Oct. 15, 1929. C. S. DU BELLE 1,731,739

DUPLEX INKING ROLLER

Filed Feb. 10, 1927

Fig. 1.

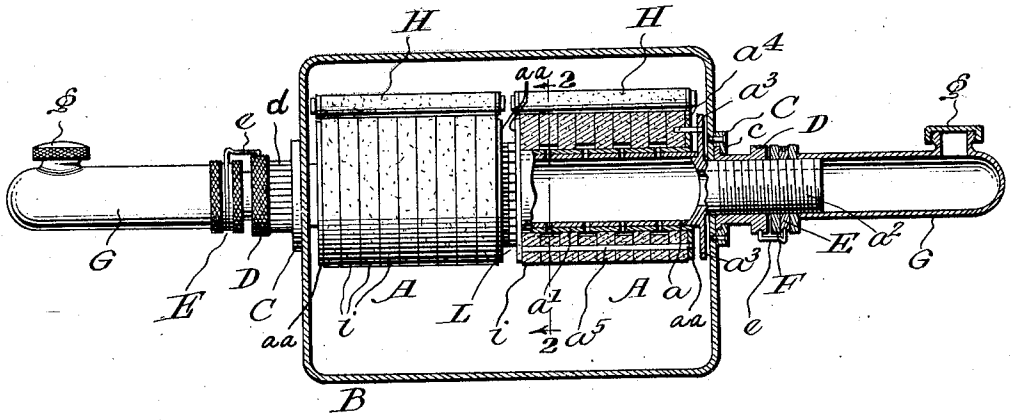


Fig. 2.

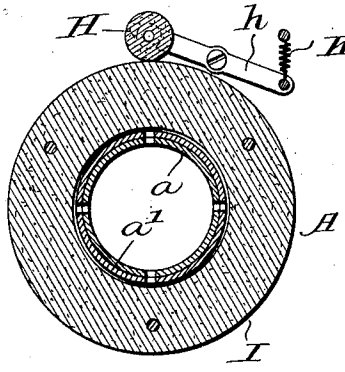
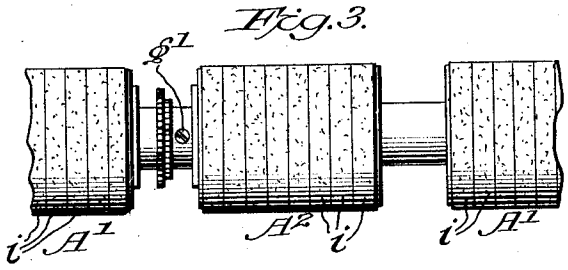


Fig. 3.



Inventor

Charles S. DuBelle

By Dowell & Dowell

His Attorneys

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UNITED STATES PATENT OFFICE

CHARLES SUMNER DU BELLE, OF WILLIAMSPORT, PENNSYLVANIA

DUPLEX INKING ROLLER

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This invention relates to ink-supplying means for use in connection with machines of the type known as Burrough's adding machines or multigraph printing presses or the like, and more particularly to rotary ink containers or inking rollers especially designed for applying ink to the type or printing means used in machines of the character referred to.

The primary object of the invention is to provide a sectional or duplex ink supplying roller with associated means for applying ink to the type or printing devices of machines of the character referred to, whereby a constant supply of ink is maintained and evenly distributed over the surface of the type or printing means.

A further object is to provide a fluid inking reservoir consisting of hollow or tubular inner and outer telescopically connected members each having minute orifices therein and provided with simple and efficient means for adjusting and holding the two members in relatively stationary position with the orifices in one member in registering position with the orifices in the other member, or in non-registering position, and to vary at will the quantity of ink supplied to the printing devices.

The invention will first be hereinafter more particularly described, with reference to the accompanying drawings, which are to be taken as a part of this specification, and then pointed out in the claims at the end of the description.

In said drawings, Fig. 1 represents a longitudinal side elevation of one roller or section and a sectional view of the other roller or section of a duplex fluid inking reservoir or inking roller embodying my invention;

Fig. 2 is a transverse section taken on the line 2—2 of Fig. 1; and

Fig. 3 is a plan view showing triple rollers or roller sections.

My improved duplex or sectional inking roller is adapted to be applied to machines of known construction, by means such as are ordinarily employed for attaching ink supplying rollers to such machines; the invention being designed for general application to machines of different types, in which printing devices are used, and it is thought to be unnecessary to illustrate or describe any particular type of machine with which the ink supplying roller may be used, or the means employed for attaching the same thereto.

Referring to said drawings, in which the same reference letters are used to denote corresponding parts in different views, I have shown, in Fig. 1, two fluid inking reservoirs or ink supplying rollers A, A, revolubly mounted in suitable bearings provided therefor on a supporting frame B, and inasmuch as these two rollers are substantially identical in construction, a description of one will suffice as a description of both.

Each roller consists of an inner member a and an outer member a^1, preferably of tubular form, each having minute orifices therein arranged normally in registering position with the orifices in the other member, or vice versa; one member being movable upon or within the other member so as to cause the orifices therein to register with the orifices in the other member, or not, as desired.

