July 13, 1943. R. W. CHALMERS 2,323,976

TAPE PRINTING MACHINE

Filed Sept. 28, 1940 4 Sheets-Sheet 1

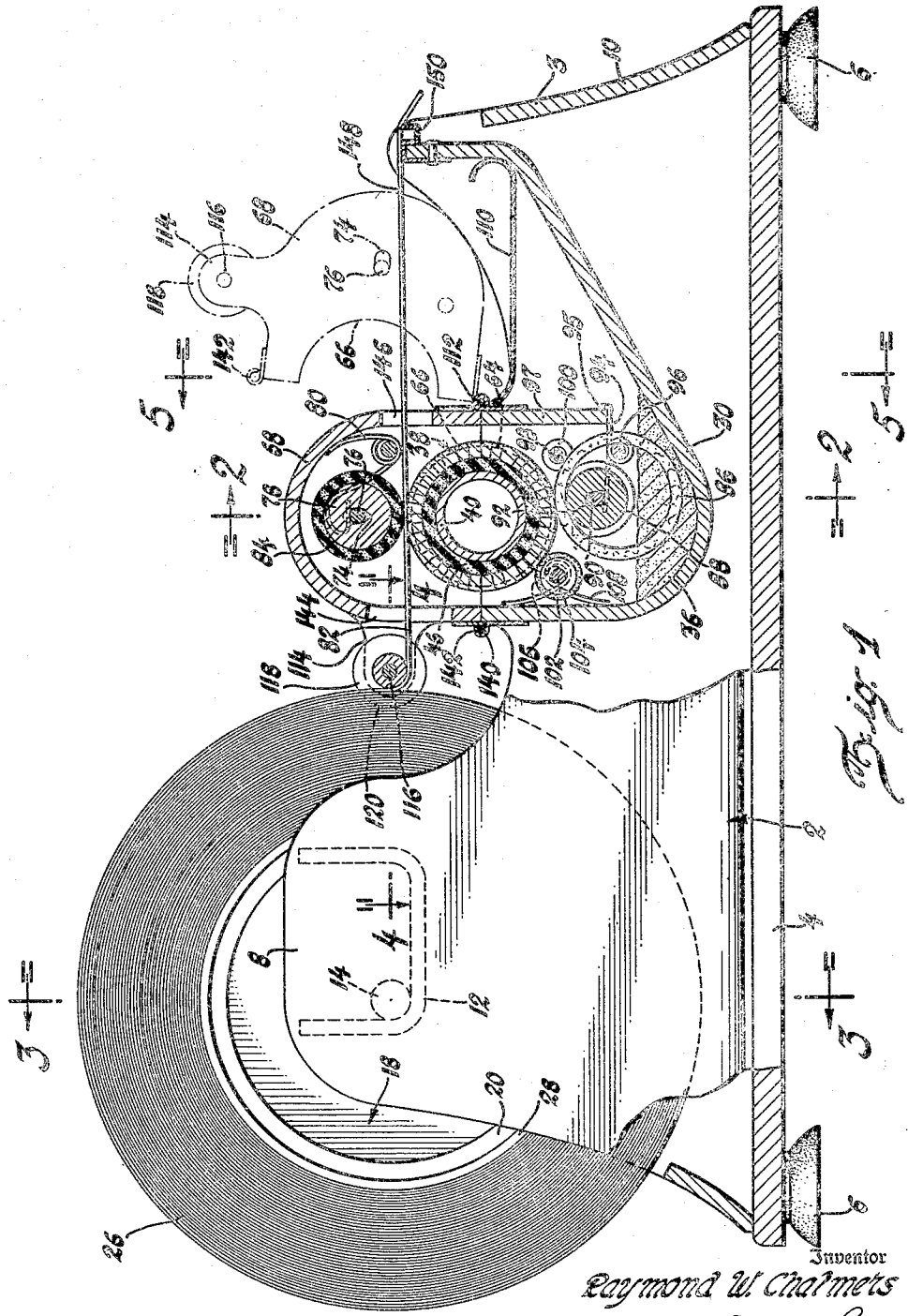


Fig. 1

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July 13, 1943. R. W. CHALMERS 2,323,976

