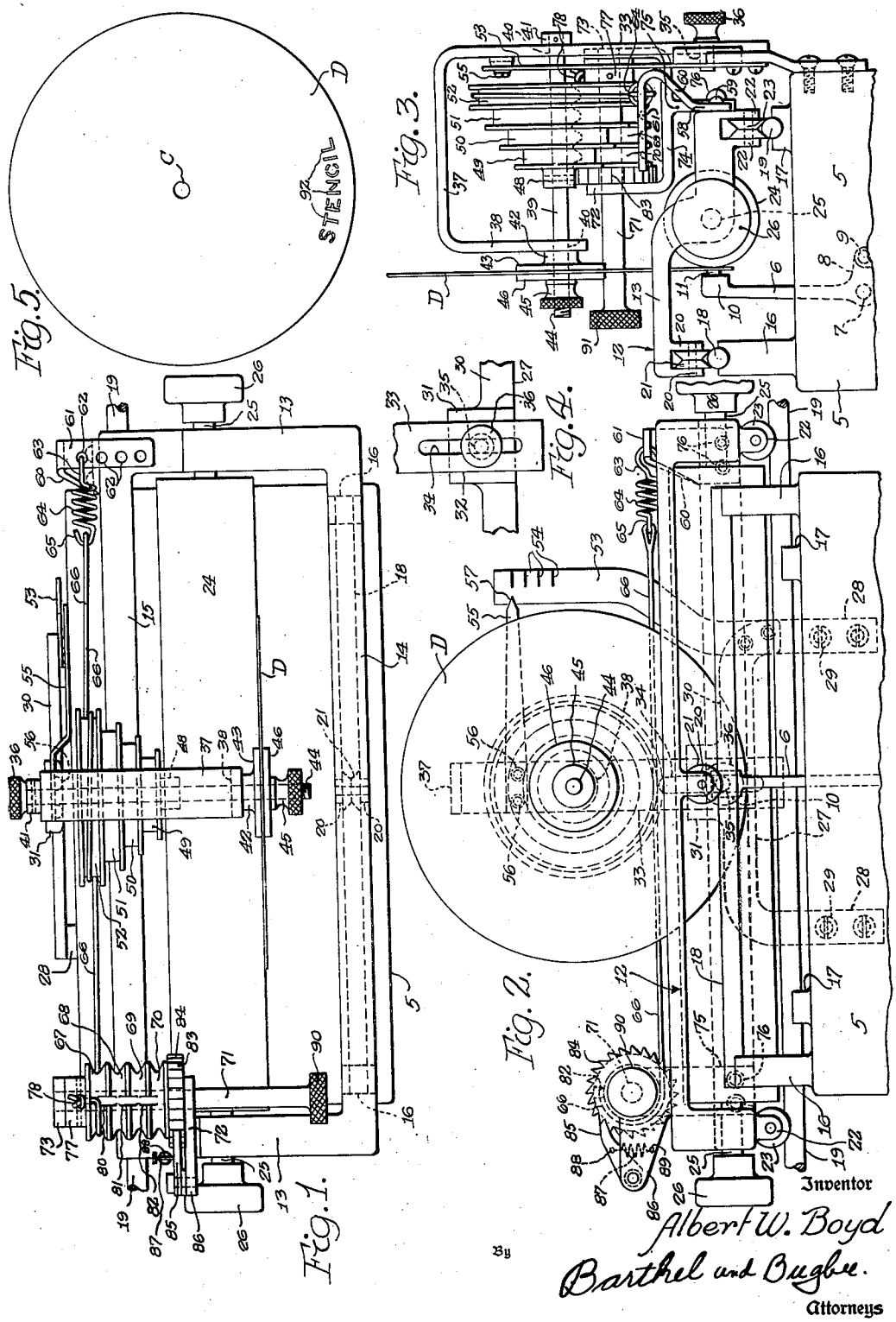
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ATTACHMENT FOR TYPEWRITING MACHINES

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ATTACHMENT FOR TYPEWRITING MACHINES

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The present invention relates to typewriting machines, and more particularly to an attachment therefor to facilitate typing along an arcuate path.

