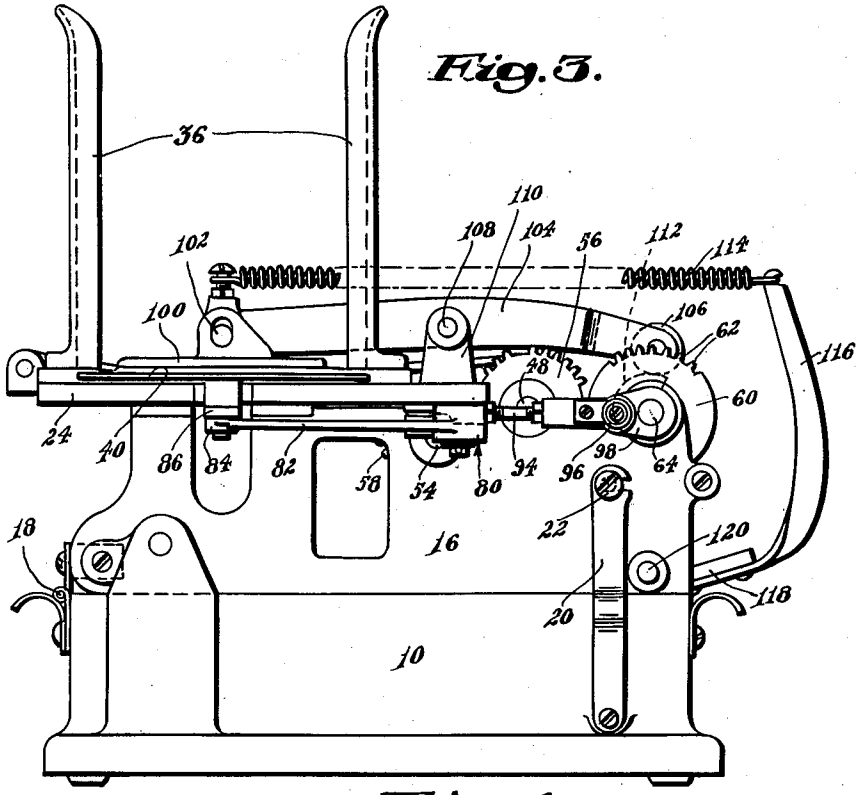
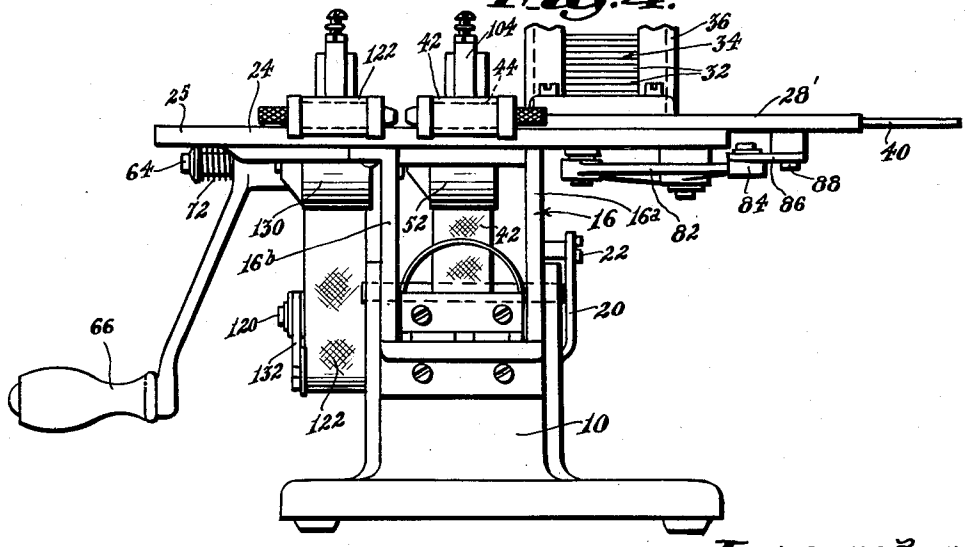


Fig. 4.



