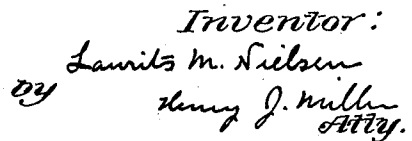


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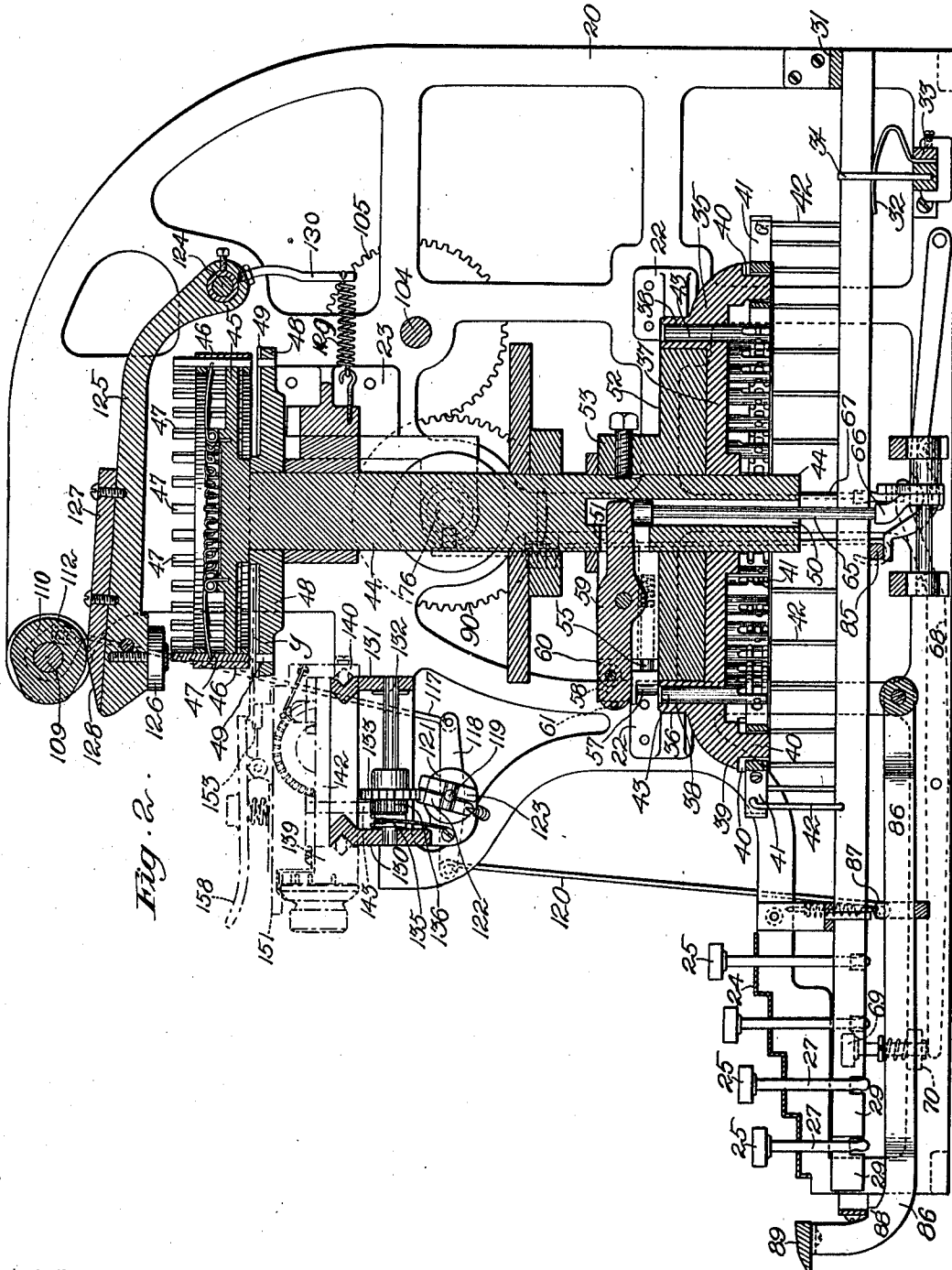


L. M. NIELSEN.
STENCIL CUTTING MACHINE.
APPLICATION FILED JUNE 30, 1908.

1,003,939.