The primary object of the invention is to provide a device capable of being attached to a typewriter of conventional construction in such a manner as to provide a support for holding a disc or other paper sheet for being typed in a circular fashion.

Another object of the invention is to provide an attachment for typewriters and automatic printing machines which is particularly applicable to the cutting of stencils for use in connection with electro-etching and to provide a machine and attachment therefor in which the printing of said stencil may be arranged about a circular arc to facilitate the stenciling of round objects such as gears, pulleys and wheels.

Another object of the invention is to provide an attachment for typewriters to facilitate the typing and printing about a circular arc and to provide means for adjusting the attachment so that the printing will be accomplished on different radii about a circular path or arc.

Another object of the invention is to provide an attachment for typewriters in which a paper stencil disc or other paper sheet may have printed thereon or typed letters and words arranged in a circular path or arc, and provide means for rotating said circular disc or stencil sheet during the typing and printing operation and thereby space the letters and words equidistantly in much the same manner as the letters and words are spaced in present-day typewriting machines.

Other objects and advantages will become apparent during the course of the following description of the accompanying drawing, wherein:

Figure 1 is a top plan view of the typewriting machine attachment illustrating the manner in which the same is affixed to a conventional typewriter;

Figure 2 is a front elevational view of the same, illustrating the manner in which the various parts of the attachment are assembled and arranged with respect to the conventional typewriting machine;

Figure 3 is an end elevational view of the attachment showing the manner in which the same is secured to a typewriter and the feed mechanism controlled by the carriage of the machine for rotating said stencil sheet a predetermined distance;

Figure 4 is an enlarged fragmentary elevational view of the adjustable connection between the stencil or work sheet supporting member and the attaching bracket therefor; and

Figure 5 is a top plan view of a paper stencil sheet or disc adapted to be used in connection with the present invention illustrating the manner in which the typing thereon may be arranged in a circular fashion about an arc thereon.

In the drawing, wherein for the purpose of illustrating the invention like reference characters will be employed throughout the several views, the reference character 5 will generally be used to designate the upper portion of a typewriter frame having the usual type bar 6 pivoted to the frame as at 7 with the offset portion of said typewriter bars as at 8 connected to the keys of the typewriting machine by links pivoted thereto as at 9. The keyboard structure and arrangement of the typewriter 5 is of the usual conventional form and said typewriter is provided with the usual spacing bar as well as the rest of the automatic controls therefor among which is a control for removing the typewriter ribbon from its operative position in front of the platen for the purpose of cutting stencil sheets or the like. The type bar 6 is provided with a head 10 which carries the usual type character 11 as indicated in Figure 3.

The typewriter is provided with a slide carriage 12 including side frame members 13 connected by front and rear frame members 14 and 15. The slide carriage 12 is adapted to be supported above the frame structure 5 and formed integral with the frame structure, adjacent the front and rear thereof is a pair of spaced upstanding supports 16 and 17 connected by horizontal slide rods 18 and 19 respectively. The slide carriage 12 is provided with supporting rollers engageable with the supporting rods 18 and 19 and as indicated in Figure 3, the front bar 14 of the slide carriage 12 is provided with a pair of supporting arms 20 depending therefrom between which is mounted a rotatable grooved roller 21 for slidably engaging the guide slide rod 18. Similarly, the rear frame member 15 of the typewriter carriage 12 is provided with a pair of downwardly depending lugs 22 at each end thereof between which is mounted a grooved roller 23 for being received on the rear supporting rod 19.

The slide carriage 12 is provided with a platen roller 24 mounted upon a shaft 25 suitably journalled in the side frame members 13 and said shaft 25 is provided with knurled handpieces 26 to facilitate rotation of the platen 24 when the typewriting machine is employed for typing or printing in the usual manner.