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COMBINED STENCIL-MOISTENING AND STENCIL-BLOTTING APPARATUS

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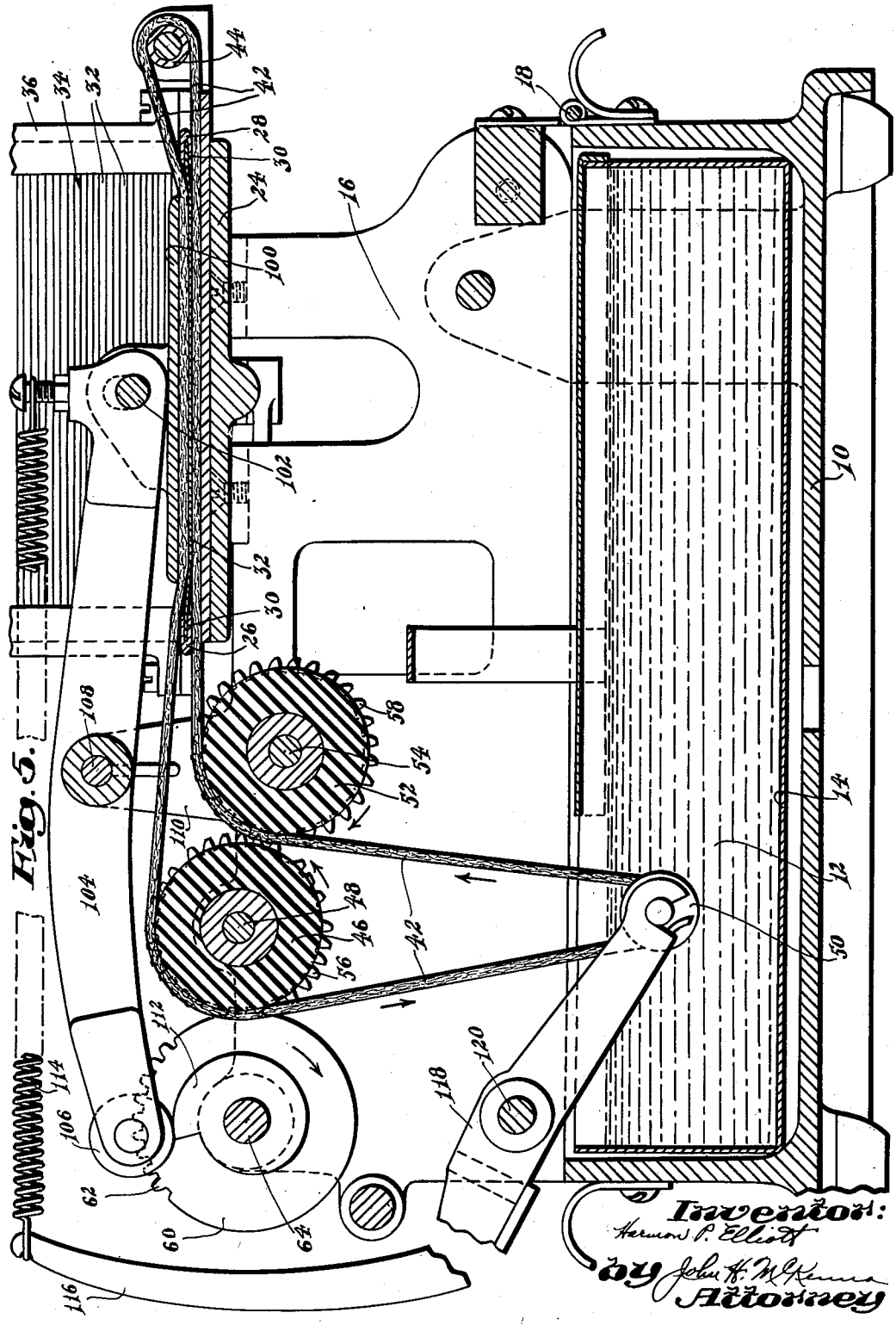

Fig. 5.