Patented Sept. 19, 1911.

4 SHEETS—SHEET 2.

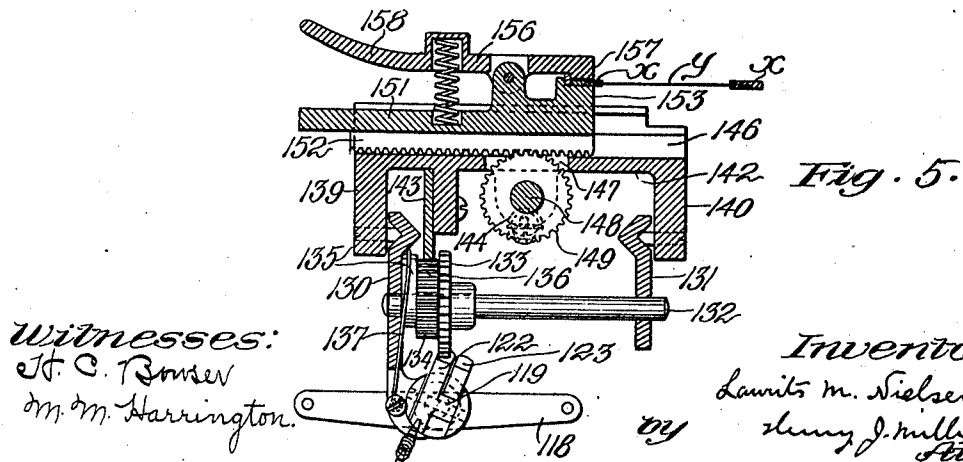


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4 SHEETS—SHEET 3.



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4 SHEETS-SHEET 4.

Fig. 6.

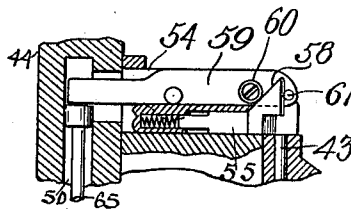
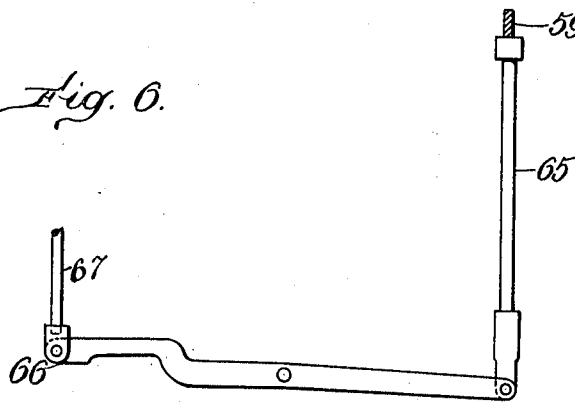


Fig. 7.

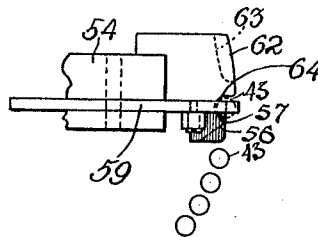


Fig. 8.

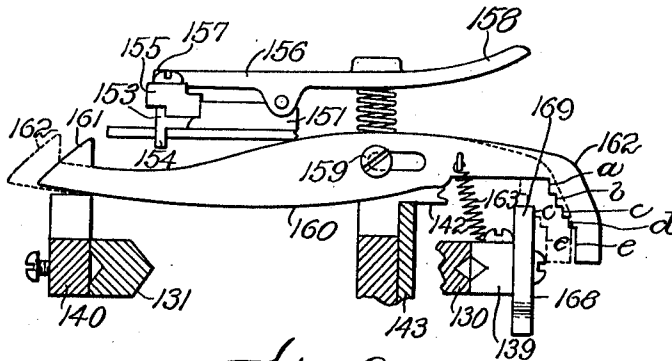


Fig. 9.

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UNITED STATES PATENT OFFICE.

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STENCIL-CUTTING MACHINE.

1,003,939.

Specification of Letters Patent. Patented Sept. 19, 1911.

Application filed June 30, 1908. Serial No. 441,236.