The above structure is typical of the conventional typewriting machine and may be used to illustrate the invention which comprises a bracket member 27 of U-shaped construction having the legs thereof as at 28 affixed to the rear wall of the typewriting frame 5 by means of screws or the like 29. The connecting portion 30 of the U-shaped bracket 27 is enlarged as at 31 and is provided with a groove 32 for receiving the lower end of an arbor supporting bracket 33. A longitudinal slot 34 is formed in the bracket for receiving a knurled thumbscrew 35 having a thumbpiece 36 to facilitate the adjustment of the bracket 33 with respect to the connecting portion 30 of the bracket 27. The arbor-supporting bracket 37 is likewise of U-shaped construction and has its other leg 38 extended forwardly and depending downwardly toward the rotary typewriting machine platen 24.

Rotatably mounted in the U-shaped bracket 37 is an arbor 39 and said arbor is journalled at its ends in suitable openings 40 in the legs 33 and 38 of the bracket so that said arbor will extend horizontally over the typewriting machine platen 24 and at right angles to the axis thereof. A retaining collar 41 is affixed to one end of the arbor 39 to prevent lateral displacement thereof with respect to the bracket 37 and a similar collar 42 is affixed to the opposite end of the arbor 39 and is flanged as at 43. The extreme outer end of the arbor 39 is screw-threaded as at 44 for receiving a thumb nut 45 and clamping disc 46.

Mounted on the arbor 39 is a stepped pulley having its collar 48 secured in place by means of a set screw or the like and said stepped pulley is provided with a series of grooves 49, 50, 51 and 52 for receiving an actuator cable which will be hereinafter more fully described.

Formed integral with or connected to the U-shaped bracket 27 is an offset gauge bar 53 having a series of graduations 54 for cooperation with a pointer 55 carried by the leg 33 of the bracket 37. The pointer 55 is secured in place by small machine screws or the like 56 and has its free end as at 57 pointed for registry with the graduations 54 on the offset gauge bar 53. The U-shaped frame 37 may thus be raised and lowered in accordance with the distance measured along the bar 53 so as to move the U-shaped frame 37 toward and away from the platen roller a predetermined distance.

Secured to the typewriter carriage 12 at one end thereof is a bracket 58 fastened in place by machine screws or the like 59 and said bracket is provided with an offset arm 60 terminating in a horizontal bar portion 61 extending above the side frame bar 13 of the typewriter carriage as indicated in Figures 1 and 3. A series of apertures 62 is formed in the horizontal arm portion 61 of the bracket 58 and said apertures are adapted to receive the hook end 63 of a coil spring 64 which has its opposite hook end 65 attached to an actuator cable 66 adapted to be trained around one of the stepped pulley grooves 49 to 52. The opposite end of the actuator cable 66 is fastened to a grooved drum having a series of grooves 67 to 70 inclusive and said grooved drum is secured to a control shaft 71 journalled in the arms 72 and 73 of a U-shaped bracket 74 as indicated in Figure 3. The U-shaped bracket 74 is provided with a downwardly depending extension 75 for being affixed or fastened to the rear frame bar 15 of the typewriter carriage as by means of a machine screw or the like 76. The collar 77 of the grooved drum is keyed or otherwise secured to the control shaft 71 so that rotation of said shaft will rotate the drum and place the cable 66 under tension. The actuator cable 66 is knotted as at 78 and is received in an opening in the drum adjacent the pulley groove 67 and the various grooves 67 to 70 of said drum are connected by cut away portions 80, 81 and 82 to permit the cable 66 to be moved into registry with the desired drum grooves 67 to 70 and thereby arrange and register with the corresponding pulley grooves 49 to 52 inclusive.

Secured to or carried by the grooved drum is a ratchet wheel 83 having a series of ratchet teeth 84 for being engaged by a dog or detent 85 pivotally secured to an extension 86 of the bracket arm 72 and held under tension by means of a coil spring 87 with one of its ends affixed to the dog or detent 85 as at 88 and the other end attached to the arm extension 86 as at 89. It is to be noted that the actuator cable 66 is attached to the typewriter carriage 12 to move therewith relative to the typewriter frame 5 and when the actuator cable is arranged with the spring at one end 64 received in an aperture 62 in the bracket 61 in registry or alignment with the desired pulley grooves 49 to 52 inclusive, said cable may be entwined or coiled about said groove so that the free end may be adjusted in one of the grooves 67 to 70 of the tensioning drum. The free end of the control shaft 71 is knurled as at 90 to facilitate rotation of the grooved drum and the tensioning of the cable 66 so that said cable will frictionally engage the grooves 49 to 52 of the pulley 48 and rotate the same when said carriage is moved to and fro by actuation of the keyboard or spacing bar thereof.