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UNITED STATES PATENT OFFICE

2,584,683

COMBINED STENCIL-MOISTENING AND STENCIL-BLOTTING APPARATUS

Harmon P. Elliott, Watertown, Mass.

Application October 17, 1950, Serial No. 190,578

8 Claims. (Cl. 118—58)

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This invention relates to improvements in stencil-moistening apparatus and more particularly to apparatus for moistening the tissue panels of printing stencils preparatory to type-cutting of a name and address, or other information, in the stencil tissues.

Names and addresses, or other information, which are to be borne by the tissue panels of printing stencils of the general variety employed in addressing machines, and other business and statistical machines, are type-cut in the tissue by a typist using a typewriter equipped with special stencil-cutting characters. However, before the tissues can be cut effectively by the type-characters of the typewriter, each tissue panel must be moistened to condition it to take the impressions of the type-characters.

Heretofore, such stencil panels have been moistened in any of various ways, such as by pressing a wetted wick, or the like, against one or both surfaces of a panel. In any case, it has been requisite that the panel be maintained in contact with the wetted element for an appreciable interval of time to enable the moisture to permeate and soften the tissue material, after which a moistened stencil ordinarily has been advanced directly to a position from which the typist may remove it and insert it in her typewriter.

All of the prior stencil-moistening devices, so far as I am aware, have been open to criticism in that the stencil panels have had substantial surface moisture thereon when the stencils have been inserted in a typewriter, and this surface moisture has had objectionable effects upon the typewriter mechanism. It has occasioned gumming of the type-characters after relatively short periods of use of a typewriter for stencil cutting, and has had a generally deteriorating effect upon the typing mechanism.

It is among the objects of my present invention to provide a stencil-moistening apparatus wherein stencils may be moved in succession to a moistening position at which the tissue panel of each stencil in succession may be effectively moistened, and wherein each moistened stencil has objectionable surface moisture removed from its tissue panel before the stencil reaches its position from which it becomes transferred to a stencil-cutting typewriter. According to the invention, each stencil may be advanced to a stencil-moistening position at which its tissue panel becomes effectively moistened, and each stencil moves from the stencil-moistening position to a stencil-blotting position at which its tissue panel is relieved of surface moisture while a next succeeding stencil

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is in the stencil-moistening position. Each stencil advances from the stencil-blotting position to a pick-off position from which it may be transferred to a stencil-cutting typewriter, or the like, with its tissue panel effectively conditioned for the stencil cutting process but free of the excesses of surface moisture which, heretofore, have deleteriously affected the typewriter mechanism.

Another object of the invention is to provide a stencil moistening apparatus wherein both surfaces of the tissue panel of each stencil in succession become effectively moistened at a stencil-moistening position, and wherein the tissue panel of each moistened stencil subsequently is subjected to a blotting process for removing excess surface moisture therefrom prior to transfer of the stencil to a stencil cutting typewriter, or the like.

A further object of the invention is to provide a combined stencil-moistening and stencil-blotting apparatus wherein stencils may be advanced in succession to a stencil-moistening position at which the tissue panel of each stencil becomes effectively moistened between coacting portions of a continuous moistening wick, and wherein each stencil advances thence to a stencil-blotting position at which its tissue panel becomes effectively blotted between coacting portions of a continuous moisture-absorbent wick, whereby the tissue panel of each stencil leaving the stencil-blotting position is conditioned for being cut by stencil-cutting characters of a typewriter, or the like, but is free of objectionable amounts of surface moisture.