TAPE PRINTING MACHINE

Filed Sept. 28, 1940 4 Sheets-Sheet 2

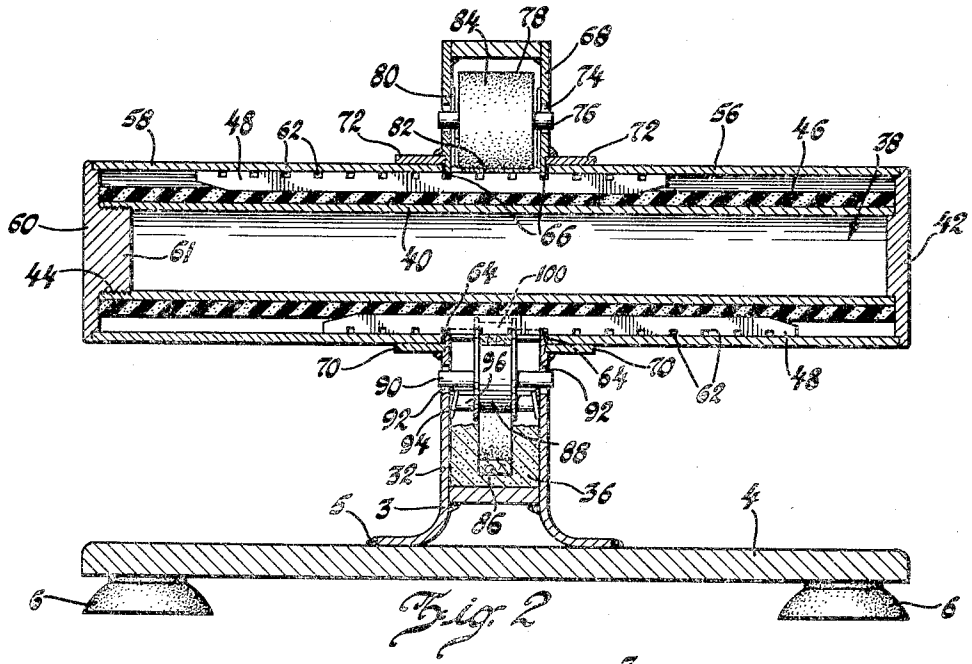


Fig. 2

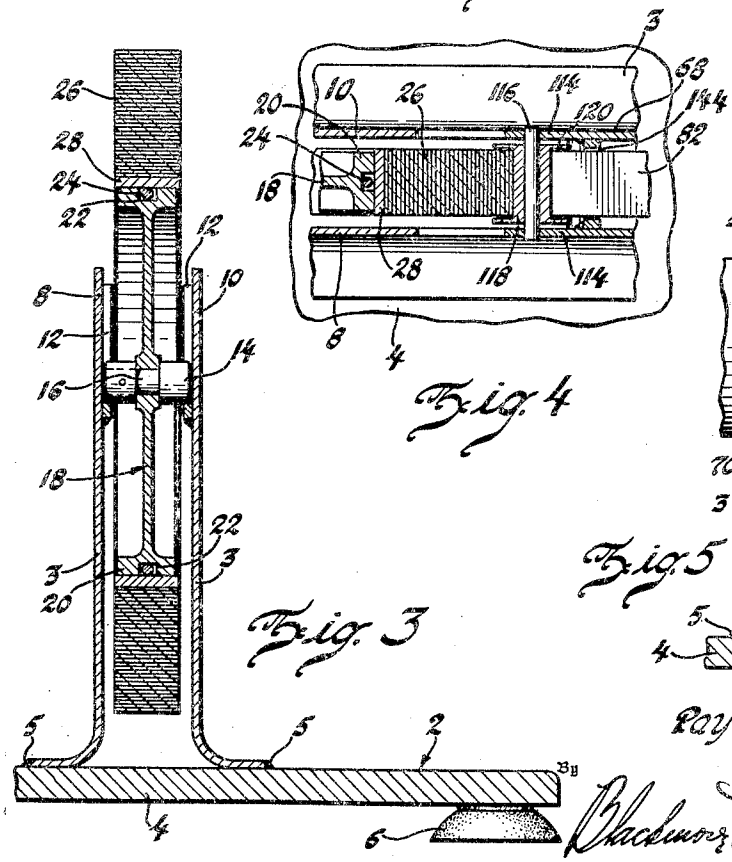


Fig. 4

Fig. 3

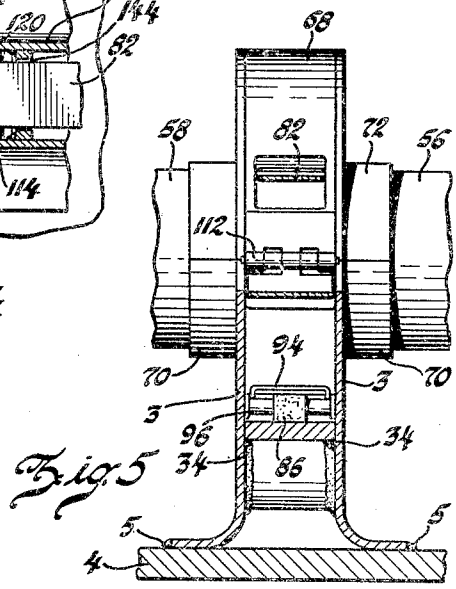


Fig. 5

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July 13, 1943. R. W. CHALMERS 2,323,976

