Sept. 7, 1926. 1,598,808

G. V. DOMARUS, JR

PRINTING DEVICE

Filed June 25, 1924 2 Sheets-Sheet 1

Fig. 1.

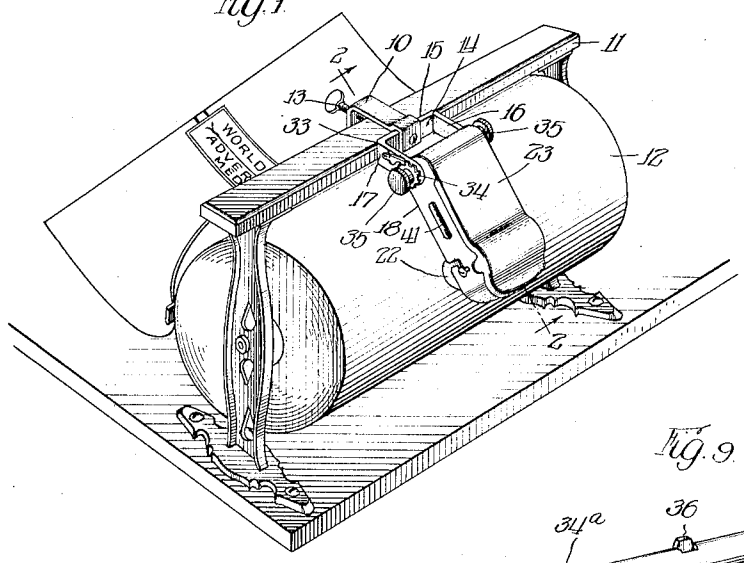



Fig. 9.

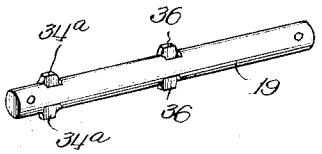


Fig. 2.

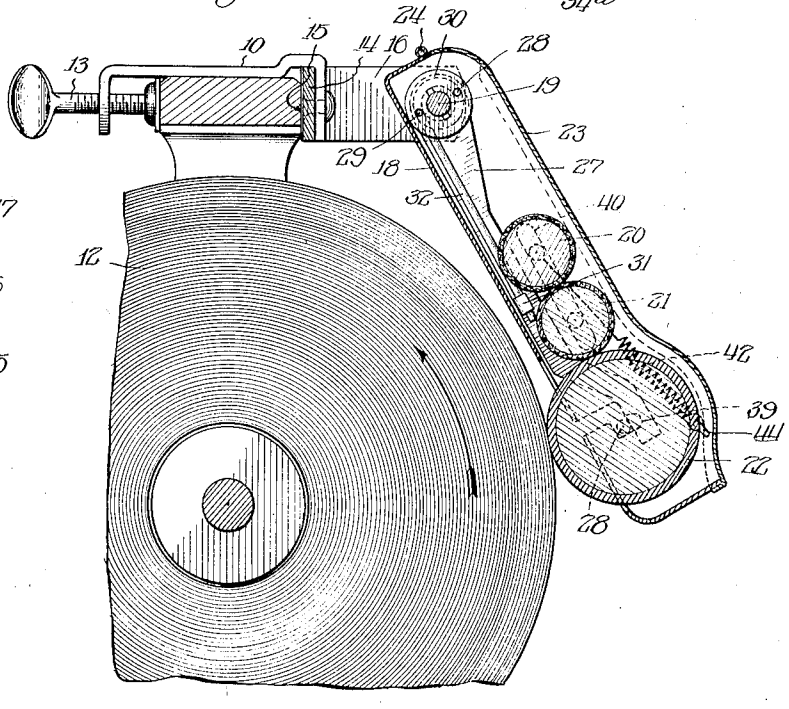
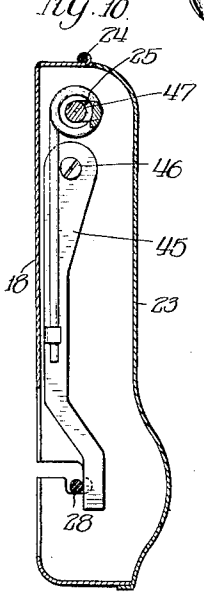


Fig. 10.