Still another object of the invention is to provide a combined stencil-moistening and stencil-blotting apparatus wherein a continuous moisture-laden wick and a continuous moisture-absorbent blotting wick are manually operable respectively into moistening and blotting relationships to the tissue panels of stencils, and wherein the said wicks are advanced intermittently to present different surface portions thereof to the stencil panels in response to successive manual stencil-advancing operations of the apparatus.

Yet another object of the invention is to provide a stencil-moistening apparatus wherein a manually operable stencil-moistening mechanism and a simultaneously operable stencil-blotting mechanism are combined in coacting relationship on a unitary support which constitutes a readily openable hinged unit above a base reservoir which holds a supply of liquid for the stencil-moistening apparatus.

It is, moreover, my purpose and object gen-

erally to improve the structure and efficiency of stencil-moistening devices and more especially to effectively control the amount of surface moisture on the tissue panels of the moistened stencils.

In the accompanying drawings:

Fig. 1 is a top plan view of a stencil-moistening apparatus embodying features of the invention;

Fig. 2 is a side elevation looking at one side of the apparatus of Fig. 1;

Fig. 3 is a side elevation looking at the other side of the apparatus of Fig. 1;

Fig. 4 is an end elevation looking at the right hand end of the apparatus as shown in Fig. 2;

Fig. 5 is a cross-sectional view on line 5—5 of Fig. 1;

Fig. 6 is a side elevation of the lower portions of the apparatus as shown in Fig. 2, with operative portions of the apparatus lifted about a hinge away from a base within which a supply of liquid may be maintained, wall portions of the base and liquid container being broken away;

Fig. 7 is a cross-sectional view on line 7—7 of Fig. 1;

Fig. 8 is a detail cross-sectional view on line 8—8 of Fig. 7; and

Fig. 9 is a view similar to Fig. 8 but showing the parts at a different stage of a cycle of operation.

Referring to the drawings, the novel features of the invention are illustrated as embodied in a manually operable stencil-moistening apparatus wherein a base part 10 is in the form of a receptacle which itself may hold a supply of water 12, or other suitable liquid, but which is herein disclosed as supporting a removable container 14 which holds the liquid 12 and which conveniently may be lifted out of the base receptacle for replenishing the supply of liquid.

The operating mechanism of the illustrated apparatus is mounted on a supporting member 16 which normally rests on the base part 10, above the container 14, but which is hingedly connected at 18 to the upper edge portion of one end of base part 10, whereby it may be swung about its hinge 18 to uncover the container 14, as best seen in Fig. 6. Any suitable releasable fastener may be provided for maintaining the supporting member 16 in its position resting on base part 10, such as the pivoted hook element 20 on the base part 10, coacting with the projecting pin or screw 22 on the supporting member 16.

A table or platform 24 is rigid on supporting member 16 and has mounted thereon a conventional type of stencil tracks 26, 28 within the edge grooves 30 of which the stencils 32 slidably engage as they are pushed along the tracks by any conventional pusher mechanism which engages the lowermost stencil in a supply stack of stencils and pushes it, and the stencils ahead of it in the tracks, one stencil width along the tracks. A supply stack of stencils is represented generally at 34, held in a conventional stencil holder 36, with the upper walls of the track grooves at the stencil holder cut away, as at 38, to permit the lowermost stencil in the stack 34 to rest on the lower walls of the track grooves, in position to be pushed along the tracks in response to an actuation of the pusher plate 40 which may be slidably supported in lateral extensions 26', 28' of the stencil tracks.

A continuous belt type of stencil moistening wick is represented at 42, extending around the relatively small fixed roll 44, which is located to one side of the table 24, and thence across the table and across the stencil tracks 26, 28, with

the lower run of the wick 24 passing above the table but below the tracks and with the upper run of the wick passing above the tracks, as best seen in Fig. 5. The upper run of the wick 42 passes from table 24 over roller 46, which is fixed on shaft 48, and thence downward and around the roll 50 which is immersed in the liquid 12. The wick 42 passes upward from immersed roll 50 around roll 52, which is fixed on shaft 54, and thence toward table 24 on the lower run of the wick. The wick 42 is intermittently manually advanced in the direction of the arrows in Fig. 5 as later will be described.