In operation, a sheet of paper or stencil disc of disc-like shape as at D (Figure 5) is placed upon the threaded end 44 of the arbor 39 by being passed through the opening C in said disc. After the disc has thus been placed in position, the clamping disc 46 is fitted on the threaded end of the arbor 39 and the thumb screw 45 tightened in place to securely clamp said paper disc or sheet in position against the annular flange 43 of the collar 42. When the paper disc or sheet D has thus been positioned, the peripheral portion thereof will be presented in front of the roller platen 24 of the typewriter as indicated in Figure 3 and by then adjusting the U-shaped bracket 37 by manipulating the thumb screw 76 the disc D may be positioned so as to be typed at the desired location and on a predetermined radius from the center C. When printing or typing to form stencils, the typewriter control (not shown) is operated to displace the typewriter ribbon so that the typed characters 11 of the type bar 6 will strike the paper sheet or disc D and cut stencilled letters therein as at 92. As the letters 92 are typed, the movement of the carriage 12 causes the paper sheet or disc D to rotate a predetermined angular distance so that the letters will be spaced equidistantly in the same manner as is produced on a conventional typewriter with the exception that the letters are arranged about an arcuate path rather than a straight line.

When it is desired to use the typewriter in the usual manner, the thumb screws 76 may be removed and the cable 66 disconnected so that the U-shaped frame 37, grooved pulley 48 and arbor 39 may be removed from the machine and thereby not interfere with the conventional operation of the typewriting machine.

The invention has been found extremely useful in cutting stencils or paper discs D with the sten-

cilled letters 82 so that said disc may be placed over the hub of a gear or other round disc-like work piece with a piece of flat metal disposed on top of said stencil disc or sheet D so that the passage of electric current through said flat plate and work piece will cause electro-etching of the metal through the perforations or openings of the stencil letters 82. Obviously, the invention may be employed for various other uses such as typing or printing directly on circular work pieces by supporting the work piece on the arbor 39 with the periphery disposed in the path of the type or characters 11 on the type bar 6.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred embodiment of the same and that various changes may be made in the shape, size and arrangement of parts without departing from the spirit of the invention or the scope of the subjoined claims.

What I claim is:

1. A circular printing attachment for typewriting machines having a platen and carriage therefor, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly and above said carriage for rotatably supporting a sheet of paper with the peripheral portion thereof positioned in close proximity to the platen of said typewriting machine, and means drivingly connecting said carriage to said rotary shaft and responsive to the operation of said carriage for rotating said sheet of paper.

2. A circular printing attachment for typewriting machines having a platen and carriage therefor, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary sheet supporting shaft carried by said bracket means for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, and means drivingly connecting said carriage to said shaft and responsive to the operation of said carriage for rotating said sheet of paper about a horizontal axis at right angles to the axis of rotation of said platen, said sheet of paper being adapted to be affixed to said shaft to rotate therewith.

3. A circular printing attachment for typewriting machines having a platen and carriage therefor, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly above said platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, means drivingly connecting said rotary shaft responsive to the operation of said machine for rotating said shaft and sheet of paper about a horizontal axis at right angles to the axis of rotation of said platen, and means for adjusting said bracket means to position the axis of rotation of said sheet different radial distances from said platen, said paper sheet being removably attached to said shaft to rotate therewith.

4. A circular printing attachment for typewriting machines, having a platen and carriage therefor, comprising bracket means adapted to be affixed to the frame of said typewriting machine, shaft means carried by said bracket means extending forwardly above said platen and carriage for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, means drivingly connecting said carriage with said shaft responsive to the operation of said machine for rotating said shaft and sheet of paper, and means for adjusting said bracket means to position the axis of rotation of said sheet different radial distances from said platen, said shaft being provided with means for anchoring said sheet in position to rotate with said shaft.