To all whom it may concern:

Be it known that I, LAURITS M. NIELSEN, of Roslindale, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stencil-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in machines for cutting out or removing portions of a strip or card of suitable material to form characters in said strip or card.

One object of the invention is to so construct a machine of this nature that complementary male and female dies may be utilized in a power driven machine controlled through and by a series of keys.

Another object of the invention is to so construct a power operated stencil cutting machine that the positioning of the dies may be effected automatically as a sequence to the operation of a key and that the application of pressure to the die results from the positioning of the die.

Another object of the invention is to so construct a power operated stencil cutting, or similar machine, that the tool carrying head, normally at rest, may be automatically connected with operating mechanism through the actuation of means whereby the movement of said head is arrested.

Another object of the invention is to so construct a stencil cutting or similar machine having a movable tool carrying head normally at rest and a pressure applying mechanism that as a result of bringing a stop device into position to arrest the movement of said head mechanism is brought into action to move the head and the pressure applying mechanism is brought into action through means moving with that acted upon by the stop device.

Another object of the invention is to automatically limit the operation of the line spacing mechanism.

Another object of the invention is to improve the construction of the work carrying means.

Other objects of the invention will appear from the following description.

The invention consists in such peculiar

features of construction and combinations of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents a front elevation of the improved stencil cutting machine, parts of the same being broken away. Fig. 2, represents a vertical sectional view of the machine taken on line 2—2 Fig. 1. Fig. 3, represents an enlarged plan view of the work supporting carriage and parts related thereto removed from the machine. Fig. 4, represents a front elevation thereof parts of the same broken away. Fig. 5, represents a sectional view taken on line 5—5, Fig. 3. Fig. 6, represents a detail of parts of the pressure clutch actuating mechanism. Fig. 7, represents a sectional view taken on line 7—7 Fig. 1 of some of said pressure clutch actuating mechanism. Fig. 8, represents a view in plan section taken on line 8—8 Fig. 1 of some of said parts. Fig. 9, represents a sectional view taken on line 9—9 Fig. 3, to show the means for controlling the advancement of the work carrier.

Similar numbers of reference designate corresponding parts throughout.

The machine described herein is primarily designed to receive a stencil blank preferably comprising a frame having a strip of comparatively thin material and to present said material progressively to the action of dies brought to suitable position with relation to said material and then actuated through pressure mechanism to successively force a selected series of said dies through the material to form therein printing letters or characters, means being provided to feed said material intermittently forward in the direction of the line of characters to be cut therein after the operation thereon of each die, and to feed said blank transversely at the shifting of said carriage.

As shown in the drawings in its preferred form the mechanism is mainly supported by the side frames 20 and 21 and the members carried by said frames, such members 22 and 23 acting as braces between the side frames as well as supports for operating mechanism. At the lower front portion of the machine is mounted on extensions of the side frames, the keyboard 24 furnished with a series of keys 25—25 similar to the usual type writer keys arranged in suitable order and slidable vertically in said keyboard 24,

the number of said keys being equal to the number of letters, numerals and characters of which dies are provided, with additional keys if desired. Each of said keys has a stem 27 as the case may be, which is supported by a lever 29—29 extending rearwardly to and beneath the cross bar 31, extending between frames 20 and 21, and pressed upward by the spring 32 mounted on the cross bar 33 between the frames 20 and 21, on which bar is secured the pins 34—34 which form guides for the levers 29—30.

Formed in part with or secured to the cross member 22 is the bearing frame 35 having the annular wall 36 embracing a bearing of large diameter of which the wall 37, axially perforated, forms the step. Said wall 36 has a series of vertical bearings 38—38 and from said wall 36 depends the annular flange 39 having studs 40—40 to which are respectively pivoted the short levers 41—41 which are respectively connected to their related levers 29—29 by the connecting rods 42—42. Pivotally mounted at the inner ends of the levers 41—41 are the stop pins 43—43 which are slidably engaged in the vertical bearings 38—38 of the wall 36.

