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T. FINIZIE ET AL

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REPEATER PRINTER FOR STRIP STOCK

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2 Sheets-Sheet 1

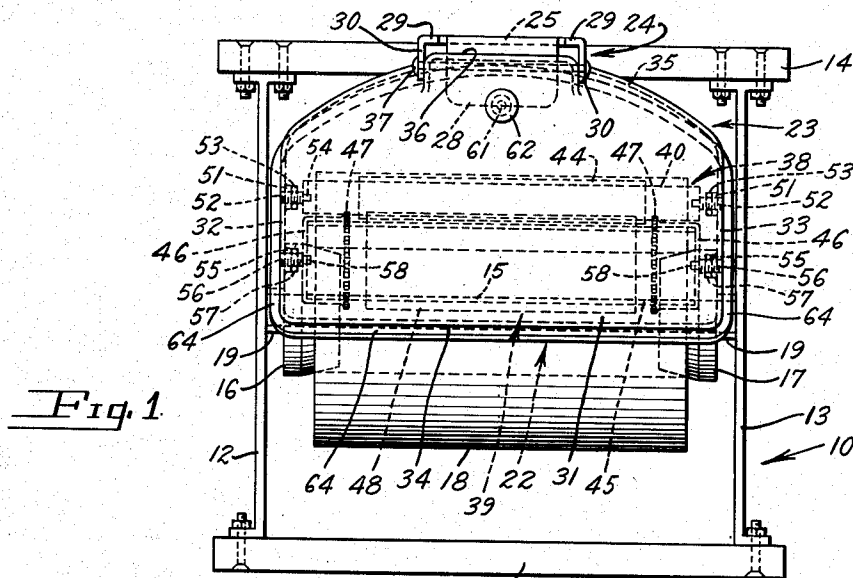


Fig. 1

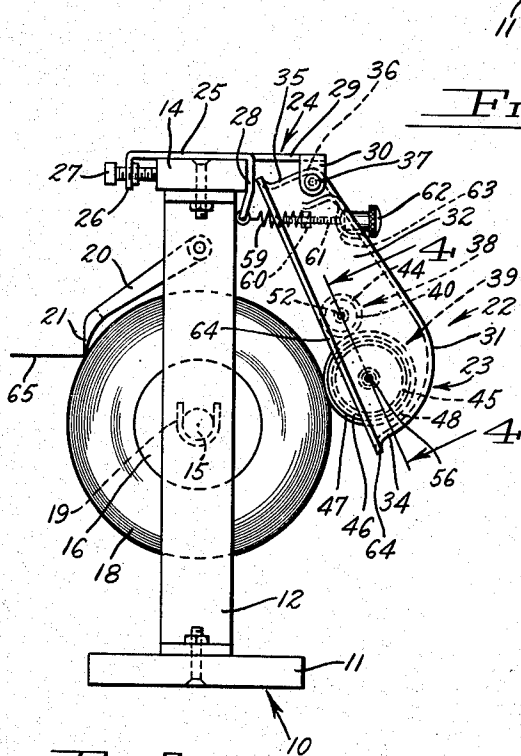


