A. BLOCK.

DEVICE FOR INKING AND DAMPENING PRINTING RIBBONS.

APPLICATION FILED OCT. 14, 1912.

1,113,872.

Patented Oct. 13, 1914

2 SHEETS—SHEET 1.

Fig. 1.

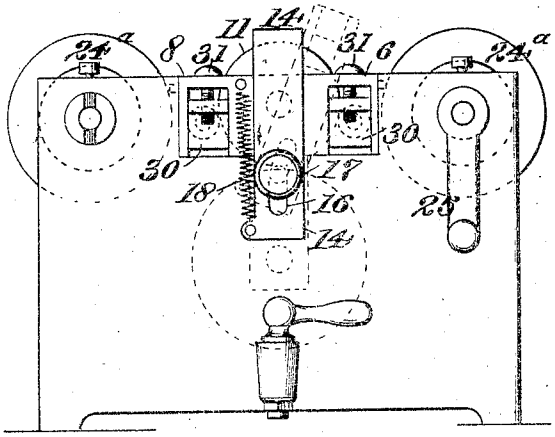


Fig. 2.

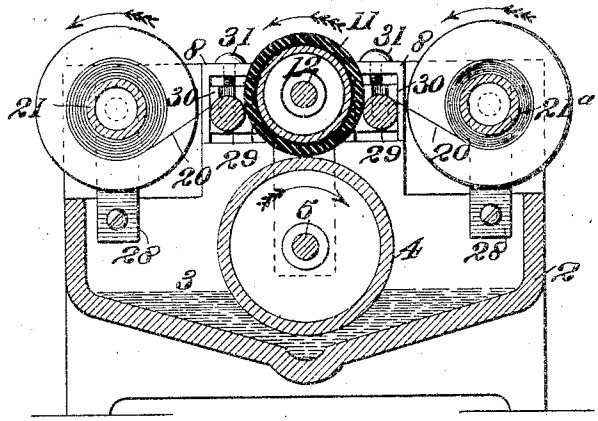


Fig. 4.

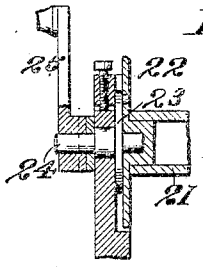


Fig. 3.

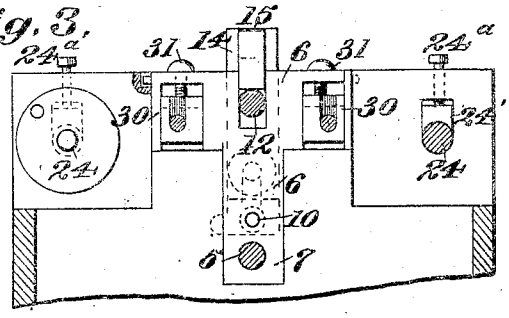


Fig. 5.

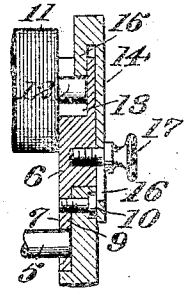
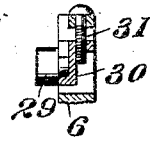


Fig. 6.



WITNESSES:

Charles Pickles

F. E. Maynard.

INVENTOR

Abraham Block.

BY G. H. Strong.

ATTORNEY

A. BLOCK.

DEVICE FOR INKING AND DAMPENING PRINTING RIBBONS.

APPLICATION FILED OCT. 14, 1912.

1,113,872.

Patented Oct. 13, 1914.

2 SHEETS—SHEET 2.

Fig. 7.