Journalled in the axial perforation of the wall 37 is the shaft 44 which is also journalled in a bearing of the cross member 23 and has, at its upper end, the circular plate 45 furnished with the annular rim 46 having a series of vertical guides or slots in which the spring lifted male dies 47—47 are slidable. Secured to the shaft 44 beneath the plate 45 is the plate 48 furnished with a series of female dies 49—49 which are complementary to the dies 47—47 and register therewith. At its lower end the shaft 44 has, the axial bore 50 which at its upper portion communicates with the exterior of said shaft by the slot 51 and at this lower portion of said shaft 44 is secured the member 52 rotatably supported by the step plate 37 within the bearing formed by the wall 36. On the member 52, extending outward from its collar 53 is the bracket 54 having a bore in which is radially slidable the spring pressed latch 55, having the cam surface 56 and the concave step 57 both in the lines of the pins 43—43 and the vertical cam 58. In said bracket 54 is pivoted the lever 59 which at one end extends through the slot 51 of the shaft 44 and at the other end has the anti friction roller 60 bearing against the cam surface 58 of the latch 55, and the pin 61 engaging the outer end of said latch. Adjacent the outer end of the bracket 54 is the stop plate 62 which is secured to the member 52 and has the clearance 63, above the line of the pins 43—43 and the stop shoulder 64 which latter is so positioned that it may be intercepted by any one of said

pins 43—43 when such pin is in the raised position.

The inner end of the lever 59 bears on the button at the upper end of the rod 65 which is slidably mounted in the bore 50 of shaft 44 and rests at its lower end on the lever 66, pivotally mounted in the machine and connected at its outer end with the clutch actuating rod 67.

Pivotally mounted on the side frame 20 is the lever 68 one end of which is engaged beneath the outer end of the lever 66 and connects with the bar 87 while the other end is designed to be depressed by means of the spring lifted key 69 slidable in the perforated ear 70 extending from said frame 20.

On the shaft 44 is mounted the friction plate 75 and above the upper surface of this plate is the drive shaft 76 which is journalled in bearings depending from the frame member 23 and is driven in any suitable and well known manner. On this shaft 76 is rotatably mounted the friction drive wheel 77 the periphery of which contacts with the friction plate 75 and is designed to drive the same when the clutch member 78 of said pulley is engaged by the similar member 79 of the sleeve 80 slidably mounted on said shaft and rotatably thereon actuated positively in a direction toward the friction pulley by the lever 81, pivotally mounted on the frame 20, and in the disengaging direction by the spring 82 on said shaft 76. The lever 81 is actuated by the rod 84 which is connected with the bar 85 which extends across the machine beneath all of the levers 29—29 whereby the depression of any of said levers effects the depression of said cross bar 85 and the actuation of the lever 81 through rod 84.

Mounted to swing between the side frames 20—21 is the frame 86 having the cross bar 87 beneath the levers 29—29 and the tooth 88 adapted to be intercepted by a fixed part of the front end of the machine and furnished at its outer end with the presser bar 89.

Rotatably mounted on the shaft 76 is the gear 90 having the pin 91 which is designed to be engaged by the similar pin 92 of the clutch member 93 slidably mounted on said shaft 76 and having the peripheral groove 94 furnished with the cam 95 which, when the rod 67 is elevated, bears against said rod and moves laterally to engage its pin 92 with the pin 91 of the gear 90 and to hold such parts engaged for such period in the rotation of the shaft 76 as is determined by the annular extension of said cam 95, which is usually short. The release of the clutch members being effected by the spring 97 when the rod 67 is disengaged from groove 94.

In the frames 20 and 21 is journalled the shaft 104 having at one end the gear 105, which meshes with and is driven by the

gear 90, and, at the other end, the crank 106 from which motion is transmitted by the rod 107 to the crank 108 of the shaft 109 journaled in the upper portions of the frames 20 and 21 and having the cam 110, the stop pin 111 and the crank 112. The retraction spring 113 is mounted on this shaft 109 and bears against the collar 114 thereon and against the pin 115 extending from the frame 20 while the rocking action of the shaft 109 under the retraction action of said spring is limited by the pin 116 on the frame 21 which pin 116 is designed to intercept the pin 111.

To the pin of the crank 112 is pivoted the rod 117 which connects with one arm of the lever 118 on the shaft 119 journaled in bearings in the machine the other arm of said lever 118 being connected by the rod 120 with the depressible frame 86. On the shaft 119 is the member 121 having the pivoted spring retracted pawl 122 and the fixed finger 123.