TAPE PRINTING MACHINE

Filed Sept. 28, 1940 4 Sheets-Sheet 3

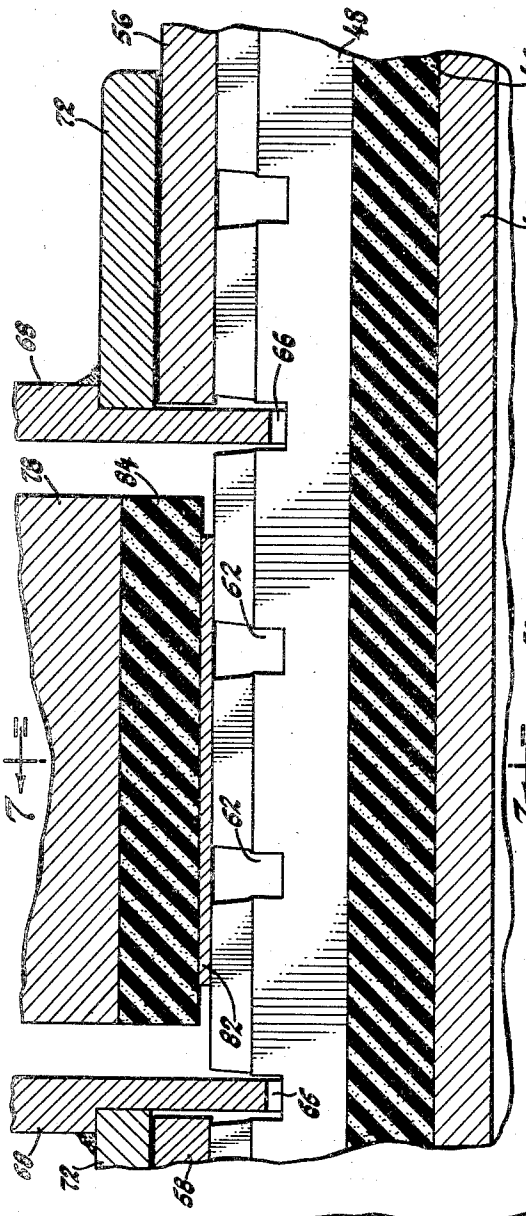


Fig. 6

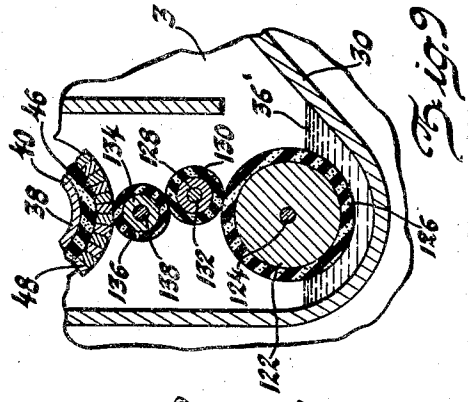


Fig. 5

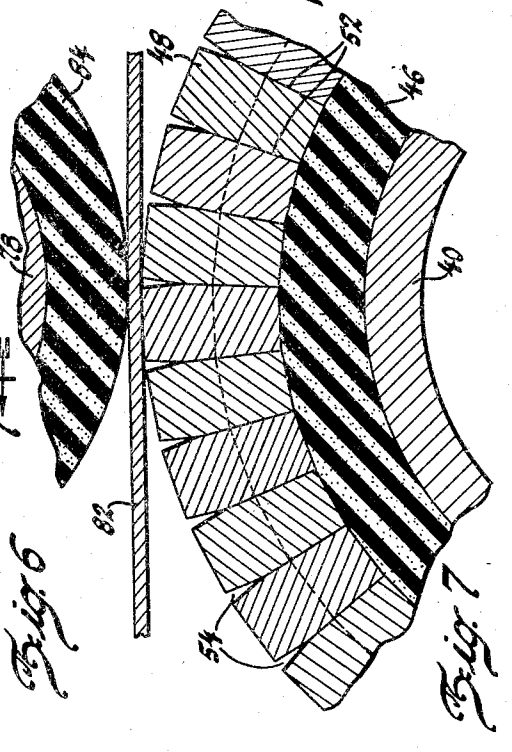


Fig. 7

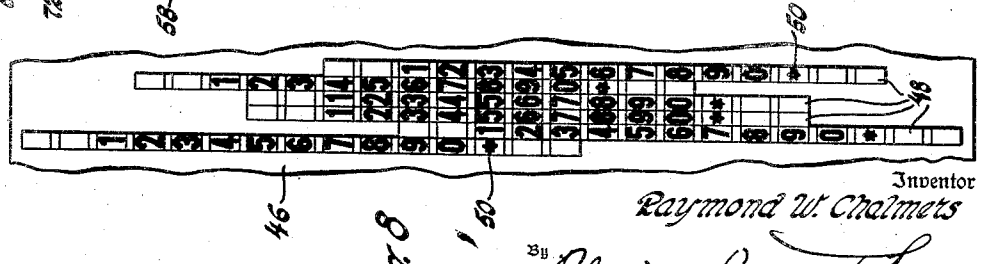


Fig. 8

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July 13, 1943. R. W. CHALMERS 2,323,976

