

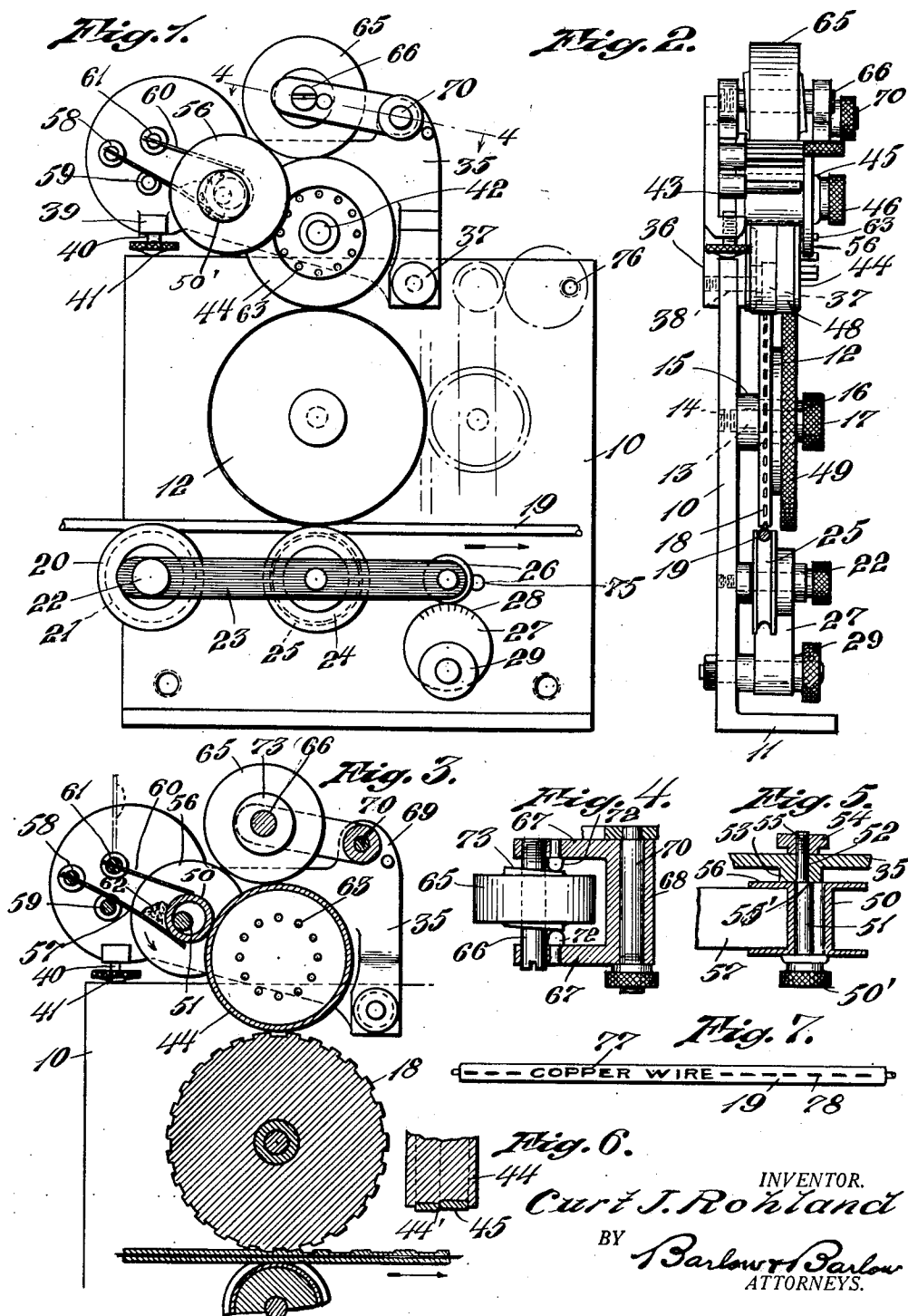
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C. J. ROHLAND

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WIRE PRINTING DEVICE

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WIRE PRINTING DEVICE

Curt J. Rohland, Seekonk, Mass., assignor to The Gyro-Graphic Corporation, Providence, R. I., a corporation of Rhode Island

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11 Claims. (Cl. 101—351)

This invention relates to a printing device; and has for one of its objects the provision of a means for printing covered wire with letters or designating symbols.