Fig. 2

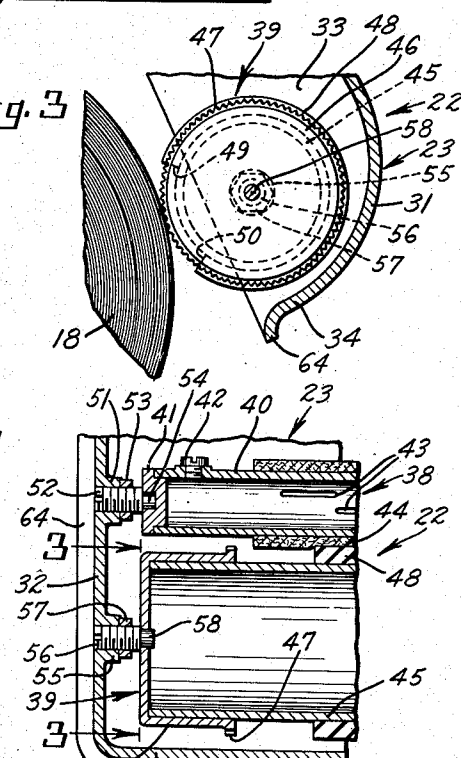


Fig. 3

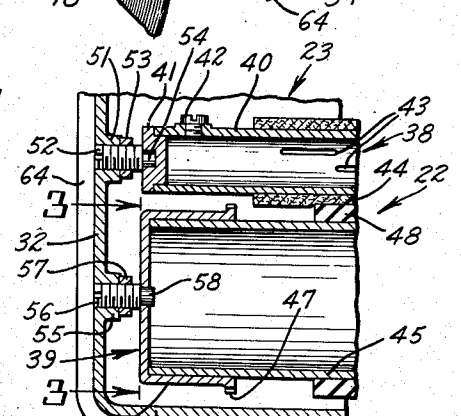


Fig. 4

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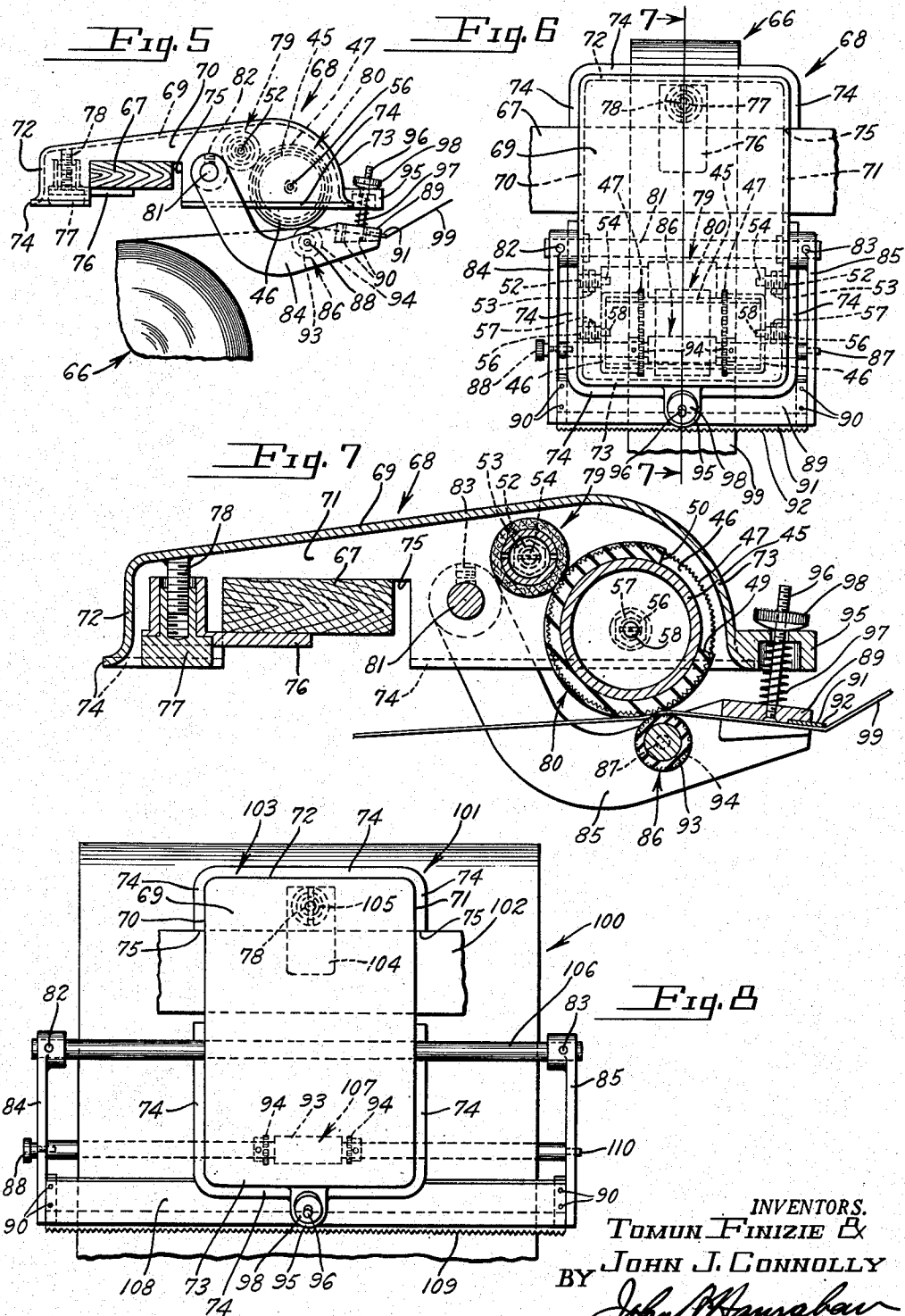
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REPEATER PRINTER FOR STRIP STOCK