At the rear upper portions of the frames 20 and 21 is journaled the shaft 124 on which is secured the pressure applying arm 125 which extends above the position at which pressure is designed to be applied to the male dies 47 and is furnished at such point with the adjustable pressure block 126 and, at its upper portion with the wearing plate 127 located in the path of the cam 110 and having the inclined face 128. Retraction of the outer end of the pressure arm 125 after the higher part of the cam 110 has passed over the same, is effected by the spring 129 connected with a fixed part of the machine and with the pin 130 extending from the pivoted portion of the pressure arm 125.

On brackets extending from the front portions of the frames 20 and 21 are fixed the ways 130 and 131 connected by cross members. In said ways is journaled the shaft 132 having thereon the ratchet 133, the gear 134 and the pivoted lever arm 135 which arm carries the rotatable pinion 136, to mesh with the gear 143, and is pressed upward by the spring 137 secured to a fixed part of the machine. In order to limit the degree of rotation of the ratchet 133 the detent 138 is pivoted to a fixed part of the machine in position to intermittently engage the teeth of said ratchet in its rotation.

Slidably mounted on said ways 130—131 is a carriage having the side members 139 and 140 connected by the cross members 141 and 142 which support the rack 143 in position to engage with the teeth of the pinion 136. The spring 144 connected with said carriage and with a fixed cross member of the ways 130—131 tends constantly to draw said carriage toward the stop 145 adjustably mounted on said fixed member while such motion of the carriage is normally prevent-

ed, while the machine is at rest, preferably by the fixed finger 123 of the shaft member 121 and the intermittent movement of said carriage is permitted by the vibration of the shaft 119 and its member 121 whereby as the fixed finger 123 thereof disengages a tooth of the ratchet 133 the spring retracted finger 122 engages said tooth and is swung, against the action of its spring to permit the advance rotation of said ratchet the distance of one tooth while on the backward swing of the member 121 the fixed finger engages the tooth of ratchet 133 until then held by the finger 122.

The upper portion of cross member 142 of the carriage is formed as a guide 146, Fig. 5, which communicates with the lower portion of said member by the opening 147 furnished at its sides with pendant ears in which, and in a bearing of the cross member 143, is journaled the shaft 148 having the pinion 149, rotatable in the opening 147, and the ratchet 150. Slidably mounted in the guide 146 is the base member 151, of the work carrier, which has the rack 152, engaged with the pinion 149, and the laterally extending jaw 153 furnished with the depending plate 154 and the stop 155. Pivotaly mounted on the member 151 is the spring closed gripper member 156 having the transversely extending lip 157 coinciding with the jaw 153, and the handle 158. At one side of the member 151 is mounted the stud 159 on which is slidable the slotted plate 160 having the hook end 161 and the depending end 162 furnished with a series of steps *a—b—c—d* and *e* on its inner edge. This plate 160 is connected by the retraction spring 163 with a fixed part of the carriage.

Journaled in bearings in the carriage member 142 is the spring retracted shaft 164 having at its outer end the depending hook lever 165 and furnished with the socket lever 166 having the slidable spring pressed pawl 167 adapted to engage the ratchet 150, when swung downward, to effect intermittently the rotation of said ratchet, its shaft 148 and the pinion 149 to advance the work carrier a certain distance, preferably the proposed distance between lines of the stencil cutting, at each swing of the hook lever 165. On the carriage member 139 is pivotally mounted the controlling plate 168 having at one end the stop 169 and at the other the pin 170, the cam 171 and the spring 172 which connects this end of said plate with a fixed part of the carriage and acts to draw this end of said plate and its cam 171 upward. This upward movement of the cam end of said plate 168 is limited, when the full movement of this plate under action of spring 172 is desired by the periphery of the dial plate 173 which intercepts the pin 170. The dial plate 173 is rotatably mounted on a stud extending from

the carriage member 139 and is furnished with a series of pins 174—175 which, by rotating said dial by means of its handle 176 may be brought to bear against the cam 171 of said plate 168 and, as said pins are fixed at different distances from the axis of said dial plate, this end of the plate 168 may be depressed to correspond with the radial location of said pins and the stop 169 of said plate 168 correspondingly elevated whereby the edge of said stop may be positioned opposite any one of the steps *a*—*b*—*c* etc. of the hook plate 160. In order to indicate the point of adjustment of the dial the pointer 177 is fixed on the carriage member 139 adjacent said dial.