The supporting member 16 is hollow, as best seen in Fig. 7, and the rolls 46, 52 are mounted in said hollow with their shafts 48, 54 journalled in the side walls 16*a*, 16*b* of supporting member 16, so that the rolls are above the liquid-holding container 14. Roll shaft 48 has gear 56 fixed thereon adjacent to roll 46, and roll shaft 54 has a gear 58 fixed thereon adjacent to roll 52 and adapted to mesh with gear 56. Hence, a counter-clockwise rotation of roll 46 in Fig. 5 will effect a clockwise rotation of roll 52, and the wick 42 thereby will be advanced in the direction of the arrows in Fig. 5.

A suitable wick-advancing rotation of roll 46 is effected by manual rotation of the disk 60 which has a relatively small segment of its periphery provided with gear teeth 62 for meshing with the teeth of gear 56. Disk 60 is fixed on an operating shaft 64 which is journalled in supporting member 16 and which has substantial extent to the right of supporting member 16, as viewed in Fig. 1. A handle 66 is mounted on the extending right-hand end of shaft 64 by means of which the shaft may be rotated. However, the handle has a ratchet notch 68 therein (Fig. 1) for coaction with a pin 70 on shaft 64 and a spring 72 on shaft 64 yieldingly urges the handle toward pin 70, whereby rotation of the handle in one direction results in free rotation of the handle on the shaft but rotation of the handle in the opposite direction results in operative engagement of the shaft pin 70 with handle ratchet notch 68 which results in the shaft rotating with the handle to effect an advance of the moistening wick 42.

As best seen in Figs. 8 and 9, the disk 60 on shaft 64 has its teeth 62 extending over approximately a 45° segment of the periphery of the disk, and the remainder of the disk periphery is plane and has a radius slightly less than the radius of the outer ends of teeth 62. In order to permit the teeth 62 of disk 60 to mesh with the gear 56 and to drive the latter gear during only a 45° portion of each complete rotation of disk 60, certain teeth of gear 56 have their ends cut away on a radius approximating the radius of the plane peripheral portion of disk 60. As shown, groups 74 of three teeth have their ends thus cut away at 76, there being three such groups 74 spaced 120° apart around the periphery of gear 56. Also, one tooth is completely cut away on each side of each group 74 thereby to provide the peripheral spaces 78 on opposite sides of each group 74 of teeth. The teeth of each group 74 permit free rotation of disk 60 when the plane peripheral portion of the disk is opposite one of the groups 74 of teeth, yet one endmost tooth of the group projects enough to be engaged by the leading tooth on disk 60 as the disk rotates counter-clockwise in Figs. 8 and 9, and a peripheral space 78 permits free passage of the leading disk tooth into di-

rect engagement with the said endmost tooth of the group 74. Continued counter-clockwise rotation of disk 60 effects a 120° rotation of gear 56 and a resulting advance of moistening wick 42, after which gear 56 stops with the next succeeding group 74 of teeth opposite the plane peripheral portion of the disk.

Each rotation of disk shaft 64 effects a cycle of forward and back movement of the pusher plate 40, in a well known manner, thereby to push the lowermost stencil 32 of the stack 34 along the tracks 26, 28 to the stencil-moistening position between the upper and lower runs of the moistening wick 42. As represented, the pusher plate 40 is actuated by a bell-crank lever which is pivotally mounted at 80 on a projecting part of table 24. One arm 82 of the bell-crank lever is pivotally connected at 84 to one end of a short link 86 whose other end is pivotally connected at 88 to the under side of pusher plate 40. The other arm 90 of the bell-crank lever has a ball-in-socket connection at 92 to one end of an adjustable link 94 whose other end has a ball-in-socket connection at 96 to a crank arm 98 which is fixed on one end of the disk shaft 64. Each complete rotation of shaft 64 effects a complete cycle of forward and back movement of pusher plate 40.