The outer end of the inner member has secured thereto or formed integrally therewith a tubular axial extension a^2, which is exteriorly threaded and protrudes through a circular opening in a side portion of the frame B, and has formed thereon or secured thereto, at its inner end, a radial projection or flange a^3 to which is secured, by means of a pin a^4 or other fastening means, an end portion of a cylindrical body I of felt or other absorbent material surrounding the outer member of the ink container.

Preferably said body consists of a series of rings i of suitable material secured together so as in effect to form a solid body by a bolt or bolts a^5, passing through the series of rings and connecting circular end plates aa having central openings therein fitted upon the outer member of the container. To insure the feed of the ink more freely or in greater measure than if the central openings through the rings were of the same size and adapted to fit closely around the surface of the outer member of the container, the open-

ing through each alternate ring *i*, starting with the next to the outer ring of the series at either end is preferably larger than the openings through the adjacent rings on opposite sides thereof, so as to provide a slight clearance or annular space between the surface of the outer member of the container and the inner surface of the ring, in which space the fluid may flow around the container.

To the aforesaid side portion of the frame B is secured, by set screws or the like, a ring C having on its inner edge an annular flange *c*, so as to provide between it and the adjacent frame bar an annular recess in which is revolubly fitted an annular radial flange on the inner end of an adjusting device D, preferably in the form of a thumb nut screwed on said axial extension a^2 and adapted to be turned in either forward or backward direction for the purpose of moving the inner member of the container in the direction of its axis so as to cause the orifices therein to register with the orifices in the other member, or vice versa, according to the direction in which the nut is turned.

The outer end or head portion of the nut has a milled surface to facilitate turning it and spaced indentations therein with which a tooth on the free end of a resilient pawl or dog *e* may engage to prevent the nut from turning, except by applied force; said pawl being carried by a ring or washer E, which is fitted loosely on the axial extension a^2 and adapted to be non-rotatively confined thereon between a lock nut F screwed on said extension and a nut or interiorly threaded end portion of an open-ended tubular member G also screwed on said extension and forming an auxiliary fluid container having a filling aperture therein co-incident with a hollow boss on which is screwed a cap *g* for closing said aperture.

The said adjusting nut for opening and closing the orifices in the container, as shown at the right hand side of Fig. 1, is in open position with the toothed end of the pawl *e* engaging an indentation in its periphery so as to hold the two members of the container with the orifices therein in registering position, while the adjusting nut at the left hand side of Fig. 1 is shown in the position it occupies when the pawl *e* engages an indentation in its periphery, so as to hold the two members of the container with the orifices therein in separated relation, or non-registering position, but by turning the adjusting nut with sufficient force to release the pawl from the detent, the inner member of the container will be moved in the direction of its axis sufficiently to bring the orifices therein into position to register with the orifices in the outer member, or vice versa, in which position the adjusting nut and the two members will be retained by the detent until the nut is again turned.

A spreading or distributing roller H is shown for applying ink to the type or printing devices, although in some instances it may be preferred to run the inking rollers directly over the type. This roller is revolubly mounted on the machine frame by means of rockable levers *h* in which it has its bearings and which are pivoted at an intermediate point to a fiexed element of the machine frame, so as to adapt the roller to contact with the printing devices for applying ink thereto. Said roller H is held in yielding contact with the surface of the absorbent body I by means of a spring or springs K connecting the free end of one or both levers *h* with a fixed part of the machine frame.

Both inking rollers or both sections of the duplex roller may be rotated in unison, by means of a ratchet wheel L secured on the inner end of one of the rollers or roller sections and adapted to engage a pawl (not shown) pivotally attached to the operating mechanism of the machine, or if desired, each roller may be rotated independently of the other by means of a ratchet wheel on the inner end of each roller actuated by separate pawls pivotally attached to said operating mechanism.

When this ink container or inking roller is used in connection with a machine such as the Burrough's adding machine, the ports formed by the registering orifices in the telescopically connected members may be automatically opened or closed by providing pinion-like teeth on the periphery of the adjusting nut D, as indicated at *d* at the left-hand side of Fig. 1 of the drawings, meshing with the teeth of a rack bar (not shown) having a connection at one end with a key lever on the keyboard.

If desired to use three or more rollers or roller sections, a third roller A^2, without the axial extensions shown in Fig. 1, may be placed between rollers A^1, A^1, as shown in Fig. 3, and actuated by means of pawl and ratchet connections in the same manner as the duplex roller, the third roller being provided with a filling aperture at one end thereof, as shown, in which is secured a removable stopper g^1.