The stencil blank shown herein comprises a card board frame *x* having the strip of thin material, preferably paper, supported thereby and is similar to stencil blanks well known in the art. This blank is placed in position by separating the lip 157 from its jaw 153 by pressing downward on the handle 158, and inserting one longitudinal edge of the frame *x* of said blank between said jaw and said lip with the end of said frame bearing against the stop 155. The dial 173 is now rotated by means of its handle 176, to effect the swinging of the plate 168 to raise or lower its stop 169 and to bring the upper edge of said stop into registration with one of the steps *a*, *b*, *c*, *d*, *e* of the forward feed-controller member 162. This adjustment is determined by the number of lines of characters to be cut in the material *y* as, if but a single line of characters is to be cut the dial 173 is so rotated that one of its pins 174 or 175 bears on and depresses the cam end of the plate 168 to raise the stop 169 to a point where it will engage the step *a*, of member 162, when the feed controller 160 is moved transversely of the stop 169. If three lines of characters are to be cut in the material *y* the stop 169 is brought into registration with step *c* of the member 162. The carriage 139—140 is then moved along laterally, by repeatedly pressing the bar 89 to effect, through connections therewith, the vibration of the member 121 and its pawl 122 and finger 123 to intermittently release the detent mechanism and to permit the spring 144 to retract and draw said carriage transversely of the machine until the free edge of the frame *x* and a portion of the material *y* is positioned between the members 45 and 48 and the material *y* is between the dies 47 and 49.

If now pressure is applied to any one of the keys 25—25 to depress its lever 29 and effect the sliding upward of its related pin 43 a series of operations results as follows. It being of course understood that the shaft 76 is under rotation at this time.

The depression of any one of the levers 29 effects the depression of the bar 85 which

draws down the rod 84 to swing forward the lever 81 and to slide the clutch member 80 toward the friction drive wheel 77 whereby said wheel is driven and the head, comprising all the members carried by the shaft 44, is caused to rotate in the direction indicated by the arrow in Fig. 1 by the frictional engagement of the wheel 77 with the disk 75 and as said rotative motion continues the projecting pin 43 intercepts the stop 64 of the plate 62 at which time the dies 47 and 49 represented by the particular key 25 which has been depressed are positioned respectively above and below the material *y* at the point at which it is desired to operate by means of said dies.

Slightly prior to the interception of the stop 64 by the projecting pin 43 the cam surface 56 of the latch 55 meets said pin 43 and, riding against the same, said latch 55 is pressed inward against the action of its spring and the cam 58 of said latch, in such inward movement, bears on the roller 60 of the lever 59 and said roller riding up the incline of said cam lifts the outer end of the lever 59 and effects the depression of the inner end thereof and the rod 65, on the enlarged upper end of which said lever 59 rests, and the actuation of the lever 66 to move the rod 67 upward into engagement with the cam 95 of the clutch member 92 whereby said clutch member is moved into engagement with the clutch member 91 of the gear 90 to drive said gear and its shaft and, through connections therewith, to effect the rocking of the shaft 109 and the pressing downward of the arm 125 whereby pressure is applied to the die 47, therebeneath, to force the same down through the material *y* and, preferably partially into the related die 49. It is to be noted that the pressure applying mechanism operates rapidly after the actuation of the lever 59 by any one of the pins 43 so that pressure is applied to the particular die 47 approximately at the time the latch 55 moves past the particular pin 43 and moving outward locks said pin in position between said latch and the stop 64.

Immediately after the retraction of the pressure mechanism and the lifting of the die 47 acted upon thereby the crank 112 acts through the rod 117 to vibrate the lever 118 and rock the shaft 119 to release the finger 123 from the tooth of the ratchet 133 to permit said ratchet to rotate the distance of one tooth and the carriage to advance a like degree, as has been described above.

Spacing between words or characters, when desired, can be effected by pressing down the bar 89 which, through its connected rod 120, actuates the escapement to permit the carriage to advance.