As each stencil 32 is moved to moistening position between the upper and lower runs of the moistening wick 42, a presser-plate 100 moves downward to clamp the tissue portion of the stencil between the upper and lower runs of wick 42 thereby to effectively moisten the tissue while it is held clamped for an appreciable period of time. The presser-plate 100 is pivotally mounted at 102 at one end of a lever 104 which has a roller 106 at its opposite end and which is pivotally mounted intermediate of its ends on the pivot shaft 108 which is supported in suitable bearings 110 which project upwardly from supporting member 16. The roller 106 engages a cam 112 on disk shaft 64, and a spring 114 has one end connected to lever 104 at the region of its connection to the presser-plate and has its other end connected to the upwardly extending arm 116 of a bifurcated lever 118 which is pivotally mounted on shaft 120 between the side walls of the supporting member 16. The furcations of lever 118 extend obliquely downward into the liquid container 14, and the wick roll 50 is mounted between their lower ends, so that the portion of wick 42 which extends around roll 50 is immersed in the liquid 12. Hence, the spring 114 serves the double purpose of maintaining lever roller 106 constantly in engagement with cam 112, and of maintaining the moistening wick 42 always operatively taut due to the constant resilient pull of spring 114 tending to swing roll 50 clockwise about pivot shaft 120, as viewed in Fig. 5. Cam 112 is designed to actuate the presser-plate 100 into clamping engagement with a stencil tissue during the final ten or fifteen degrees of angular travel of disk 60 in each complete rotation of the disk 60, this clamping occurring after an advance of wick 42 has been accomplished and after the teeth 62 of disk 60 have become disengaged from the teeth of gear 56.

Ordinarily the stencil-cutting typist, when ready for a moistened stencil, rotates disk 60 one complete rotation by means of handle 66, thereby to advance a moistened stencil out of moistening position and to advance a next succeeding stencil into moistening position. Each rotation of disk 60 stops with the newly advanced stencil clamped by the presser-plate 100, as in Fig. 5, and the stencil continues clamped between the runs of the moistening wick 42 while the typist is cutting a name and address, or other information, on the tissue of a preceding moistened stencil.

Inasmuch as objectionable surface moisture is on the surface or surfaces of the tissue of stencils as they advance out of moistening position, it is a feature of the invention that each stencil is advanced along the tracks 26, 28 from the moistening position between the upper and lower runs of moistening wick 42 directly into a blotting position wherein the advanced moistened stencil is clamped between upper and lower runs of an absorbent blotting wick 122 which has continuous strip form and whose extent is entirely outside of the liquid container 14, as best seen in Figs. 1, 2, 4 and 7. The blotting wick 122 extends around the small diameter roll 124 which is comparable to roll 44 for moistening wick 42, and has upper and lower runs extending across table 24 and tracks 26, 28 so that an advancing stencil may enter between them. The upper run of wick 122 passes from table 24 over roll 126 which is fixed on the projecting end of shaft 48, outward of the side walls 16b of supporting member 16. The wick passes from roll 126 downward and around the roll 128 and then upward over roll 130 and toward table 24. Roll 130 is fixed on the projecting end of shaft 54, outward of the supporting member 16. Roll 128 is mounted between the furcations of a bifurcated lever 132 which is pivotally supported on the projecting end of pivot shaft 120, outward of the supporting member 16. The bifurcated lever 132 has the upwardly extending arm 134 to whose upper end one end of a spring 136 is secured, the other end of the spring being connected at 138 to one end portion of a lever 140 which is pivotally mounted on the projecting end of pivot shaft 108, outward of the supporting member 16. A presser-plate 142 is pivoted at 144 on this same end of lever 140, for clamping a stencil between the upper and lower runs of the blotting wick 122. The other end of lever 140 is equipped with a roller 146 which is held by the spring 136 constantly in engagement with a cam 148 on the projecting end portion of the operating shaft 64, between supporting member 16 and handle 66. Spring 136, in addition to maintaining lever roller 146 in engagement with cam 148, maintains blotting wick 122 constantly operatively taut, due to its constant pull tending to swing wick roll 128 clockwise about pivot shaft 120.