5 Another object of the invention is the provision of a simple portable device which may be set at the end of a wire making or covering machine to cause printing to be had upon the wire as the wire emerges from the machine.

10 Another object of the invention is the provision of means for printing upon wire by causing impressions to be made therein with inked type to position the ink below the surface of the wire.

15 Another object of the invention is the provision of means whereby the printing ink may be easily and readily loaded into the machine or changed from one color to another.

20 Another object of the invention is the simple arrangement for changing type that various characters may be had upon the wire.

Another object of the invention is the provision of means whereby by a simple rearrangement of certain of the parts the wire may be fed through the machine either horizontally or vertically.

25 Another object of the invention is to afford a drive for all of the moving parts by reason of the movement of the wire through the machine and in contact with the printing roll.

30 Another object of the invention is to derive power for the inking roll by some means separate and independent from the contact of the ink upon the type roll so that a light pressure insufficient to drive the ink roll may be had upon the type roll.

35 Another object of the invention is the provision of an intermittent feed for the ink and a distribution of the ink over the inking roll prior to its contact with the type roll.

40 Another object of the invention is to provide means to prevent the wire from twisting as it is printed on or as it travels through the machine.

Another object of the invention is to provide unit parts of the device which may be adjusted or interchanged as a whole with other like units.

45 Another object of the invention is the provision of adjustments whereby varying pressures and rotations may be had by simple manipulations of the apparatus.

50 With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

55 Fig. 1 is an elevation of the apparatus with wire shown therein in a horizontal plane and

shown in dotted lines with parts rearranged into a position for the travel of the wire therethrough in a vertical direction;

Fig. 2 is an edge view of the structure shown in Fig. 1;

Fig. 3 is a sectional view of a fragmental portion of the structure shown in Fig. 1 to better illustrate certain operating parts of the device;

Fig. 4 is a sectional view on line 4—4 of Fig. 1;

Fig. 5 is a fragmental sectional view through the ink reservoir mechanism of the device;

Fig. 6 is a fragmental sectional view of the inking roll;

Fig. 7 is a plan view of a portion of a wire after printed.

15 It is desirable that there be printing on covered wire so that the same may be identified as a certain manufacturer's goods. The wire as it emerges from the covering machine is coated with a pitch and wax which is in somewhat of a plastic stage and mechanism for printing upon this wire in this stage must be rather sensitive and heavy impressions are not suitable. Accordingly, I have provided a mechanism which is rather sensitive in its arrangement and yet is such that adjustments may be widely had for the operation of the different parts and whereby the wire may be run through in different directions; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

20 With reference to the drawing, 10 designates a plate rising at right angles from a base portion 11, which plate forms a body for supporting the various moving parts of my device. A printing roll 12 is mounted upon a stud 13 which is threaded as at 14 into the body and is so shouldered as to abut against the body to limit its threaded engagement thereinto. A washer 15 about the stud forms a spacer for the printing roll 12 while a shoulder 16 beneath the head 17 of the stud engages the other side of the print roll to prevent it from sliding axially of the stud in the opposite direction whereby the roll is thus freely rotatable on the stud as an axis. Type or other characters 18 are formed on the edge of the print roll to impress themselves into the wire 19 which is shown in Fig. 1 in a horizontal position.

50 This wire is guided by a wheel 20 having a groove 21 therein to receive a major portion of the wire 19 and align it in the proper direction for engagement with the type or print roll 12.

This guide wheel 20 is suitably mounted by a threaded stud 22 upon the body plate of the machine and upon its axis a lever 23 is pivotally supported which has a guide and pressure roll 24 rotatably mounted thereon also grooved as at 25 to receive the major portion of the wire 19 to be printed. This roll 24 has a cushion of some elastic material such as rubber to yieldingly hold the wire against slipping or twisting and cushion the work should unevenness occur in the work. At the outer end of this lever 23 there is a roll 26 mounted which engages the eccentric 27 having graduations 28 and which may be rotated by handle 29 so as to lift the grooved pressure roll 24 upwardly to cause the wire to engage with the type or printing roll with the desired amount of pressure. As the wire is drawn through the device in the direction of the arrow the roll 12 will be rotated by the frictional engagement of the wire with it and to cause its type surface to roll into engagement with the wire to impress itself therein.