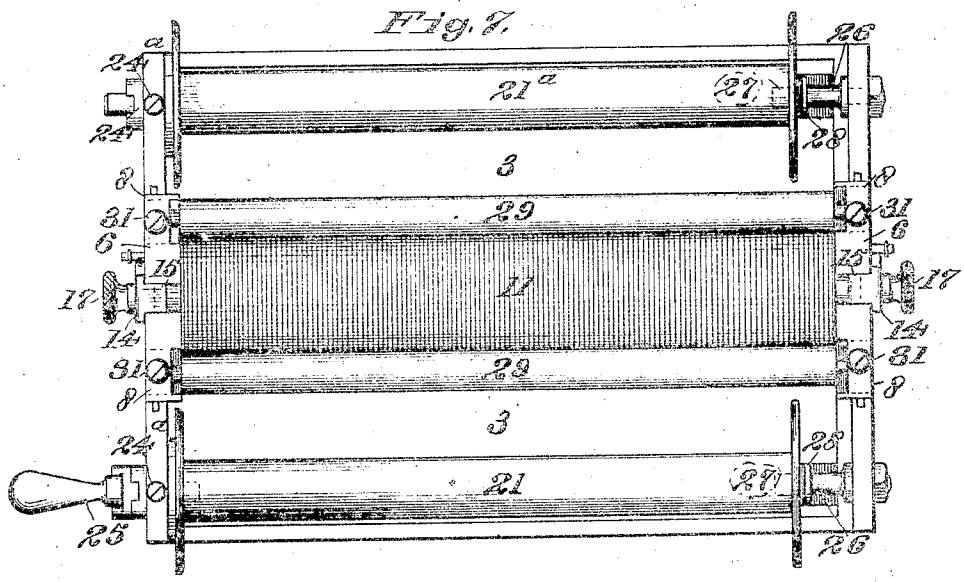


Fig. 8.

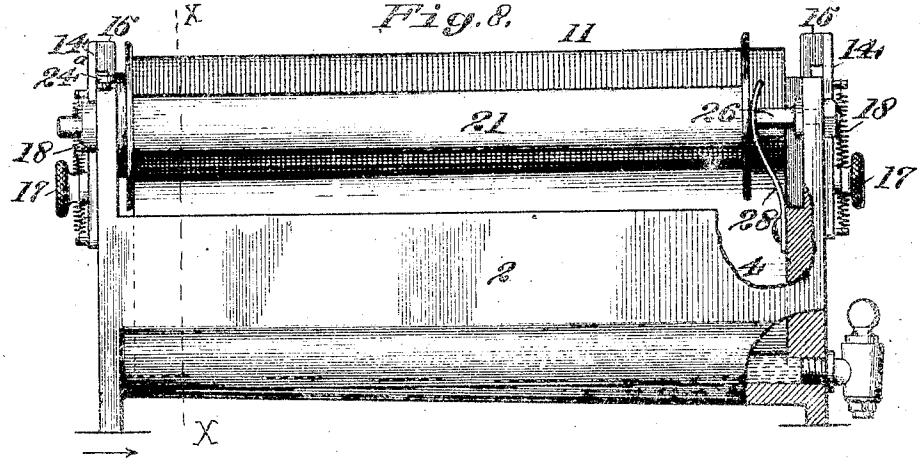


Fig. 9.

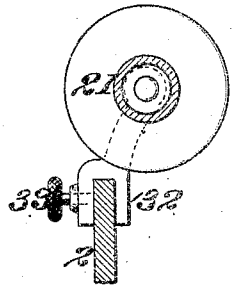
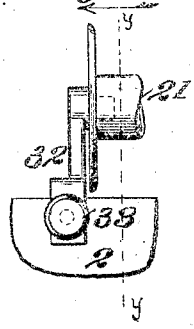


Fig. 10.



WITNESSES:

Charles Pickles

F. E. Maynard

INVENTOR

Abraham Block

BY G. H. Strong.

ATTORNEY

UNITED STATES PATENT OFFICE.

ABRAHAM BLOCK, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-EIGHTH TO ANTHONY SANTOS, OF OAKLAND, CALIFORNIA, AND ONE-EIGHTH TO THOMAS HOURIHAN, ONE-EIGHTH TO FRANK W. FREECHTLE, AND ONE-EIGHTH TO CLAIR A. CROWLEY, ALL OF SAN FRANCISCO, CALIFORNIA.

DEVICE FOR INKING AND DAMPENING PRINTING-RIBBONS.

1,113,872. Specification of Letters Patent. Patented Oct. 13, 1914.

Application filed October 14, 1912. Serial No. 725,845.

To all whom it may concern:

Be it known that I, ABRAHAM BLOCK, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Devices for Inking and Dampening Printing-Ribbons, of which the following is a specification.

This invention relates to means for re-inking and dampening ribbons of duplicate printing machines.

The object of the present invention is to provide a simple, practicable implement whereby ribbons or webs of the type used in conjunction with duplicate printing machines may be re-inked by replenishing the ink substances, or may have their useful life extended by the addition of a fluid, for instance water, or dampening a dry or depleted ribbon.

It is also an object of the invention to provide means whereby the slack portions of a ribbon may be drawn taut while passing through the implement, and means are also provided for regulating the tension at which the ribbon is drawn through the machine. Means are also provided and adapted for adjustment whereby the proper amount of ink or moistening liquid can be applied in the ribbon.