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PRINTING DEVICE

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Fig. 3

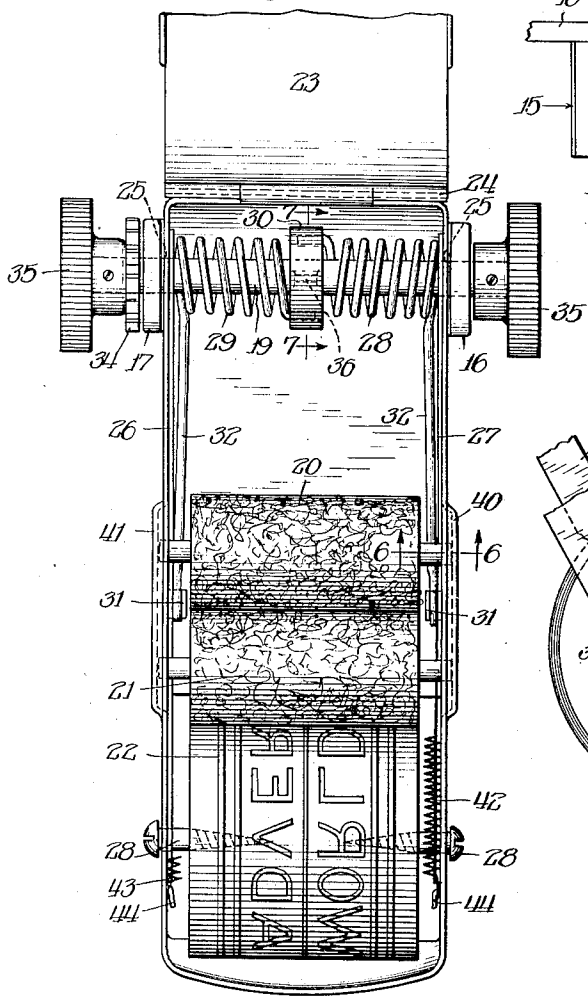



Fig. 4

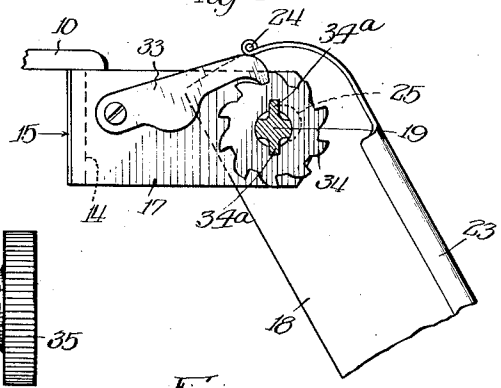



Fig. 5

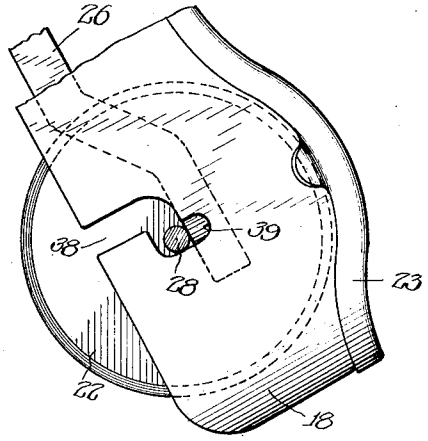



Fig. 6

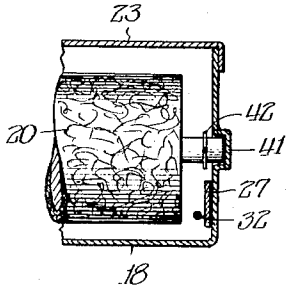



Fig. 7

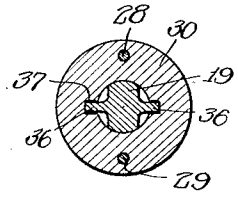
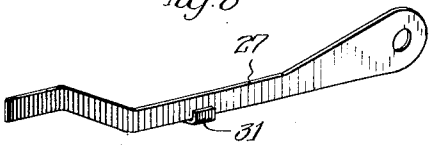



Fig. 8




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Patented Sept. 7, 1926. 1,598,808

# UNITED STATES PATENT OFFICE.

GEORGE V. DOMARUS, JR., OF CHICAGO, ILLINOIS.

## PRINTING DEVICE.

Application filed June 25, 1924. Serial No. 722,234.

The invention relates to printing devices and primarily to that type which is designed to be arranged so that it may cooperate with a roll of paper and to automatically print an advertisement or any other desirable matter upon the paper as it is unrolled from a roll.