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1 Claim. (Cl. 101—213)

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This invention relates to new and useful improvements in paper printers and has particular relation to a printing attachment for mounting on paper roll holders for the printing on the paper as the same is taken from the holder.

An object of the invention is to provide in combination with a paper roll holder a means easily mounted on the holder, requiring no adjustment, and reliably operable for the repeated printing of a message on the paper as the same is taken from the roll.

Another object is to provide a means of the character indicated and which is adapted for the printing on plain wrapping paper or on gummed tape and which is also adaptable to the printing on papers of various widths.

Another object is to provide a paper roll printing means of simple and inexpensive construction, attractive appearance, reliable in operation, and which is operable over long periods of time without requiring attention.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein satisfactory embodiments of the invention are shown. However, it is to be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claim.

In the drawings:

Fig. 1 is a front elevational view showing a paper roll holder with the printing means of the invention mounted thereon;

Fig. 2 is a side elevational view taken as looking from the left in Fig. 1;

Fig. 3 is an enlarged detail sectional view taken along the line 3—3 of Fig. 4;

Fig. 4 is a detailed sectional view on an enlarged scale, the view being taken along the line 4—4 of Fig. 2;

Fig. 5 is a side elevational view showing the printing attachment associated with a gummed tape holder or dispensing device;

Fig. 6 is a top plan view of Fig. 5;

Fig. 7 is an enlarged central longitudinal sectional view taken as along the line 7—7 of Fig. 6; and

Fig. 8 is a view similar to Fig. 6 but showing the printing attachment adapted for printing on gummed tape or other paper of greater width than that of Fig. 6.

Referring in detail to the drawings and at first more particularly to the form of the invention shown in Figs. 1—4, at 10 is generally indicated a paper roll holder in the form of a stand. This stand includes a base 11, uprights 12 and 13, and

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an upper or top cross member or piece 14 of rectangular cross section, bolted or otherwise secured to the uprights 12 and 13 and supported by and extending between them. Thus, as is clear from the drawings, this top cross piece 14 is supported in spaced parallel relation to the base 11.

On a shaft 15, through the usual tapered end plugs 16 and 17, is supported a roll of wrapping paper 18. The shaft 15 is supported in suitable bearing members 19 mounted on the inner sides of the uprights 12 and 13. Pivotaly mounted on the uprights, above the bearings 19, are a pair of arm members 20 at their outer ends supporting a knife or paper cutting blade 21. Generally speaking, the structure above described is common in the art.

A printing means, generally designated 22, includes a housing in the form of a metal shell 23 and a mounting bracket generally designated 24. Bracket 24 is made up of a single piece of metal and includes a flat plate-like body portion 25 lying against the upper side of the cross piece 14. At its outer end, body 25 is integral with a depending portion 26 through which is threaded a set or clamping screw 27.

In its forward portion, bracket 24 has a central relatively wide tongue-like portion 28 lanced and pressed therefrom and extending downwardly as in the case of the portion 26, its upper part being vertically disposed and bearing against the forward face of the cross piece 14 and its lower part being bent along the lower edge of the cross piece into rearwardly extending angular relation. The upper vertical part of the portion 28 bears against the forward side of the cross piece 14 as the screw 27 is tightened to clamp the bracket onto said cross piece and the lower angularly bent part locks the bracket against upward displacement. Integral portions or arms 29 of the bracket extend forwardly therefrom and at their forward ends carry spaced parallel depending ears 30.