The invention consists of a suitable receptacle with an immersible cylinder with winding means, a pressure device, a take-up device, and tensioning elements.

Figure 1 is an end view of the appliance. Fig. 2 is a transverse vertical section on line X—X of Fig. 8, looking in the direction of the arrow. Fig. 3 is a detail view showing the inside face of an end wall. Fig. 4 is a detail sectional view of a coupler and crank. Fig. 5 is a detail vertical sectional view of a detachable hanger and the pressure cylinder lock. Fig. 6 is a detail sectional view of the detachable journal for a tension roller. Fig. 7, Sheet #2, is a plan view of the apparatus. Fig. 8 is a side elevation, partly broken away. Figs. 9 and 10 are details of a detachable bracket for supporting short reels, Fig. 9 being a section on line *y—y*, Fig. 10.

In its present embodiment my invention comprises a suitably shaped frame or receptacle 2, formed between the ends, sides and bottom of which is a liquid reservoir 3 of suitable depth, and mounted for rotation in this reservoir, which is adapted to contain appropriate liquid, is a cylinder 4 on a shaft 5.

The ends of the shaft 5 are mounted in detachable panels 6 having a pendent tongue portion 7 and transversely extending shoulders 8; the panels being seated in appropriate apertures 9 formed in the end walls of the receptacle 2; each of the panels 6 being held locked in position by screws 10 passing through the end walls.

Normally bearing upon and disposed vertically above the conveying cylinder or drum 4, is a pressure or squeezing device consisting of a soft roller 11, the shaft 12 of which projects endwise into cavities 13 formed in the panels 6. For the purpose of varying the pressure of the roller 11 upon the conveying cylinder 4, there are provided on the outside surfaces of each of the panels 6, bolts or equivalent members 14. Figs. 1 and 5, which have tongue or bearing portions 15 overhanging the upper ends of the panels 6 and adapted to bear upon the ends of the shaft 12. The locking bolts 14 are slotted as at 16, and through the slots pass clamping screws 17, so that when the locking bolts 14 have been pushed downwardly upon the ends of the shaft 12 with the desired pressure, then the screws 17 can be turned to bind tightly upon the adjacent portions of the locking devices 14 to hold the pressure roller 11 down upon the cylinder.

For quickly relieving the roller 11 from restraint by the locking bolts 14, these may be connected to contractile springs 18, the function of which is to automatically and quickly pull the bolts 14 upward and to an oblique position as soon as the set-screws 17 are turned sufficiently to release the bolts 14.

When the roller 11 is freed from the restraint of the bolts 14 it may be lifted from the apparatus and a ribbon as 20, which is to be treated, can be adjusted by connecting one of its ends to a receiving reel 21, which is adapted to have one of its ends as 22, Fig. 4, mounted on a turning device as 23, forming a part of a shaft 24 which may be turned by a detachable crank 25. The receiving reel 21 has its opposite end sup-

ported upon a fixed stud 26, Fig. 7, which enters a depression or bore 27 in the reel 21. In mounting the reel 21 its recess end is passed over the fixed stud 26 against the pressure of a leaf spring 28, and then the opposite end of the reel is alined with and adjusted upon the turning shaft 24, and the pressure of the spring 26 will then automatically thrust the reel 21 into interlocking position with the crank device 23, so that when the latter is turned it will, by revolving the reel 21, wind the ribbon which is drawn during the winding operation, between the pressure roller 11 and the liquid conveying cylinder 4, so that a portion of the liquid on the cylinder will be transposed to the ribbon. Manifestly the ribbon is delivered from a reel 21ª which is substantially similar in construction and operation to the reel 21, and is mounted on the opposite side of the apparatus on supports 24 and 26.

After the ribbon to be treated is arranged by connection between the receiving reel 21 and the delivery reel 21ª crossing the upper portion of the cylinder 4, then the soft pressure roller 11 is adjusted in the panels 6 and forces the ribbon 20 downwardly upon the cylinder 4 with sufficient pressure, when it may be locked by the bolts 14.

In order to compensate for irregularities in the area or length of one or the other longitudinal sides of the ribbon 20, such irregularities being caused frequently by the much greater use of one side of the ribbon than the other, which use causes that particular side to be stretched more than the other side, and in order to take out this slackness of the ribbon I employ a pair of adjustable guide rollers 29, which are mounted somewhat above the cylinder 4; the ends of the rollers 29 being supported in adjustable bearings 30, Fig. 6, mounted in the panels 6 and provided with screws 31 whereby the elevation of the bearings 30 can be controlled.