TAPE PRINTING MACHINE

Filed Sept. 28, 1940 4 Sheets-Sheet 4

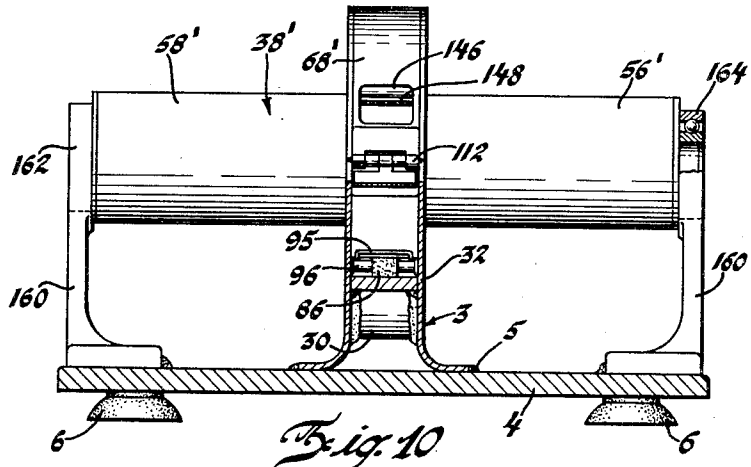


Fig. 10

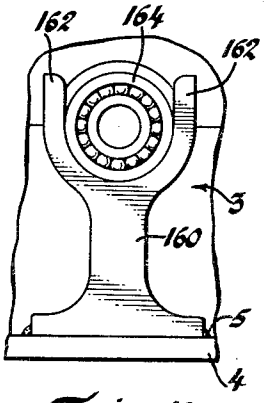


Fig. 11

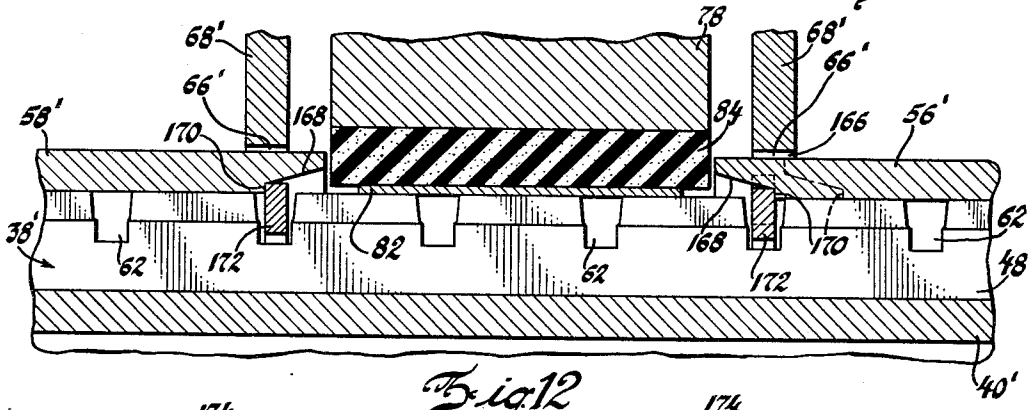


Fig. 12

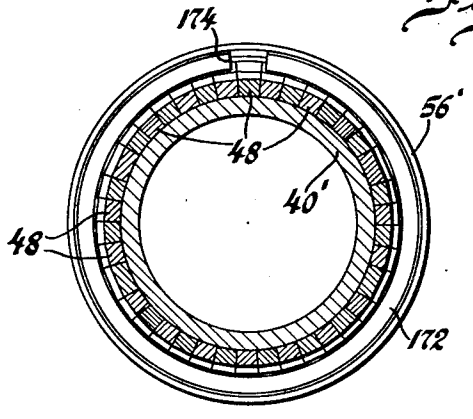


Fig. 13

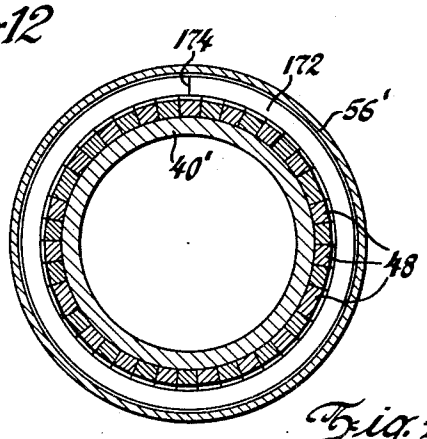


Fig. 14

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Patented July 13, 1943 2,323,976

UNITED STATES PATENT OFFICE

2,323,976

TAPE PRINTING MACHINE

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Application September 28, 1940, Serial No. 358,814

16 Claims. (Cl. 101—216)

This invention relates to tape printing machines and has particular reference to a machine for printing a number on the adhesive side of a strip of adhesive tape so that the numbered piece of tape may be applied to a metal part which is not readily adaptable to a printing machine or the application of a number thereto.

In the prior art, printing machines have been used which were capable of printing but one number only on a strip of adhesive tape, but in industries such as the automotive industry, where there are hundreds of replacement parts, each designated by a different number, it has been found that such individual machines, or a machine which prints one number only, are not sufficiently flexible for general use in the industry. In order to make available a printing machine which is capable of wide use, insofar as a plurality of numbers is concerned, the machine of the present invention was designed and built.

The printing roll of the machine is provided with a plurality of circumferentially arranged long type bars which have either numbers or letters thereon, or both. Each of these type bars is displaceable relative to the other, and by displacing the bars in one direction or the other, a desired number or lettering, or combination of figures and letters, can be brought to the printing part of the printing roll and printed on the adhesive tape. As soon as the proper supply of one number has been printed it is but a matter of a few moments to shift the type bars to bring a new number to the machine. This will give great flexibility to the machine, insofar as the use of different numbers is concerned, and will enable a single machine to print a substantially unlimited number of pieces of adhesive tape to be applied to many different machine parts.

The frame of the machine is novel in that it is provided with a pocket or well in which the ink or ink material is received. The ink or the ink powder is placed in the pocket of the frame and a rotary member in the pocket dips into the ink or powder and picks up a quantity thereof and transmits it to the printing roll.

The printing roll itself is mounted in a lower stationary part of the frame and in a complementary hinged upper frame part. The hinged part is provided to enable access to the printing roll to enable its removal and to enable the changing of the type bars to bring a new number to the printing surface.

Over the printing roll and in the hinged frame part there is mounted a spool which is spring pressed against the printing roll, and the tape is guided between the spool and the roll and in passing between the two, the characters on the printing roll are imprinted on the tape.

The printing roll itself is composed of a central metal cylinder surrounded by a rubber cylinder, although this rubber cylinder may be omitted and the type mounted on the metal cylinder. The type bars are then peripherally arranged around the rubber cylinder, and each bar is slightly tapered at its inside so that all of them can be accurately positioned around the rubber cylinder. Around the type bars at each end there is received a retaining shroud or cylinder which holds the type bars in place. End or closure pieces or discs are secured to the central cylinder and to the outer cylinders and rigidly hold them in place and retain the printing roll in assembled relation.

