Aug. 1, 1950 G. BABICZ 2,516,941

ATTACHMENT FOR INK ROLLERS AND PRINTING MACHINES

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Fig. 1.

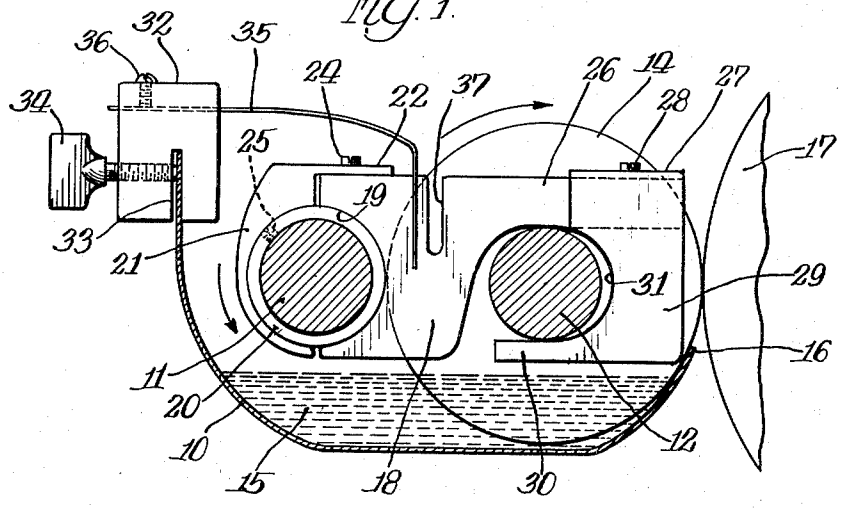
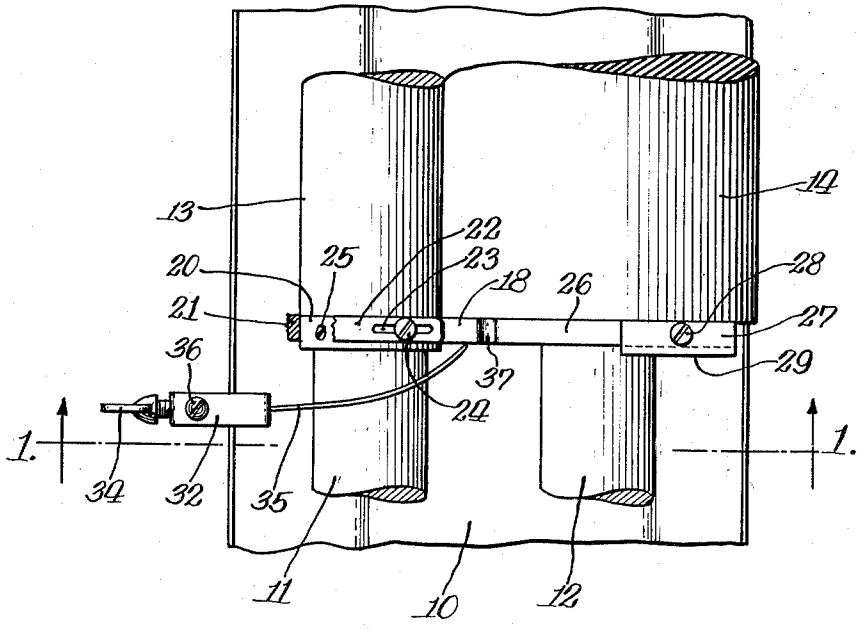


Fig. 2.



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ATTACHMENT FOR INK ROLLERS AND PRINTING MACHINES

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11 Claims. (Cl. 101—363)

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The present invention relates to attachments for ink rollers in printing machines.

In printing machines the ink roller is partially submerged in ink. As the ink roller rotates, it contacts with another roller which by compression spreads the ink on the ink roller in a uniform film in order that the ink may be transferred from the ink roller to the impression roller in a film of uniform thickness. As the ink roller rotates at a high speed, the ink has a tendency, due to a centrifugal force, to be gathered by and upon the end of the ink roller, and thereupon to spatter in an upward direction and fall upon the face of the ink roller, to be subsequently transferred to the impression roller, without being first acted upon by the spreading roller.