After a series of letters, characters or groups thereof, have been cut in the material *y*, to form one line, the carriage is

shifted laterally by pressure applied to the shift lever 165 whereby the carriage is moved back to the desired position and said lever is swung to rock its shaft 164 and, through the pawl 167, to partially rotate the ratchet 150 and its shaft 148 and pinion 149 and to thus advance the member 151 inward toward the shaft 44 a predetermined distance. After the desired number of lines of words or characters has been cut in said material γ this inward movement of the carriage is prevented by the controlling member 160 and the stop 169 for, in such movement of the carriage, the depending plate 154 of the jaw 153 engages the hook 161 of the member 160 and draws said member along but, when any one of the steps a , b , c , d or e of the depending portion 162 of said member is engaged by the stop 169 further inward motion of the member 160 and consequently of the carriage is prevented.

When it is desired to repeat a letter or character key 69 is depressed and its lever 68 operates the escapement, by means of its connection with the bar 85 to allow the advancement of the carriage and approximately simultaneously therewith, moves the rod 67 upward into engagement with the groove of the clutch member 93.

While I have herein shown and described certain specific combinations or groups of mechanical elements it is to be understood that I do not desire to limit this invention except as herein claimed. It is also to be understood that any suitable tools may be substituted for the dies herein shown and that the tool carrying head may represent any operative device of the general nature described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent.

1. The combination with a tool carrier movably mounted and having a friction plate, and driving means having a normally disconnected friction disk in contact with said friction plate, of means for connecting said driving means with said disk, and key operated mechanism for actuating said connecting means.

2. The combination with a tool carrier movably mounted and furnished with a stop and a latch having a cam end, and normally disconnected means for moving said carrier, of a stopping member movably mounted, and means for moving said member into the path of said latch and for connecting the driving means for said carrier.

3. The combination with a tool carrier movably mounted and furnished with a stop and a spring actuated latch having a cam, and normally disconnected means for moving said carrier, of a stopping member movably mounted, means for moving said stop-

ping member into the path of the latch cam and for simultaneously connecting the driving means for said carrier.

4. The combination with a rotatable tool carrier furnished with fixed stop and spring resisted cam, and normally disconnected means for rotating said carrier, of stopping means mounted to move into intercepting relation with said cam and adapted to receive said fixed stop, and means for moving said stopping means to connect the rotating means for said carrier.

5. The combination with a rotatable tool carrier furnished with a fixed stop and a spring resisted cam extending outward therefrom, and normally disconnected friction driving means for said carrier, of a pin slidably mounted in a guide below the path in which said cam and stop move, means for moving said pin upward into said path whereby the rotation of said carrier is resisted as said cam moves over said pin and said pin becomes seated between said cam and said stop when the motion of said carrier is stopped, and mechanism operated by said pin moving means for connecting said friction driving means.

6. The combination with a rotatable tool carrier furnished with a fixed stop and a spring resisted cam movably mounted thereon, and clutch controlled friction driving means for said carrier, of a pin movably mounted beneath the path in which said stop and said cam move, means for moving said clutch, a lever mechanism for operating said pin and for actuating said clutch moving means.

7. The combination with a rotatable carrier normally at rest, and having a radially extending stop, and a clutch connected friction drive for said carrier, of a lever for moving said clutch to the driving position, means for actuating said lever, a stop pin slidably mounted, and a key operated lever for actuating said stop pin and for simultaneously operating said clutch lever actuating mechanism.

8. The combination with a tool carrier rotatably mounted and furnished with a series of movable tools, clutch connected driving means for said carrier, means for actuating one of said tools, operating means therefor, movable means carried by said tool carrier for actuating said operating means, of mechanism for operating said movable means for actuating said clutch and for ultimately stopping said carrier.

9. The combination with a tool carrier rotatably mounted, normally disconnected means for rotating said carrier, a tool actuator, operating means therefor, and means on said carrier for setting in motion said operating means, of stopping means for said carrier adapted to actuate said means for starting the operating means for the tool

actuator and for connecting the means for rotating said carrier substantially as described.

10. The combination with a rotatable tool carrying head, a pressure device, operating means for said device including a clutch connection, mechanism for actuating said clutch including a lever pivotally mounted on said head, and a spring resisted member slidably mounted and having a cam operatively related to said lever, of means for driving said head, and stopping means therefor adapted to act on said slidable member, as described.