If, when the ribbon 20 is arranged between the reels 21 and 21ª, it is observed that one side is slack, then the take-up rollers 29 can be adjusted higher at one end than the other by moving the bearings 30 by turning the screws 31; this adjustment of the take-up rollers 29 being designed to draw the ribbon 20 substantially taut between the reels 21 and 21ª; the position of the rollers 29 being such that the ribbon is drawn up against the lower half, approximately, of the pressure roller 11.

The operation of the apparatus is as follows: Having placed the desired fluid in the reservoir 3, and having arranged the ribbon 20 so that it connects the reels 21 and 21ª and resting on the take-up rollers 29, then the soft squeezing or pressure roller 11 is adjusted with the desired pressure upon the ribbon 20, so that this is forced down into contact with the cylinder 4. By turning the crank 25 the coupler device 23 will drive the receiving reel 21 to unwind the ribbon from the delivery reel 21ª; this drawing the ribbon over the take-up adjustable rollers 29 beneath the pressure roller 11 and causing it to bear upon the surface of the fluid conveying cylinder 4, which being revolved by the frictional engagement with the traveling ribbon will transpose a portion of the liquid onto the ribbon. If it is desired to apply a considerable quantity of liquid to the ribbon 20, the roller 11 is adjusted to bear the ribbon lightly against the cylinder 4, thus permitting the ribbon to carry away the desired quantity of liquid; or, if it is desired to only slightly moisten or impart a small quantity of liquid to the ribbon 20, then the pressure of the pressure roller 11 is increased, so that instead of the ribbon carrying a considerable quantity, the substance is squeezed out of the ribbon 20 before it passes on the ribbon between the pressure roller 11 and the feeding cylinder 4. From this it will be seen that I am enabled to take a substantially used-up ribbon and renew its usefulness by moistening or by the application of an ink or other fluid, and I can adjust the apparatus so as to determine the quantity of moisture or ink transposed to the ribbon.

In order to control the tension of the ribbon 20, as it is drawn from one reel to another, I provide adjacent the supporting shafts 24, friction blocks 24′ which are adapted to bear upon the shafts 24; the blocks being subjected to pressure from set-screws 24ª. By this means, if it is desired to place the ribbon 20 under considerable tension I simply turn the set-screws 24ª so as to force the friction blocks 24′ in the end walls of the receptacle down upon the adjacent portions of the driving shafts 24.

In Figs. 9 and 10 I have shown a detachable bearing or bracket 32, which may be clamped to the wall of the receptacle 2 by a set screw 33; the bracket 32 being used to support one end of a reel, as 21, when this is of a length shorter than the distance between the supports 24 and 26, Fig. 7.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. In an apparatus for re-inking or moistening printing ribbons, a receptacle having a reservoir for fluid, a cylinder arranged in the receptacle and adapted to travel through the liquid in the reservoir, reels for receiving and delivering the ribbon to be treated, bearings for said reels, said bearings including a driving mechanism for one of the reels, a pressure roller adjustable above the cylinder to press the ribbon thereupon,

means for adjusting the pressure of the roller and the ribbon upon the cylinder, said means comprising sliding bolts, means for locking the bolts, and springs connected to the bolts for automatically releasing the pressure roller when the locking means release the bolts.

2. In an apparatus for re-inking or moistening printing ribbons, a receptacle having a reservoir for fluid, a cylinder arranged in the receptacle and adapted to travel through the liquid in the reservoir, reels for receiving and delivering the ribbon to be treated, bearings for said reels, said bearings including a driving mechanism for one of the reels, a pressure roller adjustable above the cylinder to press the ribbon thereupon, means for adjusting the pressure of the roller and the ribbon upon the cylinder, said means comprising sliding bolts, means for locking the bolts, and springs connected to the bolts for automatically releasing the pressure roller when the locking means release the bolts, and adjustable rollers for taking up the slack of the ribbon, said rollers being arranged parallel to the sides of and adjacent to the pressure roller.

3. In an apparatus for re-inking printing ribbons, a receptacle for liquid having end walls provided with apertures, pressure and guide rollers for the ribbons, a transferring cylinder over which the ribbon is moved, and bearing plates detachably mounted in the apertures of the receptacle for supporting said rollers and cylinder and whereby they may be bodily and simultaneously lifted from the receptacle.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ABRAHAM BLOCK.

Witnesses:
JOHN H. HERRING,
W. W. HEALEY.