The invention has among its various objects the provision of a construction which may be cheaply produced, is efficient in operation and which may be easily manipulated so as to compensate for different sizes of rolls and particularly the reduction of the diameter of the roll to gain the necessary pressure to produce clear and legible printing.

It is a further feature of the invention to provide a casing for the inking and printing rollers which will adequately encase said rollers and protect them from dirt and dust and to employ said casing as a support or frame for said rollers the latter of which are removable so that they may be replaced or changed should it be desired to change the reading or the color of the printing.

It is an object to mount this casing or frame so that it may pivot and float freely at its pivot to thereby compensate for inequalities between the roll to be printed and the frame by which the roll of paper and the device is supported or inequalities in the surface of said roll.

It is another object of the invention to construct the frame so that the introduction and removal of the rollers is facilitated and to provide a means whereby said rollers are held relatively to the frame against accidental removal.

In addition it is an object to provide a pressure applying means for the printing roller the construction thereof being such that its entire action is transmitted directly to the printing roller.

It is another object of the invention to provide a construction such as just described with a means for varying the pressure exerted upon the printing roller, so that a uniform pressure is at all times applied regardless of whether the roll to be printed is large or small.

It is also an object to employ the means just referred to, for the purpose of maintaining the printing roller in associated relation to the frame.

In addition to the above it is an object to provide a means for applying tension to the inking rollers and to transmit said tension to the printing roller.

The invention has these and other objects all of which will be more readily understood when read in conjunction with the accompanying drawings which illustrate various constructions which may be employed, it being therefore obvious that other arrangements may be resorted to without departing from the spirit of the appended claims forming a part hereof.

In the drawings Fig. 1 is a perspective view of a roll of paper and the support in which the roll is mounted, showing the device attached to the support.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a front elevation of the structure illustrated in Figs. 1 and 2 with the cover elevated.

Fig. 4 is a side elevation of a portion of the device shown in Fig. 1.

Fig. 5 is a side elevation of the lower end of a part of the structure shown in Fig. 1.

Fig. 6 is a section taken on the line 6—6 of Fig. 3 looking in the direction of the arrows.

Fig. 7 is a section taken on the line 7—7 of Fig. 3 looking in the direction of the arrows.

Figs. 8 and 9 are detailed perspective views of parts employed in the structure and

Fig. 10 is a sectional view showing a modified construction which may be resorted to.

The device illustrated in the drawings for accomplishing the invention contemplates the use of a bracket 10, whereby said device may be detachably secured to the frame or support generally designated 11 which support provides a means in which a roll of paper 12 to be printed may be mounted. The bracket 10 is provided with a thumb screw 13 and also includes a member 14 which is substantially U-shaped and has a face 15 thereof roughened so as to bite into the frame 11 to securely hold the printing mechanism with relation to said frame. The member 14 is provided with the forwardly projecting arms 16 and 17 between which the casing generally designated 18 is mounted. The casing 18 hangs

or depends from the forwardly projecting arms 16 and 17 and is secured to the arms through the medium of the shaft 19.

The casing generally designated 18 provides a housing in which the inking rolls 20 and 21 and the printing roll 22 are removably mounted. The casing is provided with a cover or closure 23 which is hingedly connected at 24 to the casing so as to permit of access to the inking rolls 20 and 21 when this is found necessary or desirable.

By referring to Fig. 4 it will be noted that the side walls of the casing 18 are provided with elongated openings 25 and that said shaft 19 is passed through said openings. Spring pressed arms or members 26 and 27 are also mounted upon the shaft 19 and extend downwardly lengthwise of the casing and each engages a stub shaft 28 of the printing roller 22, said shafts being mounted in the side walls of the casing generally designated 18, the side walls of the casing being designed to permit the printing roller 22 to be removably arranged in the casing so that it may be readily removed from the casing should the user desire to change the printing matter or style of his advertisement.

By referring to Fig. 3 it will be noted that coiled spring elements 28 and 29 are employed and these are also arranged upon the shaft 19. These coiled spring elements are coiled in opposite directions and each has one end thereof secured to the element 30 which is removably fixed to the shaft 19 so that upon rotation of the shaft the coils of said spring elements will be caused to either contract or expand and thereby vary their tension and consequent pressure exerted by them upon the arms 26 and 27 with which the free or opposite ends of said coiled elements are operably connected. To provide the connection between the arms 26 and 27 and these last mentioned ends of the coiled spring elements 28 and 29 each of said arms is provided with an inwardly extended lip 31 with which the ends 32 of the coiled spring elements cooperate.