One end of the frame is provided with suitable mounting means on which there may be mounted on movable bearings a spool which is adapted to receive a cylinder of adhesive tape.

On the drawings

Figure 1 is a side view of the printing machine with parts broken away and shown in section better to illustrate the construction and with the hinged part of the printing roll mounting frame shown in unhinged position in dotted outline.

Figure 2 is a longitudinal sectional view of the printing roll and its mounting means.

Figures 3, 4, and 5 are sections on the lines 3—3, 4—4, and 5—5 of Figure 1.

Figure 6 is an enlarged sectional detailed view through the printing roll at the printing surface and the parts of the machine associated therewith.

Figure 7 is a sectional view on the line 7—7 of Figure 6.

Figure 8 is an elevational view of a part of the printing roll showing the long type bars.

Figure 9 is a modification showing the manner in which a liquid ink is transmitted to the printing roll.

Figure 10 is an end view of a machine with a modified printing roll.

Figure 11 is an end view of the structure of Figure 10.

Figure 12 is an enlarged sectional detailed view corresponding to Figure 6 through the printing roll of Figure 10, showing details of construction

and showing in dotted outline the withdrawn position of the right hand shroud.

Figure 13 is a section taken through the printing roll at the retaining ring showing the shroud end withdrawn and the ring expanded.

Figure 14 is a view similar to Figure 13 but showing the shroud end fitting over the ring and the ring closed.

Referring to the drawings, the frame of the machine is indicated as a whole at 2. This frame comprises the base 4 to which the sides 3 are secured as by welding the flared parts at 5. The base may be mounted on rubber feet 6. The frame sides have the two upright mounting shoulders 8 and 10, on the insides of which there are secured small U-shaped bearing members 12. These bearing members 12 are for the purpose of receiving the bearing parts 14 (Figure 3) of an axle 16 of a spool indicated as a whole at 18 and having a rim 20. In the rim 20 a groove 22 is formed in which there rests a spring 24 which constantly presses lightly outwardly. Over the rim 20 there is mounted the spirally wound reel or core 26 of adhesive tape, this core having an inner pasteboard backing 28 which is received over the spring wire 24. The spool 18 may be readily withdrawn from the bearing elements 12 and a new spool of adhesive tape 26 readily applied thereto by slipping the pasteboard backing 28 over the rim 20.

The other end of the frame 2 has a pocket 30 formed between the sides 3. This pocket comprises a piece of metal suitably bent as shown in Figure 1 and secured to the sides such as by welding as indicated at 34 in Figure 5. In this pocket there is positioned the inking powder 36 which is adapted to be applied to the printing roll indicated as a whole at 38.

The printing roll is best shown in detail in Figures 2, 6, 7 and 8 and comprises the central cylinder 40 which has the end disc 42 rigidly secured thereto at one end and projecting laterally therefrom. The other end of the cylinder 40 is interiorly threaded as indicated at 44. Surrounding the cylinder 40 there is a second cylinder 46 composed of a resilient or compressible material such as rubber, and mounted peripherally around the rubber cylinder are the individual long type bars 48. If desired, the rubber cylinder may be omitted and the type bars mounted directly on the metal cylinder 40. These type bars are shown in detail in Figure 8 and may have thereon either numbers or letters, or both, and where the part to be designated is by numeral only, a printing roll comprising a type bar having numerals only may be used, but when letters as well as numerals are used, some of the type bars may have letters only thereon or both letters and figures. The asterisk 50 shown in Figure 8 may represent any suitable character to be placed on the type bars.

As is best shown in the detailed view in Figure 7, the type bars 48 are tapered at their insides or their innermost edges, as indicated at 52. This tapering is given to the type bars in order that there may be a snug fit entirely around the periphery. At the outermost edge the type bar edges are spaced as indicated at 54. This spacing is caused by the taper 52 on the adjacent bars.

Referring again to Figure 2, two end retaining shrouds or cylinders 56 and 58 are positioned over the type bars 48 and rubber cylinder 46 and these two cylinders have for their objects the retention of the type bars on the rubber cylinder. The cylinder 56 is rigidly secured to the end disc 42 while cylinder 58 is rigidly secured to the end disc 60 which has a threaded stud 61 which screws into the threaded part 44 of cylinder 40. There is a space between the cylinders 56 and 58 on the one hand and the rubber cylinder 46 on the other hand, but this space is less than the radial thickness of the type bars 48 so that the type bars are slightly impressed in the rubber when the printing roll is assembled as is shown in Figure 2. This will give a slight upward pressure on the type bars and furnish sufficient friction to hold them in place.

Referring to Figures 6 and 8, the type bars are provided along their length with a series of equally spaced recesses or cut-out parts 62, these recesses or cut-out parts being between adjacent letters or figures on the bars. These cut-out parts 62 serve as a means in which a tool or metal pencil may be inserted in order to slide the bars one way or the other to change the numeral or designation which is to be brought to the printing surface. These recesses 62 when aligned form circular grooves in which there are received the arcuate semi-cylindrical flange parts 64 of the frame sides 3 (Figure 2). There are also received in the circular grooves formed between notches 62 the semi-cylindrical arcuate flange parts 66 of the movable cap part 68 of the retaining frame for the printing roll. When these parts 64 and 66 are received in the groove formed by the notches 62 the roll is held against lateral movement but may rotate.