5. A circular printing attachment for typewriting machines having a reciprocating carriage and rotatable platen carried thereby, comprising bracket means adapted to be affixed to the frame of said typewriting machine, rotary shaft means carried by said bracket means extending forwardly above said carriage and platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, means drivingly connecting said carriage to said rotary shaft responsive to the operation of said machine for rotating said sheet of paper about the axis of said shaft, and means for releasably affixing said paper sheet to the rotary shaft means.

6. A circular printing attachment for typewriting machines having a reciprocating carriage and a rotary platen thereon, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly above said carriage and platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, and means drivingly connecting said carriage to the rotary shaft and responsive to the operation of said machine for rotating said rotary shaft and sheet of paper, said last named means being controlled by the reciprocating movement of the typewriting machine carriage.

7. A circular printing attachment for typewriting machines having a reciprocating carriage and a rotary platen thereon, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly above said carriage and platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, and means drivingly connecting said carriage to the rotary shaft and responsive to the operation of said machine for rotating said sheet of paper about a horizontal axis at right angles to the axis of rotation of said platen, said last-named means being controlled by the reciprocating movement of the typewriting machine carriage.

8. A circular printing attachment for typewriting machines having a reciprocating carriage and a rotary platen thereon, comprising bracket means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly above said carriage and platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, means drivingly connecting said carriage to the rotary shaft and responsive to the operation of said machine for rotating said sheet of paper about a horizontal axis at right angles to the axis of rotation of said platen, and means for releasably affixing said paper sheet to the supporting means.

9. A circular printing attachment for typewriting machines having a reciprocating carriage and a rotary platen thereon, comprising bracket

means adapted to be affixed to the frame of said typewriting machine, a rotary shaft carried by said bracket means extending forwardly above said carriage and platen for rotatably supporting a sheet of paper with a portion thereof positioned in close proximity to the platen of said typewriting machine, and means drivingly connecting said carriage to the rotary shaft and responsive to the operation of said machine for rotating said sheet of paper, said sheet of paper being of round disc-like form with its peripheral portion presented in the path of movement of the type bars of said typewriting machine and its central portion mounted on said rotary shaft.

10. A circular printing attachment for typewriting machines, comprising a bracket adapted to be affixed to the rear portion of said machine, a bearing frame secured to said bracket for vertical adjustment, an arbor rotatably mounted in said bearing frame extending forwardly of the typewriting machine, and projecting above the platen thereof, means on said arbor for supporting a sheet of material to be typed and printed in position relative to the platen and type of said machine, and means responsive to the operation of said typewriting machine for rotating said arbor and sheet of material a predetermined angular distance.

11. A circular printing attachment for typewriting machines, comprising a bracket adapted to be affixed to the rear portion of said machine, a bearing frame secured to said bracket for vertical adjustment, an arbor rotatably mounted in said bearing frame extending forwardly of the typewriting machine and projecting above the platen thereof, means on said arbor for supporting a sheet of material to be typed and printed in position relative to the platen and type of said machine, and means responsive to the operation of said typewriting machine for rotating said arbor and sheet of material a predetermined angular distance.

12. In combination with a typewriting machine having a set of key-controlled type bars and a movable platen supported on a reciprocating carriage, a circular printing device for supporting a sheet of material in position in front of said platen to be circularly typed by said type bars, printing device including shaft means, and means drivingly connecting said carriage to said shaft means controlled by the reciprocating movement of said carriage and responsive upon operation of said typewriting machine for rotating said sheet of material on an axis transverse to the direction of movement of said platen, said sheet of material being affixed to the rotary shaft means to rotate therewith.

13. In combination with a typewriting machine having a set of key-controlled type bars, a movable platen and a reciprocating carriage therefor, a circular printing device for supporting a sheet of material in position in front of said platen to be circularly typed by said type bars, said printing device including shaft means supported by the frame of said typewriting machine above the carriage and platen, and means drivingly connecting said carriage to said shaft means and controlled by the reciprocating movement of said carriage and responsive upon operation of said typewriting machine for rotating said sheet of material on an axis transverse to the direction of movement of said platen, said shaft means being operable for rotation in timed relation with the operation of said typewriting machine whereby the sheet material will be rotated in a step by step fashion and space the sheet for printing.