A dog 33 pivotally secured to one of the arms such as 17 and ratchet 34 mounted upon the shaft 19 provide a means for adjustably holding the shaft 19 against rotation and to this end the ratchet 34 is secured to the shaft 19 by means of the projections $34^a$ provided upon the shaft, the projections fitting into openings provided in said ratchet.

The construction of the element 30 is clearly shown in Fig. 7 from an inspection of which it is evident that the projections 36 provided upon the shaft 19 cooperate with the recesses 37 provided in the element 30 so that it will thus hold the element 30 and cause its rotation with the shaft when the latter is rotated. The opposite ends of the shaft 19 are each provided with a knurled wheel 35 for facilitating the rotation of the shaft 19 and varying the tension exerted by the coiled spring elements 28 and 29 upon the arms 26 and 27 and the printing roller.

From the foregoing description it is evident that a means is provided whereby the pressure exerted upon the printing roller can be varied and thus result in the production of uniform printing of the roll as the paper is fed therefrom regardless of the diameter of the roll. The printing roller 22 is as before stated journalled in the side walls of the casing generally designated 18 and to this end the side walls are slotted as is clearly shown in Fig. 5 and indicated at 38, the slot permitting the ready removal and insertion of the printing roller and through the medium of the arms 26 and 27 which cooperate with the shaft of the printing roller, the latter is securely yet removably held with respect to the frame or casing 18.

The slots 38 are formed to provide the elongated portions 39, which allow the ends of the printing roller to move transversely to the axis thereof and relatively to the casing thus insuring proper co-operation between the face of the printing roller and the paper. These apertured portions 25 and 39 permit the casing 18 to freely float or move transversely of the length of the casing and relatively to the printing roller to thereby compensate for variations between the axis of the roll of paper 12 and the frame 11 thereof and to also compensate for slight depressions or slight irregularities in the surface of the roll of paper to be printed upon, the arrangement permitting movement of the casing 18 in the manner above described without correspondingly affecting the printing roller which thus insures proper surface contact between the printing face of the printing roller and the paper to be printed.

The inking rollers 20 and 21 have the opposite ends of the shafts thereof journalled in elongated depressions 40 and 41 provided in the opposite side walls of the casing or frame generally designated 18. These depressions are of a suitable length to permit said inking rollers to be removed from the casing by tilting said inking rollers at an angle with relation to the length of said casing.

Pressure applying means are provided which cooperate with the inking rollers 20 and 21 to provide the necessary pressure to transmit the ink carried by said rollers to the printing roller 22.

The means herein shown for accomplishing this last mentioned feature includes the coiled spring elements 42 and 43 which are

secured at 44 to the casing and extend upwardly and have their opposite ends fastened to the shaft of the roller 20.

In the modified structure shown in Fig. 10 the general construction is identical with that previously explained, differing however in that the arms 45, which correspond in function to the arms 26 and 27 are pivoted at 46 directly to the casing and not upon the shaft 47 as in the structure shown in Figs. 1 and 2.

By virtue of the fact that the casing such as 18 is pivotally arranged upon the shaft 19, said casing may be swung upon the pivot to permit a new roll of paper to be mounted in the frame 11 thereof when this becomes necessary.

From the foregoing description of the structure is is manifest that an arrangement is provided whereby the printing of a roll of paper may be accomplished as a portion of the roll is unwound therefrom.

It is further evident that the structure is such that a uniform pressure may be exerted upon the printing roller regardless of the diameter of the paper roll, which thus results in the accomplishment of uniform printing throughout the entire roll.

By virtue of the fact that the casing is permitted to move transversely of its length without affecting the printing roll 22, the contact between the printing roller and the paper will at all times be insured which also insures the proper printing of the sheet as it is unwound from the roll. The removability of both the printing and the inking rollers results in that the user may readily and quickly change either the color or the character of the advertisement printed upon the paper.

Having thus described the invention what I claim and desire to cover by Letters Patent is:—

1. In a device of the character described the combination of a support adapted to be attached to a frame which carries a roll of paper to be printed, a frame, inking and printing rollers carried by said frame, a pivoted member engaging the printing roller, and means for applying pressure to said pivoted member.

2. In a device of the character described, the combination of a support adapted to be attached to a frame which carries a roll of paper to be printed, a frame, inking and printing rollers carried by said frame, a member independent of the frame for engaging the printing roller, and means for applying a variable pressure to said member.