Casing or housing 23 is drawn or otherwise formed of sheet metal, although it will be understood that in some instances it might comprise a formed plastic body. This casing, as herein disclosed, includes a front wall 31, depending side walls 32 and 33, and its side front wall 34 curves downwardly forming a lower end wall 34 and at its upper end it includes an upper end wall 35. Thus, the casing is hollow and open through its inner or under side.

Approximately at the juncture of its front wall 31 and upper end wall 35, the casing has a formed, or outwardly pressed, or bumped portion 36. This bump 36 is of a width to extend between the depending ears 30 of the bracket arms 29 and is,

in fact, received between such ears. Then a pivoting bar or rod 37 extends through the ears and the end walls of the bump 36 whereby the casing or housing 23 is pivotally mounted on the bracket 24.

Located entirely within the casing or housing 23 and pivotally mounted therein, as will be described, is an ink roller generally designated 38. Mounted in the lower end portion of the housing, in parallel relation with the ink roller 38, but of a diameter extending outwardly through the open underside of the housing, is a printing roller generally designated 39.

The opposite ends of the respective rollers are identical with one another and the mountings of such ends on the walls of the casing or housing 23 are identical. Therefore, a detailed disclosure of the structure of one end portion of each roller will, it is believed, suffice for both ends of the rollers and therefore attention is now particularly directed to Fig. 4 of the drawing.

There it will be seen that the inking roller 38 comprises a cylinder 40 the ends of which are tightly closed by plugs 41 fast with the cylinder. Inwardly of one such plug a filling opening is provided in the cylinder wall and this opening is normally closed by a screw 42 or other means. Along its length, cylinder 40 is provided with a number of very narrow or thin slits 43 through which ink may escape from the interior of the cylinder.

The slits are not in the extreme end portions of the cylinder and the portions thereof which do have the slits have a pad or blanket 44 wrapped thereabout. This pad absorbs ink moving out through the slits 43 and distributes this ink over a printing pad as will later be set forth in detail.

Printing roller 39 comprises a cylinder 45 having over each of its ends a shell or cap 46 fast with the cylinder. At its inner end, each cap is slightly outturned and is toothed or serrated or otherwise roughened, as at 47, for frictional or driving purposes, as will appear. Mounted on the cylinder is a printing pad 48. This printing pad may be in the form of a rubber pad carrying letters, symbols or the like which are to be printed, or it may be otherwise constructed.

Additionally, as will later more fully appear, this printing pad generally does not extend entirely about the cylinder 45 but is of a thickness whereby to extend radially outwardly of the cylinder 45 to approximately the height of the teeth 47. As shown in Fig. 3, this printing pad does not go entirely about the cylinder but has its ends as at 49 and 50 and is of a thickness to extend slightly beyond the teeth 47.

For the mounting of the inking roller at aligned places the walls or sides 32 and 33 of the casing are pierced and portions of the metal drawn inwardly providing thickened portions 51 which are in the nature of bushings and internally threaded. Bearing screws 52 are threaded into each of said bushings and are locked in place by nuts 53 threaded on the screws and tight against the inner ends of the bushings. In this way, the bearing screws are mounted against casual movement. The inner end portions at 54 of the bearing screws are finished and are located in sockets in the end plugs 41 of the printing roller whereby the latter is rotatable on the screws.

Similarly, at a pair of lower but aligned points the walls 32 and 33 of the housing or casing 23 are pierced and the metal drawn inwardly providing bushings 55 also internally screw threaded. Through these bushings are threaded bearing screws 56 secured in place against casual move-

ment by lock nuts 57 and the inner end portions 58 of these screws are also finished off and are received in bearing openings in the end caps 46 of the printing roller whereby the latter is mounted for free turning movement on its own axis.

A tension spring 59 has its inner end anchored to the lower end portion of the rigid tongue 28 of bracket 24. The outer end of this spring is fast with a nut 60 through which is screwed a threaded shank 61 fast with a finger piece 62 located at the outer side of the casing or housing 23. Preferably, the housing is provided with a rounded depression 63 in which the rounded inner end portion of the finger piece 62 bears and through this depression is slotted for the passage of the shank 61.