Immediately below the arcuate edges 64, the sides 3 have secured thereto, as by welding, the semi-circular bearing bands 70 in which the adjacent ends of the cylinders 56 and 58 are received when the roll is in place. Similarly, the hinged upper cap part 68 of the retaining frame has welded thereto semi-circular bands 72 which fit over the cylinders 56 and 58 and are complemental to the bands 70 to form the upper bearings for the printing roll.

In the cap 68 lateral slots 74 are provided, and in these slots there is received the axle 76 of a roller 78 which is urged by the springs 80 against the printing roll 38. Between the printing roll 38 and the roller 78 the adhesive tape 32 of the printing machine is adapted to run and the pressure produced by the springs 80 on the roller 78 presses the tape with sufficient pressure against the printing roll to cause the characters on the roll to be printed on the tape when the tape is drawn or pulled through the machine. The roller 78 is preferably provided with a peripheral part 84 of rubber or some suitable resilient material.

Referring to Figure 1, the ink powder 36 is transmitted to the printing roll 38 by means of the circular band 86 which is preferably of rubber or of felt or some similar material. The band 86 has its lower part extending into the inking powder 36 and its upper part frictionally held against the printing roll 38 by means of the grooved spool 88. This spool is mounted on an axle 90 held in slots 92 in the frame sides and is urged against the printing roll 38 by means of a spring 94 abutting at 95 against the end of a partition 97. The spring 94 intermediate its ends is wound about a pin 96 which is secured in the frame sides and a second pin 98 likewise mounted in the frame has a flanged spool 100 mounted thereon. The purpose of the pin 96 and the spool 100 is to guide the inking band 86 and help to retain it in position.

A wheel 102, preferably having an outer sur-

face of rubber, is mounted on an axle 104 mounted in slots 106 in the frame sides. The wheel 102 is held against the printing roll 38 by means of spring 108 secured against the wall of the pocket 30. The function of the wheel 102 is to distribute the inking powder evenly to the printing roll and to remove excess powder.

The pocket 30 is provided with a cover 110 hinged at 112 to the partition 97, and by raising the cover 110 a new supply of ink powder can be placed in the pocket 30. The hinge 112 also serves as a hinge for the hinged upper cap part 68 of the retaining frame for the printing roll.

The hinged cap part 68 of retaining frame for the printing roll has projecting ears 114 which extend toward the roll of tape 26 when the frame 68 is in position. Between these ears 114 there is mounted an axle 116 which retains a spool 118, the edge flanges 120 of which are positioned slightly beyond the planes of the sides of the reel 26 of adhesive material. The spool 118 has for its function to cause the length of adhesive tape 82 always to approach the printing surface of the printing roll in the same direction as shown in Figure 1.

The showing in Figure 9 illustrates a species of the invention in which a liquid ink is used instead of the ink powder as shown in Figure 1. The liquid ink is indicated at 36'. A wheel 122 is mounted on an axle 124 which has its bearings in the sides 3 of the frame. This wheel preferably has a periphery of felt or of rubber indicated at 126, the second wheel 128 having a rubber or a felt periphery 130 mounted on axle 132 and in close contact with the wheel 122. A third wheel 134 also provided with a rubber periphery 136 is mounted on axle 138. This wheel 134 is in peripheral contact with both the wheel 128 and the printing roll 38. As the printing roll 38 turns it will cause the wheel 134 to turn which will in turn produce rotation of wheels 128 and 122 to bring the inked surface of the wheel 122 in contact with the wheel 128. The ink in turn will be transmitted by the wheel 134 to the printing surface of the printing roll 38.

The operation of the printing machine is as follows: Referring to Figures 2 and 6, it will be observed that the cylinders 56 and 58 extend short of the middle of the printing roll to leave an exposed part of the type bars and this exposed part is the printing surface. After the operator has properly arranged the type bars 48 to bring the proper number into registry at the printing surface, the printing roll 38 is placed in the lower bearing bands 70 with the arcuate edge parts 64 thereof in registration with the circular peripheral grooves formed by the recesses 62 in the type bars. The hinged upper part 68 of the frame is then swung over the printing roll with the arcuate flanges 66 also placed in the peripheral grooves formed by the recesses 62. The printing roll 38 is now rotatably mounted in the complementary arcuate bearing flanges 70 and 72. A pin 140 is then placed in meshing eyes 142 on the frame 2 and the cap part 68 tightly to hold the parts together and the printing roll in position. The position of the parts is now as shown in Figure 2 with the spool 118 in position to guide the tape. The upper or swingable frame or cap part 68 is provided with aligned lateral openings 144 and 146 and through these openings the tape 82 is passed and received between the printing roll 38 and the upper friction spool 78. By drawing on the tape from the end indicated at 148 the tape may be pulled through the machine and as it is pulled the friction between the tape, the printing roll and the roller 78 will cause the printing roll to turn to cause the numeral at the printing surface to be printed on the adhesive side of the tape. After the tape has been pulled through the roller a sufficient length, it may be cut off at the end of the printed number and the adhesive part applied to the machine part having the printed number. A knife to cut the printed tape is shown at 150 at the end of the machine. The continued operation of the printing roll will cause the ink powder 36 in Figure 1, or the liquid ink of Figure 9 to be transmitted to the printing roll.