Therefore, the principal object of the present invention is the provision of a suitable guard cooperating with the end of the ink roller for preventing ink to gather upon the end of the latter for obviating the above stated objections.

A still further object of the present invention is the provision of a stationary plate, contacting the end of the ink roller adjacent the area of contact thereof with the ink spreading roller, for preventing the ink from being carried by the ink roller past its contact point with the ink spreading roller.

A still further object of the present invention is the provision of suitable mounting means for the guard upon the shafts carrying the ink and ink spreading rollers.

With the above general objects in view and others that will appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawing and pointed out in the appended claims.

In the drawing forming a part of this application, and in which like designating characters refer to corresponding parts throughout the several views:

Fig. 1 is a cross-section through the ink well, and a pair of shafts upon which the ink and ink spreading rollers are mounted, with the present device in a side elevation, the view having been taken on line 1—1 of Fig. 2; and

Fig. 2 is a top plan view of the two rollers, their shafts and the ink well, with the present device in an operative position therewith.

Referring in detail to the present drawing there is shown ink well 10, with shafts 11 and 12 in a longitudinal relation therewith. Shaft 11 carries ink spreading roller 13, usually made of metal, while shaft 12 has ink roller 14 mounted

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thereon. The latter roller is usually made of rubber, and is of a diameter larger than the diameter of ink spreading roller 13. Said ink roller 14, by its lower portion is submerged in ink 15, while roller 13 remains above the surface of the ink in well 10. One side of ink well 10 is spaced away from the adjacent roller 13, while the opposite side thereof is in contact with ink roller 14, as at 16, at a point below the diametrical, horizontal plane extended through said roller 14. At that point said roller 14 contacts with impression roller 17, which remains on the outside of well 10, and to which the ink impression is transferred from ink roller 14.

As said rollers 13 and 14 rotate into the directions indicated by arrows in Fig. 1, the ink spreading roller 13, contacting with roller 14, spreads the ink upon the latter roller in an uniform film before the same is transferred to impression roller 17. The degree of pressure between rollers 13 and 14, and consequent thickness of ink film upon roller 14, may be regulated by a device such as is described in my patent dated August 7, 1945, No. 2,381,712.

The above is substantially the usual construction and arrangement of ink, ink spreading and impression rollers, and the ink well.

Due to the fact that ink roller 14 is dipped in ink 15, when said roller 14 rotates at a high speed it carries by its end face, that is the face which is in a transverse relation with the periphery thereof, the ink, in an upward direction. That ink is obviously not acted upon by ink spreading roller 13. The ink thus carried by the end of said roller spatters and is thrown off said roller 14, often falling upon the periphery thereof, without being acted upon by roller 13, and is being transferred to roller 17 in blotches.

To obviate the above objections a suitable guard constituting the subject matter of this application, is provided, to contact with the end of roller 14 for the purpose of wiping off any adhering ink as said roller 14 during its rotation approaches the contact point with roller 13, thereby eliminating any possibility of ink being carried by the end of said roller 14 past the contact point with roller 13.

Said guard includes plate 18 which contacts the area of the end face of said roller 14 adjacent the contact point between rollers 13 and 14, and well below said point, the lower edge of said plate 18 being disposed above the surface of ink 15 in well 10. The end of said plate 18, adjacent roller 13, has an arcuate recess 19, within which collar 20 is receivable.

Encompassing said collar 20 from the side dia-

metrically opposite from that of recess 19 is arcuate finger 21. The latter has an integrally formed horizontal extension 22, which overlies the upper edge of plate 18. Said extension 22 is provided with an oblong slot 23, through which screw 24 is passed to engage plate 18. By virtue of this arrangement, finger 21 may be adjusted with relation to plate 18 in order that the two may embrace said collar 20 in close relation, permitting however free rotary movement of said collar 20 as shaft 11 rotates. Collar 20 is rigidly affixed to shaft 11 by screw 25. The object of collar 20 is to provide a lining upon which plate 18 and finger 21 may be suspended in contactual relation, rather than contact directly with shaft 11. This prevents wearing off of the shaft due to friction. As collar 20 is gradually worn off due to friction exerted thereupon by said plate 18 and finger 21, the latter may be shifted toward said collar 20 and plate 18 to accommodate said plate 18 and finger 21 to the gradually diminishing diameter of said collar 20. This is accomplished by loosening screw 24, shifting finger 21 toward collar 20 and plate 18 and thereupon tightening screw 24 to maintain plate 18 and finger 21 in a relative rigid mutual relation. As collar 20 ultimately wears off completely, the same is disengaged from shaft 11 and a new collar substituted in its place. Thus said collar 20 constitutes a protective guard for shaft 11 against the frictional action of plate 18 and finger 21.