From the above it will be seen that the printing and inking rollers are mounted by the side walls of the housing or casing 23. Their locations are such, with respect to their diameters, that as the printing roller rotates the outer surface of the printing pad 48 presses against the felt pad or blanket 44 of the inking roller taking ink therefrom and causing rotation of the inking roller. As will appear, rotation of the printing roller is brought about by its engagement with the paper of the roll being printed upon as it is used.

While the axes of the two rollers are located the same distance inwardly of the edge of the casing, it is noted that the printing roller is of considerably greater diameter than the inking roller and thus while the surface of the printing roller projects through the open side of the casing the inking roller is wholly within the latter. For the purpose of strengthening the casing and giving it a finished appearance, it is, about its open side, provided with an outwardly directed flange 64.

With the casing mounted on the paper roll holder or stand by the bracket 24, the casing depends from such bracket in such relation that the outer surface of its printing roller or of its printing pad 48 and in the absence of the latter, its teeth 47, are disposed against the roll of paper 18. The pressure with which the printing roller bears against the roll of paper 18 is determined by turning of the finger piece 62 to thread the nut 60 inwardly or outwardly along the threaded shank 61 and thus to add to or to lessen the tension of the spring 59. Clearly, as the spring is tensioned, there is a greater inward pull on the housing or casing 23 below the pivot 37 and in a direction to move the casing or housing clockwise thereby more tightly drawing the printing roller against the roll of paper 18.

The bracket being in place and the spring 59 being at the proper tension, as paper is drawn from the roller 18, whatever message appears on the printing pad 48 will be printed on the paper in ink. Thus, referring to Fig. 2, the paper is shown as being taken from the upper side of the roll 18 and under the knife 21, the end of the paper from the roll being there designated 65.

As the end portion 65 of the paper is pulled outwardly under the knife 21, the entire roll 18 rotates on the shaft 15 or with the shaft 15 and thus the paper must pass under the printing roller 39. Each revolution of this roller prints the desired message on the paper. Sufficient paper having been pulled from the roll 18, it is torn off in the usual manner against the floating knife 21.

The printing device having been mounted on the paper roll holder or stand, no adjustments save only the proper tensioning of the spring 59

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are required. The printing on the paper is accomplished automatically. It is merely necessary that the store owner or clerk draw paper from the roll in the usual manner and the printing is automatically accomplished.

Owing to the provision of the inking roller 36, a supply of ink is available to last for a great many impressions and therefore it is not necessary that the store owner be frequently replenishing the ink supply or otherwise tampering with the present inking mechanism. He has nothing to do but use the paper in the customary manner and each section of the paper will carry the printed message.

When the space between the ends 49 and 50 of the printing pad 48 is opposite the roll of paper 18 the teeth of ring-like formations 47 are against the roll of paper and therefore when the latter is rotated, as paper is drawn from it, the printing roller will be turned on its axis to bring the printing pad back around for the next impression.

In Figs. 5, 6 and 7 is illustrated the printing on gummed tape. In such figures, a portion of a roll of gummed tape is generally designated 66 and above the same is a portion, shown as a bar or piece 67, of a suitable holder or stand. In gummed tape machines the tape is merely placed in a holder and it is not mounted on a shaft or bearing element in the manner in which rolls of wrapping paper are mounted, as illustrated in Figs. 1 and 2. Thus, the roll of tape in these machines does not have a fixed location and if any pressure, such as would be entailed in a printing operation, is placed against a roll, the latter merely moves away from the pressure applying means and a good impression is not obtainable.

On the supporting bar 67 is clamped a housing or casing generally designated 68, the same being arranged substantially horizontally and being rigidly and not pivotally mounted on the bar 67. As herein disclosed, casing 68 includes a top wall 69, side walls 70 and 71, a rear end wall 72, and a front end wall 73. Thus, the casing is open through its inner or lower side and the side and end walls of the casing, at such open side, are provided with outwardly directed flanges 74 whereby to give the casing a finished appearance and also to stiffen or strengthen it. Through its side walls, the casing is notched or cut away as at 75 and such notches receive the supporting member or piece 67 and the casing is clamped to such member or bar by means of a rigid tongue 76, on the tightly threading home of a nut member 77 on a threaded stud 78 supported from the underside of the top wall of the casing.