Figure 10 shows a modified form of printing roll in which the base 4 has upright feet 160 at each side. The upper part of each foot is forked as shown at 162 in Figure 11, and in each fork there is received the ball bearing 164 which is fixed to the end of each of the shrouds or cylinders 56' and 58' of the printing roll 38'. In the species of Figures 10–14 inclusive, the bearings 70 and 72 of the species of Figures 1–8 inclusive are not used, but the races of the ball bearing 164 serve as a means rotatably to mount the printing roll 38'.

The hinged upper cap part 68' has its arcuate sides 66' shaped differently than the corresponding sides 66 of the species of Figures 1–8 inclusive. The arcuate parts 66' are merely flange members which are slightly spaced from the printing roll 38' as indicated at 166. The shrouds or end cylinders 56' and 58' are rotatably mounted at their ends in the central metal cylinder 40' in the manner shown at 44, 60, and 61 in Figure 2. That is to say, both shrouds or cylinders 56' and 58' may be screwed inwardly or unscrewed outwardly to cause them to move in an axial direction.

Referring to Figure 12, it will be observed that the ends of the shrouds 56' and 58' do not extend all the way over the printing roll, but in their final position the adjacent ends are spaced to leave exposed the printing surface to print the adhesive side of the tape 82. At their adjacent ends the inner part of the shrouds 56' and 58' are tapered as indicated at 168 and at the inner end of the taper a shoulder 170 is formed. When the shrouds or cylinders 56' and 58' are screwed to their innermost position as shown in Figure 12, the shoulders 170 receive the split retaining rings 172.

These rings are made of spring steel and the split therein is indicated at 174 in Figures 13 and 14. In the position of the parts as shown in Figure 12, the rings are held as shown in Figure 14. The rings, as will be observed from the showing in Figure 12, fit in the annular grooves formed by the recesses 62 of the type bars 48. The type bars in this species rest directly on a metal cylinder 40' instead of on a rubber cylinder 46 as shown in Figure 2. A rubber cylinder may be used with the species of Figure 12.

When the cylinders 56' and 58' are properly turned, the threads at 44 will pull the cylinders away from each other to release the spring rings 172 and to enable them to expand, or to move from the position shown in Figures 12 and 14 to the position shown in Figure 13. When each ring has been allowed to expand as shown in Figure 13, the space between the ends of each ring will be wide enough to expose one of the type bars 48, but the rings 172 will hold all of the other bars and prevent them from movement. With the one bar exposed as shown in Figure 13, the insertion of a tool in the exposed recesses

62 at the printing surface will enable the operator to move the printing bar in one direction or the other to expose a new number or letter to the printing surface. When this bar has been properly moved, the rings may be turned slightly to bring the space between the split ends 174 to a new bar and this bar then adjusted by shifting it to bring a new figure or letter to the printing surface. In this manner the entire number of bars around the periphery of the cylinder 40' may be adjusted to bring to the printing surface any desired numbering or lettering. When the desired number has been brought to the printing surface, the shrouds or cylinders 56' and 58' are turned in the opposite direction to move them from the dotted line position shown at the right of Figure 12 to the full line position. This movement from the dotted line position to the full line position will cause the beveled parts 168 of the shrouds 56' and 58' to move the ring from the dotted line position at the right of Figure 12 to the full line positions in the same figure, or from the position of the ring in Figure 13 to the position of the ring in Figure 14. When the shrouds are both screwed inwardly, or to the position shown in Figure 12, the rings 172 will positively hold the type bars from movement in either direction.

The change in the numbering on the printing roll is best accomplished by swinging the hinged cap part 68' on its hinge, which will enable the printing roll 38' to be bodily moved from the forks 162 in the feet 160, more readily to accomplish the adjustment by hand.

In the species of Figures 10–14 inclusive, the parts which correspond to the species shown in Figures 1–8 inclusive are similarly numbered.

In both species of the invention the bearing rollers 14 of the axle 16 will slowly move along the bottom of the bearing member 12 (to the right from the dotted line position of part 14 in Figure 1) as the amount of tape on the roll 26 decreases. The edge of the roll of tape 26 will always abut the spool 118 to assure that the tape will be withdrawn from the spool in the same way, or as shown in Figure 1. This withdrawal of the tape is a desirable part of the combination with the printing roll 38. The spool 118 prevents the tape from wandering to either side of the roll 26 and compels the strip of tape to enter the printing roll in a plane tangent to the roll and to the roller 78.

I claim:

1. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, and outer spaced shrouds or cylinders retaining said type bars in place.

2. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, said type bars being shiftable along said cylinder of resilient material, and outer spaced shrouds or cylinders retaining said type bars in place.

3. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, two outer shrouds or cylinders to retain the bars in place, said cylinders being spaced apart at the center of the roll to expose the face of the type for printing, said shrouds pressing the type bars into the resilient material to hold the bars in place.

4. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, outer spaced shrouds or cylinders retaining said type bars in place, and means at the end of the roll secured to both the shrouds and the central cylinder to hold the roll in assembled relation.

5. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, and outer spaced shrouds or cylinders retaining said type bars in place, said type bars having a tapered formation in cross section to enable them to tightly fit around the cylinder of resilient material.

6. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, and outer spaced shrouds or cylinders retaining said type bars in place, said type bars having a width greater than the radial distance between the cylinder of resilient material and the shrouds to cause the type bars slightly to compress the resilient material when the type bars are in place.