In operation, when it is desired to adjust the movable member of the container so as to open or close the ports formed by the orifices in the two members when in registering position, the thumb nut is turned slightly so as to release the toothed end of the resilient pawl *e* carried by the adjacent nut from engagement with one of a series of depressions therein and cause the toothed end of the pawl to snap into engagement with another depression, thus separating the orifices in the two members of the container or bringing them together, more or less closely, to cause the device to feed faster or slower, as desired.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent of the United States is:

1. In a machine of the character described, a fluid inking reservoir comprising telescopically connected tubular members supported in a frame member and each closed at one end and having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer of the telescopically connected members and revoluble therewith; the outer of said members being movable upon the inner member in the direction of their axes, so as to cause registration or nonregistration of the orifices of the one with the other as desired, and means for adjusting said outer and movable member from a point outside the supporting frame member, together with means for holding the two members relatively stationary with their orifices in either registering or non-registering position while rotated together; one of said members being formed with a tubular extension having a tubular closure provided with a filling aperture.

2. In a machine of the character described, a fluid inking reservoir comprising telescopically connected tubular members supported in a frame member and each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer of the telescopically connected members and revoluble therewith; one of said members being movable upon or within the other in the direction of their axes, so as to cause registration or nonregistration of the orifices in the outer member with the orifices in the inner member, as desired, and means for adjusting said movable member from a point outside the supporting frame member, together with means for holding the two members relatively stationary but jointly revoluble on their axes with the orifices therein in either registering or non-registering position; the inner member having a tubular axial extension with closure therefor provided with a filling aperture.

3. In a machine of the character described, a fluid inking reservoir embodying a fluid container consisting of telescopically connected tubular members each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer of the telescopically connected members and revoluble therewith; one of said members being movable upon or within the other member in the direction of its axis, so as to cause the orifices therein to register with the orifices in the other member, or vice versa, and the inner of said members having on its outer end a tubular axial extension and a tubular closure therefor forming therewith an auxiliary fluid container provided with a filling aperture.

4. In a machine of the character described, a plurality of fluid inking reservoirs revolubly mounted in a supporting frame and each consisting of hollow telescopically connected inner and outer members each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer member; one member being movable upon or within the other member in the direction of its axis, so as to cause the orifices therein to register with the orifices in the other member, or vice versa, and means for adjusting and holding said members relatively stationary with the orifices therein in either registering or non-registering position; the inner member at each side of the frame having a tubular axial extension providing an auxiliary fluid container and a tubular closure for said extension provided with a filling aperture.

5. In combination with a fluid inking reservoir consisting of hollow inner and outer telescopically connected members each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer member and revoluble therewith, one of said members being movable upon or within the other member in the direction of its axis, so as to cause the orifices therein to register with the orifices in the other member, or vice versa, means for adjusting said movable member and holding it in adjusted position, said means comprising a thumb nut screwed on an axial extension of the movable member and having indentations in its periphery and a pawl or dog fixed on said extension and having on its free end a tooth adapted to engage one of said indentations and yieldingly hold said thumb nut against rotation, together with means to prevent endwise movement of the nut while permitting rotary movement thereof, whereby the two members of the container may be locked with the orifices therein in either registering or non-registering position.

6. In a machine of the character described, a fluid inking reservoir comprising telescopically connected tubular members each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the container and revoluble therewith; one of said members being movable upon or within the other in the direction of its axis, so as to cause the orifices therein to register with the orifices in the other member, or vice versa, and means for adjusting said movable member and holding the two members relatively stationary with the orifices therein in either registering or non-registering position; one of said members being provided with a filling aperture; said absorbent body consisting of a series of rings having circular openings therein; the openings in each alternate ring being enlarged to provide annular spaces for ink to flow around the outer member of the container.

7. In a machine of the character described, a fluid inking reservoir comprising telescopically connected members of tubular form each having minute orifices therein and one movable upon or within the other, so as to cause the orifices therein to register with the orifices in the other member, or vice versa, and a body of absorbent material consisting of a series of rings placed side by side around the outer member, each alternate ring having the opening therein slightly enlarged to provide an annular space between it and the outer tube in communication with said orifices.

8. In a machine of the character described, a fluid inking reservoir comprising telescopically connected tubular members each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the container and revoluble therewith; said body consisting of a series of rings circumferentially of the same size while the diameter of the opening through intermediate rings is greater than the diameter of the opening through adjacent rings on opposite sides; one of said members being movable upon or within the other, and means for adjusting said movable member so as to cause the orifices therein to register with the orifices in the other member, or vice versa, together with means for holding the two members relatively stationary in either registering or non-registering position; one of said members being provided with a filling aperture.

9. In a machine of the character described, a fluid inking reservoir comprising telescopically connected tubular members revolubly mounted as a unit in a supporting frame and each having minute orifices therein spaced apart longitudinally thereof, and a body of absorbent material surrounding the outer member and revoluble therewith; one member being adjustably movable upon or within the other member so as to cause the orifices therein to register with the orifices in the other member, or vice versa; the inner member having a tubular axial extension beyond the supporting frame and a tubular closure for said extension therewith forming an auxiliary fluid container, and means for adjusting said movable member from a point on the outer side of the supporting frame, together with means for holding the two members relatively stationary with the orifices therein in either registering or non-registering position.

In testimony whereof I affix my signature.

CHARLES SUMNER DU BELLE.