It will be apparent from the foregoing description that each complete rotation of disk 60 by means of the handle 66 actuates pusher-plate 40 to push the lowermost stencil 32 in stack 34 along the stencil tracks 26, 28 to the stencil-moistening position between the upper and lower runs of the moistening wick 42. Simultaneously, the preceding stencil is pushed along the tracks from the moistening position to the blotting position between the upper and lower runs of the blotting wick 122, and a stencil which had been in the blotting position will deliver to the pick-off position on table projection 25, from which a typist conveniently may lift it and place it in her stencil-cutting typewriter. However, assuming that the rotation of disk 60 is to start while the presser-plates 100, 142 are in clamping relation to the wick and the stencils at the moistening and blotting positions, the initial rotation

of disk 60 results in lever rollers 136, 146 dropping from the high to the low portions of cams 112, 148 with resulting lifting of the presser-plates 100, 142 before the pusher-plate 40 engages a stencil to push it along the tracks. After the plates 100, 142 have been lifted, a considerable portion of the further rotation of disk 60 merely actuates the stencil pusher-plate 40, until the toothed segment of disk 60 meshes with gear 56, at which time both of the wicks 42 and 122 are advanced to bring fresh portions thereof under the presser-plates 100, 142, following which the lever rollers 136, 146 again ride onto the high portions of the cams 112, 148 to effect closing of the presser-plates 100, 142 into clamping relation to the wicks and newly advanced stencils. Disk 60 stops with the presser-plates in this clamping relation to the wicks and stencils, and, ordinarily, it remains stopped for an appreciable interval of time while the typist cuts a name and address in a previous stencil. This time interval is sufficient for the tissue of the stencil at the moistening position to become effectively moistened, and meanwhile the stencil at the blotting position is effectively relieved of excess surface moisture. Hence, when the typist is ready for another stencil, a handle rotation of disk 60 results in delivery of a stencil whose tissue is effectively moistened yet is free of objectionable surface moisture.

It is intended that the patent shall cover, by suitable expression in the appended claims, whatever features of patentable novelty exist in the invention disclosed.

I claim as my invention:

1. Apparatus for moistening stencils, comprising a support, means for guiding stencils in succession along the support, a stencil-moistening element at a stencil-moistening position along the support, a stencil-blotting element at a stencil-blotting position along the support, actuating mechanism for advancing stencils in succession along said guide means thereby to advance each stencil to said stencil-moistening position and thence to said stencil-blotting position, means for pressing said stencil-moistening element into engagement with a stencil while the stencil is in said stencil-moistening position thereby to apply moisture to the stencil, and means for pressing said stencil-blotting element into engagement with the moistened stencil after it has been advanced to said stencil-blotting position thereby to remove excess surface moisture therefrom.

2. Apparatus for moistening stencils, comprising a support having a stencil-moistening position and a stencil-blotting position therealong, means for guiding stencils in succession along the support to said stencil-moistening position and thence to said stencil-blotting position, a stencil-moistening element at said stencil-moistening position, a stencil-blotting element at said stencil-blotting position, and actuating means having a cycle of operation for advancing the stencils one stencil width along said guide means and for subsequently pressing said stencil-moistening and stencil-blotting elements simultaneously into engagement respectively with a stencil at the stencil-moistening position and with a stencil at the stencil-blotting position, whereby each moistened stencil has excess surface moisture removed from it at said stencil-blotting position.