7. In a tape printing machine, a printing roll comprising a central cylindrical member, a cylinder of resilient material surrounding said central cylinder, a plurality of elongated type bars surrounding said cylinder of resilient material, each of said bars having thereon a plurality of characters, said type bars having recesses between the characters thereon to enable the insertion of a tool to move the bars longitudinally of the roll, and outer spaced shrouds or cylinders retaining said type bars in place.

8. In a tape printing machine, a frame, a printing roll, means on the frame rotatably to mount the roll, a plurality of type bars movably mounted in said roll, each of said bars having thereon a plurality of characters, recesses between the characters on the bars, said recesses forming peripheral grooves around the roll when the type bars are properly aligned, a flange on the means to mount the roll, said flange extending into the groove to prevent lateral movement of the roll relative to the frame.

9. In a tape printing machine, a printing roll comprising a central cylinder, a plurality of shiftable elongated type bars circumferentially positioned around said cylinder, two outer retaining shrouds or cylinders extending from the ends of the roll toward the middle and having their adjacent ends spaced at the middle of the roll, said outer shrouds or cylinders being movable longitudinally of the roll, said type bars having spaced recesses forming circular grooves, a split ring

mounted in one groove adjacent the end of a shroud, the end of said shroud extending over the ring and pressing the ends of the ring together, said shroud capable of movement to cause its end to move away from the ring to enable the ring to expand and the ring ends to separate, the separation of the ring ends leaving a space of sufficient width to enable one type bar to be moved longitudinally with reference to the other type bars.

10. In a tape printing machine, a printing roll comprising a cylinder, a plurality of shiftable elongated type bars circumferentially positioned around said cylinder, two outer retaining shrouds or cylinders extending from the ends of the roll toward the middle and having their adjacent ends spaced at the middle of the roll, said outer cylinders being movable longitudinally of the roll, said type bars having spaced recesses forming circular grooves, two split spring rings mounted in said grooves adjacent the ends of each outer cylinder, the ends of said outer cylinders extending over the rings and pressing the ends thereof together, said cylinders capable of moving away from each other to cause the ends thereof to move away from over the rings to enable the rings to expand and the ring ends to separate, the separation of the ends of the rings leaving a space of sufficient width to enable one of the type bars to be moved longitudinally with reference to the rest of the bars.

11. In a tape printing machine, a printing roll comprising a plurality of circumferentially arranged shiftable type bars, a cylinder, said type bars being mounted on the cylinder, two shrouds on the ends of the printing roll, said shrouds being displaceable longitudinally of the roll and holding the type bars on the roll, said bars having a plurality of spaced recesses capable of aligning to form annular grooves, a split spring ring in one of said recesses adjacent the end of one of the shrouds, a beveled inner end on the shroud, said shroud capable of being moved longitudinally over the roll to expose the ring and enable it to expand to enable one of the type bars to be shifted longitudinally in the space between the ends of the ring, the movement of said shroud in the opposite direction causing the beveled edge thereof to ride over and press the ring to cause the ring to close to prevent the longitudinal shifting of the type bars.

12. In a tape printing machine, a printing roll mounted in bearings on the machine, a plurality of elongated displaceable type bars circumferentially positioned on said roll, each of said bars having a plurality of characters, said roll having a central exposed part forming a printing surface, means to retain the type bars in their printing relation, and means surrounding the type bars and operable to release said first named means to enable the movement of the bars to change the number or wording to be printed.

13. In a printing machine, a printing roll comprising a central cylindrical type bar mounting member, a plurality of elongated longitudinally adjustable type bars mounted circumferentially on said member, and adjustable outer shrouds or cylinders to retain said type bars in place on the central member, the inner ends of said shrouds being spaced from each other to expose a printing surface.

14. In a printing roll for a tape printing machine, a central cylinder, a plurality of elongated longitudinally adjustable type bars surrounding said cylinder, spaced recesses on each of said bars, said recesses adapted to align with each other to form circumferential grooves, a split spring ring in one of said grooves to prevent the movement of said type bars relative to each other, means to hold the type bars on the cylinder and to control the ring, said means movable in one direction to close the ring thereby to prevent movement of the bars relative to each other or movable in the other direction to enable the ring to expand and the ring ends to separate to form a space therebetween to enable one type bar to be moved relative to the others.

15. In a printing roll for a tape printing machine, a central cylinder, a plurality of elongated longitudinally adjustable type bars surrounding said cylinder, spaced recesses on each of said bars, said recesses adapted to align with each other to form circumferential grooves, a split spring ring in one of said grooves to prevent the movement of said type bars relative to each other, means to hold the type bars on the cylinder and to control the ring, said means having a beveled end and movable in one direction to cause the beveled end to close the ring thereby to prevent movement of the bars relative to each other or movable in the other direction to cause the beveled end to move away from the ring to enable the ring to expand and the ring ends to separate to form a space therebetween to enable one type bar to be moved relative to the others.

16. In a tape printing machine, a base having an upright portion, a freely removable elongated rotatable printing roll mounted on said upright portion, said roll extending beyond both sides of said upright portion, the middle of said printing roll forming the printing surface, a hinged cap on said upright and adapted when in closed position to cover the printing surface, and means on the cap to engage the printing roll and retain it in operative position, said cap adapted to be moved on its hinge to open position to uncover the printing surface and to enable the removal of the printing roll.

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