The inking mechanism for the print roll is a distinct unit all mounted upon a detachable bracket 35 which is provided with a bifurcated portion 36 through which a headed stud 37 is threaded to pass through a suitable opening 38 in the body and into the other arm of the bifurcated portion so as to pivotally mount this bracket 35 upon the body 10. This bracket also is provided with a lateral projection 39 with a threaded member 40 therein, the head 41 of which engages the upper edge of the body so as to rest thereon and be supported in different positions of adjustment by reason of the threaded position of the stud 40 in this projection of the bracket.

A stud 42 is threaded into a boss 43 in the bracket 35 and upon this stud 42 the inking roll 44 is mounted for free rotation one edge of which engages the boss and the other edge engages the shoulder 45 beneath the knurled head 46 to prevent the roll from moving axially upon this threaded stud. This inking roll is of metal and has a rubber band 48 mounted on its surface for contact with the printing roll 12 and also contacts with the disk 49 of the printing roll which is larger in diameter than the printing roll and has a knurled surface to afford a drive for the inking roll so that the ink may be applied to the printing roll 12 with a rather light pressure and a pressure insufficient to form a driving contact of the two parts together. The surface of the roll 44 is formed with a step 44' so that ink will be pushed up by the larger portion and the smaller portion will be relatively free of ink where the larger disk 49 for the drive contacts. By use of the thin rubber band on the metal roll the expansions due to changes in weather conditions are better controlled.

The inking reservoir is formed by a spool having heads 56 and a cylindrical barrel 50 which is loosely mounted upon a pin 51 provided with an eccentric surface with reference to its stud 52 which extends through a suitable boss 53 on the bracket 35 and is secured in position by the nut 54 engaging its threaded end 55 and drawing the shoulder 55' against the boss 53. This spool is provided with a doctor blade 57 secured to the pin 58 and flexed over the pin 59 to engage the undersurface of the barrel between the heads 56 to urge the same upwardly and to the right, while a doctor blade 60 mounted upon the rotatable pin 61 is swung down between the heads 56 to engage the upper surface of the barrel 50. Ink is

supplied as at 62 by lifting the upper doctor blade and loading the ink thereinto upon the lower doctor blade or by placing it upon the upper doctor blade and then swinging it into position so that the barrel will pick up the ink and transfer it to the lower doctor blade. The use of the doctor blade and loose mounting of the spool 50 enables the parts to be so aligned that the distribution of ink is very even and a distributor may be eliminated.

The heads 56 of the spool are of a sufficient size and the eccentric pin 51 is so located that the heads will engage the rawhide pins 63 positioned in the inking roll 44 as rotation occurs so that as one of these pins contacts the edge of the spool it rotates the same so as to transfer ink upon the inking roll as the same is turned, and this will be intermittent by reason of the spaced position of the rawhide pins which engage the heads of the spool.

Ink may be distributed laterally over the surface of the inking roll 44 although this may not be essential by the distributor roll 65 which is mounted upon a stud or pin 66 between the arms 67 of a yoke 68 which is pivotally mounted on an upwardly extended portion 69 of the bracket 35 by means of the pivot pin 70, these arms permitting this roll to rest by its own weight upon the inking roll 44. A pair of guides 72 extend inwardly from the arms 67 and engage oppositely positioned cams 73 secured to the roll 65 so that as the roll rotates it also moves axially along the shaft 66 and slides its surface back and forth across the inking roll to distribute the ink laterally thereover. The amount of ink is adjusted by a rotation of the head 50' of the eccentric 51 while the pressure of the inking roll with the type and also with its drive is adjusted by the threaded stud 40 with its contact 41 with the body of the device 10.

Should it be desired that the wire run through this device vertically instead of horizontally it is merely necessary to shift the pivot 22 to the opening 75 in the body and locate the eccentric 27 with its mounting 29 in the opening 76 in the body, as illustrated in dotted lines, whereupon the device will function in a vertical manner instead of a horizontal manner, as illustrated.