11. The combination with a rotatable tool carrying head, a pressure device, operating means for said device including a clutch connection, mechanism for actuating said clutch including a lever pivotally mounted on said head and having a cam engaging member, and a spring resisted member slidably mounted on said head and having a cam bearing against the member of said lever, of driving means for said head, and means movably mounted and adapted to be projected to engage and operate said slidable member, as described.

12. The combination with a rotatable tool carrying head, a pressure device, operating means for said device including a clutch connection, mechanism for actuating said clutch including a lever pivotally mounted on said head and having a cam engaging bearing, and a spring resisted member slidably mounted on said head and having a cam engaged with the bearing of said lever and a second cam face projecting beyond the edge of said head, of means for driving said head, means movably mounted and adapted to be projected into the path of said second cam to actuate the same, and means for operating said cam actuating means.

13. The combination with a rotatable tool carrying head, a pressure device, operating means therefor, controlling means, means for actuating said controlling means including a lever pivotally mounted on said head, actuating means for said lever having a cam face extending outward from said head, and a stop fixed on said head adjacent said lever actuator, of clutch driving means for said head, stopping means therefor adapted when projected to engage said cam face to resist the motion of the head and to operate said lever actuator and to thereafter engage said fixed stop and become locked in position by said actuator, and operating means for said stopping means connected with the clutch driving means.

14. The combination with a rotatable tool carrying head, a pressure device, operating means therefor including a clutch, means for actuating said clutch including a lever pivotally mounted on the head, a cam for

actuating said lever, a stop on said head adjacent said lever actuating cam, and driving means for said head including a clutch, of stopping means for said head adapted when projected to engage said lever actuator and fixed stop in succession, key operated means for projecting said stopping means, and mechanism operated by said stopping device operating means for actuating the clutch of the head driving means to the engaging position.

15. The combination with a head rotatably mounted and having an axial bore, a series of dies movably mounted on said head, a pressure device adapted to act on any one of said dies, operating means for said pressure device including a clutch connection, actuating means for said clutch including a rod movable in said bore and driving means for said head, of a lever pivotally mounted on said head and bearing on said rod and having a bearing, a spring resisted rod slidably mounted on said head and having a cam, working against the bearing of said lever, and a second cam extending beyond the rotatable head, a series of pins slidably mounted below the path of said second cam, and key operated means for moving one of said pins into said path, as described.

16. The combination with a tool carrying head, means for moving the same, stopping means therefor, means for actuating one of the tools, driving means therefor including a clutch connection, and means actuated through the stopping of the head for operating said clutch, of key operated means for actuating said clutch independently of the stopping means.

17. The combination with a rotary head, tools movably mounted thereon, driving means, stopping means, and tool actuating means operated through the stopping means and including a clutch, of key operated means for actuating said clutch independently of the stopping means, a detent controlled work support movably mounted, and connections between said detent mechanism and the auxiliary clutch operating means.

18. In a stencil cutting machine the combination with a carriage slidably mounted, a work holder mounted to slide transversely of the carriage, and means for moving said work holder, of adjustable stopping means for limiting such movement comprising a stop plate movably mounted on the carriage and an engaging member slidable with respect to such stop and adapted to be engaged by the carriage in its forward movement.

19. In a stencil cutting machine the combination with a carriage slidably mounted, a stop movably mounted thereon, means for adjusting said stop, and a stop engaging member slidably mounted on said carriage

and having a hook and a series of step
shoulders one of which is adapted to be
intercepted by said stop, of a work holder
mounted to slide on said carriage and hav-
5 ing means for engaging the hook of said
member, and means for moving said work
holder.

20. In a stencil cutting machine, the com-
bination with a rotatable tool carrying head,
10 tool actuating means, and driving means
therefor, of a detent mechanism, connections
between said detent and said driving means,

a shaft journaled in bearings and having
a ratchet in engagement with said detent
and a gear, a spring pressed arm journaled 15
on said shaft and having a rotatable pinion
meshing with said gear, and a work car-
riage slidably mounted and having a rack
engaged with said pinion, as and for the
purpose described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