14. In combination with a typewriting machine having a set of key-controlled type bars, a movable platen and reciprocating carriage therefor, a circular printing device for supporting a sheet of material in position in front of said platen to be circularly typed by said type bars, shaft means rotatably supported above the platen and reciprocating carriage and means drivingly connecting said reciprocating carriage to said shaft means and controlled by the reciprocating movement of said carriage and responsive upon operation of said typewriting machine for rotating said shaft on an axis transverse to the direction of movement of said reciprocating carriage and platen, said rotating shaft means being operable in timed relation with the reciprocating movement of said typewriting machine carriage to rotate said sheet a predetermined angular distance upon operation of each type bar.

15. In combination with a typewriting machine having a set of key-controlled type bars and a movable platen, a circular printing device for supporting a sheet of material in position in front of said platen to be circularly typed by said type bars, said printing device including a rotary shaft supported above said platen and means controlled by the movement of said platen and responsive upon operation of said typewriting machine for rotating said sheet of material on an axis transverse to the direction of movement of said platen, said rotating means including a flexible member connected to the typewriting machine to move with the platen with a portion of said flexible element drivingly connected to the rotary shaft means.

16. In combination with a typewriting machine having a movable carriage with a platen and a set of key-controlled type bars for striking said platen, a circular typing device comprising a bracket adapted to be affixed to the frame of said typewriting machine, a bearing bracket supported on said first-mentioned bracket for vertical adjustment, an arbor rotatably mounted in said bearing bracket extending forwardly of said machine above the carriage and platen thereof, a stepped pulley keyed to said arbor, a flexible member having its ends secured to said carriage and trained about one of the grooves of said stepped pulley, and means on said arbor for supporting a piece of material to be typed between the platen and said type bars.

17. In combination with a typewriting machine having a movable carriage with a platen and a set of key-controlled type bars for striking said platen, a circular typing device comprising a bracket adapted to be affixed to the frame of said typewriting machine, a bearing bracket supported on said first-mentioned bracket for vertical adjustment, an arbor rotatably mounted in said bearing bracket extending forwardly of said machine above the carriage and platen thereof, a stepped pulley keyed to said arbor, a flexible member having its ends secured to said carriage and trained about one of the grooves of said stepped pulley, means on said arbor for supporting a piece of material to be typed between the platen and said type bars, and means at one end of said carriage for placing said flexible member under tension.

18. In combination with a typewriting machine having a movable carriage with a platen and a set of key-controlled type bars for striking said platen, a circular typing device comprising a

bracket adapted to be affixed to the frame of said typewriting machine, a bearing bracket supported on said first-mentioned bracket for vertical adjustment, an arbor rotatably mounted in said bearing bracket extending forwardly of said machine above the carriage and platen thereof, a stepped pulley keyed to said arbor, a flexible member having its ends secured to said carriage and trained about one of the grooves of said stepped pulley, means on said arbor for supporting a piece of material to be typed between the platen and said type bars, means at one end of said carriage for placing said flexible member under tension, and means at the other end of said carriage for taking up loose play in said flexible member.

19. In combination with a typewriting machine having a movable carriage with a platen and a set of key-controlled type bars for striking said platen, a circular typing device comprising a bracket adapted to be affixed to the frame of said typewriting machine, a bearing bracket supported on said first-mentioned bracket for vertical adjustment, an arbor rotatably mounted in said bearing bracket extending forwardly of said machine above the carriage and platen thereof, a stepped pulley keyed to said arbor, a flexible member having its ends secured to said carriage and trained about one of the grooves of said stepped pulley, means on said arbor for supporting a piece of material to be typed between the platen and said type bars, and a grooved roller rotatably supported at one end of said carriage having a series of grooves in alignment with the grooves of said pulley to receive one end of said flexible member and maintain said flexible member in a straight line path with one of the grooves of the pulley.

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