The wire 19 will have the letters 77 printed thereon and also a designating stripe 78 which is in the form of dashes which also serve to afford a means for assuring positive rotation of the parts as the wire is drawn through the machine, all rotation being acquired by reason of this movement.

Should it be desired to print on flat instead of round material a flat roll to receive the ribbon would be substituted for the grooved rolls and rubber type may be used instead of the metal type shown.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. In a device for printing wire having a type roll movable by the movement of the wire through the device, means for inking the type roll comprising an inking roll, a cylinder having an enlarged disk overlapping the peripheral edge of said inking roll, and means fixed on said inking roll and positioned to intermittently engage 75

the peripheral surface of said disk to move the same upon movement of said inking roll.

2. In a device for printing wire having a type roll movable by the movement of the wire
5 through the device, means for inking the type roll comprising an inking roll, a cylinder having an enlarged disk overlapping the peripheral edge of said inking roll, and means fixed on said inking roll and positioned to intermittently engage
10 the peripheral surface of said disk to move the same upon movement of said inking roll, and means to distribute ink on said inking roll.

3. In a device for printing wire having a type roll movable by the movement of the wire
15 through the device, means for inking the type roll comprising an inking roll, a cylinder having an enlarged disk overlapping the peripheral edge of said inking roll, spaced pins projecting from the side of said inking roll and positioned to
20 intermittently engage the surface of said disk to move the same upon movement of said inking roll.

4. An inking device for a printing machine having an inking roll, means to supply ink to
25 said inking roll comprising a cylinder having an enlarged disk overlapping the peripheral edge of said inking roll, spaced pins projecting from the side of said inking roll and positioned to intermittently engage the surface of said disk
30 to move the same upon movement of said inking roll.

5. An inking device for a printing machine having an inking roll, means to supply ink to
35 said inking roll comprising a cylinder having a disk secured at one end thereof, means on said inking roll to intermittently and frictionally engage the peripheral surface of said disk to move the cylinder upon movement of said inking roll.

6. An inking device for a printing machine
40 having an inking roll, means to supply ink to said inking roll comprising a cylinder having a disk secured at one end thereof, means on said inking roll to intermittently and frictionally engage the peripheral surface of said disk to move the cylinder
45 upon movement of said inking roll, and means frictionally driven by the inking roll to distribute the ink thereon.

7. An inking device for a printing machine having an inking roll, means to supply ink to

said inking roll comprising a cylinder having an enlarged disk secured thereto and overlapping the peripheral edge of said inking roll, rawhide pins projecting from the side of said inking roll and positioned to intermittently engage the peripheral surface of said disk to move the same upon movement of said inking roll.

8. An inking device for a printing machine, having an inking roll, means to supply ink to the inking roll comprising a cylinder loosely mounted
10 on a pin and provided with an enlarged disk, means engaging and urging said cylinder against said pin, and means on said inking roll positioned to intermittently engage the peripheral surface of said disk to move the same upon movement of said inking roll.

9. An inking device for a printing machine, having an inking roll, means to supply ink to the inking roll comprising a cylinder loosely mounted
20 on a pin and provided with an enlarged disk, a resilient doctor blade positioned to engage and move the cylinder towards the inking roll, and means on said inking roll positioned to intermittently engage the peripheral surface of said disk to move the same upon movement of said
25 inking roll.

10. An inking device for a printing machine, having an inking roll, means to supply ink to the inking roll comprising a cylinder having a disk secured at one end thereof, means on said inking
30 roll to intermittently and frictionally engage the peripheral surface of said disk to move the cylinder upon movement of said inking roll, a pivoted yoke, and a distributor roll rotatably mounted on
35 said yoke.

11. An inking device for a printing machine, having an inking roll, means to supply ink to the inking roll comprising a cylinder having a disk secured at one end thereof, means on said inking
40 roll to intermittently and frictionally engage the peripheral surface of said disk to move the cylinder upon movement of said inking roll, a pivoted yoke, a distributor roll provided with cam surfaces thereon and rotatably mounted on said yoke, and abutments on said yoke positioned to
45 engage said cam surfaces to cause said distributor roll to move axially upon rotation thereof.

CURT J. ROHLAND.