3. Apparatus for moistening stencils, comprising a support, a stencil track on the support along which stencils are adapted to be moved in succession first to a stencil-moistening position and then to a stencil-blotting position, means for applying moisture to each stencil while it is in said stencil-moistening position, mechanism for advancing each moistened stencil from said stencil-moistening position to said stencil-blotting position, and a moisture-absorbent blotter at said stencil-blotting position for removing excess surface moisture from each moistened stencil while it is in said stencil-blotting position.

4. Apparatus for moistening stencils, comprising a support, a stencil track on the support along which stencils are adapted to be moved in succession first to a stencil-moistening position and then to a stencil-blotting position, a wick in the form of a continuous belt extending across the support at said stencil-moistening position, a moisture-absorbent element in the form of a continuous belt extending across the support at said stencil-blotting position, means for holding a supply of liquid, said wick having extent into said liquid, and said moisture-absorbent element extending clear of said liquid, actuating means for advancing stencils along said track, said track entering between upper and lower runs of said wick and said moisture-absorbent element, and means for clamping a stencil at the stencil-moistening position between said upper and lower runs of said wick thereby to apply moisture to the clamped stencil, and means for simultaneously clamping a moistened stencil at the stencil-blotting position between said upper and lower runs of said moisture-absorbent element thereby to remove excess surface moisture therefrom.

5. Apparatus for moistening stencils, comprising a support, a stencil track on the support along which stencils are adapted to be moved in succession first to a stencil-moistening position and then to a stencil-blotting position, means for manually advancing the succession of stencils one stencil width along said track at selective time intervals, a moistening wick at said stencil-moistening position, a relatively dry blotting element at said stencil-blotting position, and means operative following each said advance of the succession of stencils for pressing said wick and said blotting element simultaneously into engagement respectively with the stencil in said stencil-moistening position and the stencil in said stencil-blotting position.

6. Apparatus for moistening stencils, comprising a support, a stencil track on the support along which stencils are adapted to be moved in succession first to a stencil-moistening position and then to a stencil-blotting position, a container below said support for holding a supply of liquid, a continuous wick extending on a course which leads through said liquid and across said support at said stencil-moistening position, a continuous relatively dry blotting element extending on a course which avoids said liquid and leads across said support at said stencil-blotting position, means for advancing said succession of stencils one stencil width at selective time intervals and for simultaneously advancing said wick and said blotting element, thereby to bring fresh portions of the wick and the blotting element into coacting relation with each stencil newly advanced to said stencil-moistening and said stencil-blotting positions, and means for pressing said wick and said blotting element simultaneously into contact with stencils respectively at the stencil-moistening and the stencil-blotting position following each said advance of the succession of stencils.

7. Apparatus for moistening stencils, compris-

ing a hollow base adapted to hold a supply of liquid, a support mounted on the base and having hinged connection thereto whereby the support may be swung on said hinge to uncover the hollow of the base, a stencil track on the support for guiding stencils first to a stencil-moistening position and then to a stencil-blotting position, a moistening wick at said stencil-moistening position and having extent into said liquid, a blotting element at said stencil-blotting position and completely avoiding said liquid, means for advancing the succession of stencils one stencil width along said track at selective time intervals, and presser means operative following each advance of the stencils for pressing said wick and said blotting element simultaneously into engagement with stencils respectively at said stencil-moistening position and at said stencil-blotting position.

8. Apparatus for moistening stencils, comprising a support having a stencil-moistening position and a stencil-blotting position thereon, a moistening wick at the stencil-moistening position, a blotting element at the stencil-blotting position, means for moving stencils in succession to said moistening and blotting positions, and presser means for clamping said wick against each stencil arriving in the stencil-moistening position and for clamping said blotting element against each stencil arriving in the stencil-blotting position.

HARMON P. ELLIOTT.

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