Mounted in the casing 68 is an inking roller 79 of the construction of the inking roller 38 above described and mounted in the same manner and by the same means as is the inking roller 38. Additionally, there is mounted in this casing a printing roller 80 of the construction of the printing roller 39 first described and mounted in the same manner as the printing roller 39. Thus, the mounting studs for the inking and printing rollers 79 and 80 are given the same reference characters as applied to the corresponding parts for the mounting of the inking and printing rollers 38 and 39 of Figs. 1-4.

In addition to the mentioned parts, the housing 68 mounts a rod 81 extending entirely across the housing and through both of its side walls 70 and 71. This rod 81 is rotatable or turnable relative to the housing and to the outer end of

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such bar, set screws 82 and 83 rigidly secure the upper or inner ends of L-shaped arms 84, and 85, respectively. Thus, these arms 84 and 85 are located one at the outer side of each of the side walls 70 and 71 of the casing or housing 68. A platen or pressure roller, generally designated 86, is mounted by these arms 84 and 85 for movement therewith but for rotation about its own axis relative thereto. To the desired end, this platen roller includes a reduced diameter end portion 87 journaled in the arm 85 and then the other end portion of the platen roller is journaled on the shank of a screw 88 passing through the arm 84.

A stiff rigid bar 89 connects the outer end portions of the arms 84 and 85 and is rigidly attached to them in any desired manner as by screws or the like 90. This bar 89, at its underside, mounts a blade or knife 91 having a toothed outer or free edge 92 on which paper, as gummed tape, may be cut.

The platen roller 86, intermediate its ends and, in fact, in its mid portion in alignment with the printing pad on the printing roller, is of enlarged diameter and preferably is made so by having a blanket of rubber or the like 93 thereon. Then this platen or pressure roller, beyond the ends of such enlarged diameter portion, is provided with toothed portions 94 of a diameter and so spaced as to mesh with the spaced tooth portions 47 of the printing roller 80.

On the forward portion of the housing or casing 68 is an enlargement or projection 95 through which extends a threaded shank 96 rigid at its lower end with the bar 89 connecting the forward end portions of the bracket arms 84 and 85. A coil spring 97 is disposed about said shank 96 between the bar 89 and the underside of the projection 95. A nut 98 is threaded on the shank 96 at the upper side of said projection 95. With this construction, it will be clear that on adjusting the nut 98 inwardly on the shank 96, the bar 89 is drawn upwardly towards the projection 95 and the platen or pressure roller 86 is drawn upwardly toward the printing roller 80.

On turning of the nut in the opposite direction the spring 97 will function to press the bar 89 in the opposite direction whereby the arms 84 and 85 tend to move in a clockwise direction to carry the pressure or platen roller 86 away from the printing roller 80.

When using this machine, the end portion 99 of the gummed tape is threaded over the upper side of the centrally thickened portion of the platen or pressure roller 86 and between such portion and the printing pad portion of the printing roller. Then the tape is carried forwardly under the bar 89 and the knife 91. Now the nut 98 is tightened to properly position the platen or pressure roller 86 to support the tape with its upper side against the printing roller 80. At this time it will be understood that the inking roller 79 is in a position to supply ink to the printing pad on the printing roller and that the platen or pressure roller adequately supports the tape against the printing roller.

Now, as the tape machine is operated to feed tape from the roll 66, or as the tape is drawn from the roll in any manner, it is drawn between the pressure or platen roller 86 and the printing roller 80. When the printing pad of the printing roller is against the platen or pressure roller, or when these rollers are so related that the tape is gripped between them, as the tape is advanced

both rollers are rotated and the message on the printing roll is printed on the tape.

As the printing pad does not extend entirely about the printing roller, there is a gap during each revolution when there is no printing pad to roll against the enlarged diameter portion of the platen or pressure roller. Unless provisions are made to the contrary, at this time, the tape would just slip between the rollers and they would not turn and the printing pad would not again be brought back into position to print.

The toothed or friction creating means 94 of the platen or pressure roller at this time is in engagement or mesh with the toothed portions 47 of the printing roller and thus as the tape is drawn across the pressure or platen roller and it is rotated, the printing roller is caused to rotate so as to bring its printing pad around and back into position for printing on the next length of tape.