3. In a device of the character described the combination of a support adapted to be attached to a frame which carries a roll of paper to be printed, a frame, inking and printing rollers carried by said frame, a member engaging the printing roller, means for applying pressure to said member, said last mentioned means being variable to compensate for paper rolls of different dimensions.

4. In a device of the character described the combination of a support adapted to be attached to a frame which carries a roll of paper to be printed, a frame, inking and printing rollers carried by said frame, a pivoted member engaging the printing roller, said member operating to hold the inking roller in said frame in which said inking roller is mounted, and means for applying pressure to said member.

5. In a device of the character described the combination of a casing, a cover secured to the casing, a frame whereby said casing may be secured in position, a shaft, said casing being pivoted at an end to the shaft, inking and printing rollers arranged in said casing, the printing roller being mounted for movement independent of and transversely to the casing, an arm providing part of a tension device mounted upon said shaft and extending into engagement with said printing roller, a spring arranged upon and connected to said shaft and having a portion which engages said arm, said shaft being rotatable to wind and unwind the spring to thereby vary the action of said spring upon said arm and means for holding said shaft against rotation.

6. In a device of the character described the combination of a casing, a cover secured to the casing, a frame whereby said casing may be secured in position, a shaft, said casing being pivoted at an end to the shaft, said casing being loosely connected with said shaft so as to permit its movement transversely to the axis of said shaft, inking and printing rollers arranged in said casing, a member providing part of a tension device mounted upon said shaft and extending into engagement with said printing roller, said tension device including a spring arranged upon and connected to said shaft and having a portion which engages said member, said shaft being rotatable to wind and unwind the spring to thereby vary the action of said spring upon said member and means for holding said shaft against rotation.

7. In a device of the character described the combination of a casing, a frame whereby said casing may be secured in position, a shaft, members mounted upon said shaft, printing and inking rollers mounted in the casing, said casing providing means in which the printing roller is journaled and removably held relatively to the casing, an end of each of said members being engageable with the opposite ends of said shaft of the printing roller upon association of the printing roller with the casing, a tension element associated with each of said last mentioned members and including oppositely wound

portions arranged upon said shaft, said tension element being connected with a member secured to the shaft whereby upon rotation of said shaft the tension of the tension elements is increased or reduced.

8. In a device of the character described the combination of a bracket, a shaft, a casing pivotally secured to said shaft, inking and printing rollers mounted in the casing, the printing roller being free to move transversely of its axis and relatively to the casing, arms pivotally secured to the shaft for independent movement relatively to each other, said arms being in engagement with the opposite ends of the printing roller and resilient tension means in engagement with said arms.

9. In a device of the character described, the combination of a frame, a printing roller and an inking roller carried by the frame, said frame having means whereby said printing roller may be removably held with respect to the frame by transverse and lateral movement of the printing roller relatively to the frame, said means permitting movement of the printing roller transversely to the length of the roller when associated with the frame.

10. In a device of the character described, the combination of a printing roller, a support in which said roller is journaled, an inking roller engaging said printing roller, means associated with the inking roller for applying pressure to the printing roller to assist in holding said printing roller relatively to the support, means acting upon the printing roller to apply pressure toward a paper roll to be printed, said support being provided with an opening in which the roller is journaled, said opening permitting the roller to be associated and disassociated with the frame by movement thereof in transverse directions and permitting movement of the shaft of the roller laterally of the length of said frame when said roller is associated with the frame.

11. In a device of the class described, the combination of a frame, a printing roller carried by said frame, openings provided in said frame in which said roller is journaled, said opening permitting the roller to be associated and disassociated with the frame by movement of said roller relative to the frame in transverse directions and permitting movement of the shaft of the roller laterally of the length of said frame when said roller is associated with the frame.

12. In a device of the character described, the combination of a frame adapted to be secured to a frame carrying a roll of paper to be printed, a frame pivotally secured to said first mentioned frame and being movable at said pivot transversely of said pivot, a printing roller removably carried by said transversely movable frame, said printing roller and said frame being mounted for relative movement with respect to each other transverse of the axis of the roller, and resilent means for applying pressure to the printing roller toward the roll to be printed, said last mentioned means including an arm located for engagement by the printing roller upon the association of said printing roller with said frame.

In witness whereof, I hereunto subscribe my name this 21st day of May A. D., 1924.

GEORGE V. DOMARUS, JR.