Referring now to Fig. 8, at 100 is generally indicated a portion of a roll of tape of greater width than the roll 66 of Figs. 5-7. Fig. 8 shows the printing device 88 modified for use in connection with tape of considerable width and, in fact, illustrates the modifications necessary in said device 88 in order to adapt it for use in printing on gummed tape or on ungummed paper, such as that of roll 18 of Figs. 1-4. Thus, in Fig. 8, the printing device generally designated 101 is shown as mounted on a cross piece or bar 102 and including a casing or housing 103 of the structure of the casing or housing 68 previously described in detail.

Casing or housing 103 is clamped to the cross piece 102 by means of a clamping lug 104 and a nut 105 corresponding with the lug 76 and nut 77 of Fig. 7. In adapting the printing device for a relatively wide roll of tape or various widths of wrapping paper, the rod 81, the platen or pressure roller 86, the bar 89 and the knife 91 of Figs. 5-7 are all omitted and in their place is substituted a rod 106, a compression roller or platen 107, a mounting bar 108, and a saw-toothed knife 109. To accomplish the desired adjustment, the bracket arms 84 and 85 are detached from the rod 81 on loosening of the screws 82 and 83 and rod 81 is dispensed with. Also, by removing the screw 88, the compression roller or platen 86 is freed and set aside and on removal of the screws 90 the bar 89 and its knife 91 are separated from the assembly and are dispensed with.

Now the different and longer bar 103 is connected to the ends of the bracket arms 84 and 85 by the screws 90 and this longer bar 103 supports a longer knife 109. Then the pressure roller or platen roller 107 is mounted by inserting its reduced end portion 110 through an opening in the arm 85 and by mounting its other end on the screw 83 on the arm 84. Next, the arms are assembled on the end portions of the longer rod 106, the latter having been inserted through the side walls of the housing 103.

In making the substitutions as above set forth, the substituted parts must be of such length as to extend beyond the edges of the tape or other paper to be printed upon. In Fig. 8, it is intended that the inking and printing rollers be the same as those of Figs. 5, 6 and 7 and such parts will remain mounted in the casing.

However, the substituted parts are of greater length and of a length to dispose the bracket arms 84 and 85 beyond the edges of the wider paper or tape. This paper will be carried between

the platen or pressure roller 107 and the printing roller and in its portions which are to be printed on will be strengthened and kept smooth in passing over the pressure roller or platen and particularly over the centrally thickened portion 93 thereof and between the toothed portions 94 thereof. These toothed portions in the modification of Fig. 8 function in the manner described in connection with the modification of Figs. 5-7.

With the described construction of Fig. 8 it will be seen that if the paper on the roll 100 has an indentation, the same will be straightened as it passes over the platen or pressure roller so that the portion of the paper upon which the printing is to be done is not wrinkled or depressed but on the contrary is held smooth and even so that uniform printing is obtained as the paper is taken from the roller and carried between the platen or pressure roller and the printing roller. Of course, in the structure of Fig. 8, the paper taken from the roll is severed by turning or drawing it across the saw-toothed edge of the knife 109.

Having thus set forth the nature of our invention, what we claim is:

In combination with a rigid upper cross member of a roll paper holder or stand having means thereon for supporting a roll of paper, a bracket detachably secured to said cross piece and projecting to the forward side thereof, a housing, horizontal pivot means pivoting said housing at its upper end on the forward portion of said bracket for swinging movement to carry the lower end portion of said housing toward and from a roll of paper supported by said stand, said housing open through its inner side and having a concavely rounded slotted depression in its outer side at a point below said pivot means, a printing roll mounted within said housing and of a diameter to project through the inner open side thereof for engagement with a roll of paper on said stand, said bracket including a depending tongue against the forward side of said cross piece and extending to a point below said pivot means, a tension spring anchored at one end to said tongue and extending forwardly beneath said pivot means, a nut secured to said tension spring, a shank threaded through said nut, and a finger piece on said shank engaged through said slotted depression and having a convexly rounded inner end seated within said depression in the outer side of said housing and turnable to adjust said nut along said shank and thereby adjust the tension of said spring to regulate the pressure with which said printing roller bears against the roll of paper on said stand.

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