The opposite end of plate 18 is reduced effecting an oblong arm 26 extending from the upper portion of plate 18. Said arm 26 overlies and rests upon shaft 12.

Mounted upon the free end of arm 26, by means of lip 27, resting upon the upper edge of arm 26, and screw 28 passing said lip 27 and engaging said arm 26, is downwardly extending skirt 29, which is in a spaced relation with the end of roller 14.

Integrally formed with the lower end of said skirt 29 and projecting toward plate 18 is tongue 30 which contacts shaft 12 at a point diametrically opposite from that upon which arm 26 contacts said shaft 12.

From the hereinabove description it will be seen that due to the engagement of plate 18 and finger 21 with shaft 11 through collar 20, and with shaft 12 through arm 26 and tongue 30, said plate is incapable of longitudinal shifting movement transversally of shafts 11 and 12 or rollers 13 and 14.

As is seen in Fig. 1, skirt 29 at its body portion laterally of shaft 12 is provided with an arcuate recess 31, the edge of which is spaced from shaft 12. Likewise said shaft 12 is spaced from said plate 18. This arrangement permits adjustments of shafts 11 and 12 and of rollers 13 and 14 to or away from each other for regulating the pressure between the latter for regulating in turn the thickness of the ink film upon roller 14, without hindrance from said plate 18 and skirt 29.

Obviously, shaft 12 may be provided with a collar similar to collar 20, to constitute a guard for shaft 12, with which arm 26 and tongue 30 may contact.

To assemble the device upon shafts 11 and 12, first plate 18 and arm 26 are brought to the position shown in Fig. 1, then finger 21 is affixed to plate 18 by screw 24 and thereupon skirt 29 is mounted upon arm 26 and affixed by screw 28.

The means for maintaining plate 18 in contact with the end of ink roller 14 includes block 32 which is provided with slot 33 within which the rim of well 10 is receivable and upon which said

block 32 may be adjusted in a longitudinal relation. Thumb screw 34, passing said block 32 engages the rim of well 10 and maintains the former in a rigid adjusted position. In the upper end said block 32 is provided with a bore within which one end of wire spring 35 is receivable and wherein the same is anchored by means of screw 36 engaging said wire spring 35 in a transverse relation. The body portion of said wire spring 35 is flexed toward plate 18 and its free end bent downwardly in a vertical direction to bear against the adjacent face of plate 18 and to exert pressure thereon for maintaining the same in contact with the end face of roller 14.

Plate 18 at its upper edge and at point of the periphery of roller 14 removed from the contact point of rollers 13 and 14 in an upward direction, is provided with downwardly extending slot 37, into which any excess of ink carried by roller 14 from the contact point of said rollers 13 and 14 and plate 18, may seep into and from there flow along the outer face of plate 18 into well 10. This excess of ink at the contact point between rollers 13 and 14 and plate 18 may be brought about by the capillary action, but the amount thereof will be insignificant in comparison to the ink which would be carried by the end face of roller 14 and from there transferred to the periphery thereof, were it not for said plate 18.

From the hereinabove description it will be readily appreciated that plate 18 acts as a brush to wipe off any ink from the end face of roller 14 which otherwise would be carried upwardly and past the contact point between rollers 13 and 14 and due to the centrifugal action of roller 14 would be thrown off thereby to spatter and fall upon the peripheral face of roller 14 to be subsequently carried to impression roller 17 in undesirable quantities. This objection is completely eliminated by the use of plate 18.

It is further observed that since both plate 18 and arm 26 are in contact with the end face of roller 14 at least to the radial extent thereof, on the side of said roller 14 nearest to roller 13, they both act as a brush preventing any portion of the end face of roller 14 from carrying ink in an upward direction.

While there is described herein a preferred embodiment of the present invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate being provided with an arcuate recess, a member mounted upon said plate in an adjustable relation therewith, said member being provided with an arcuate recess complementary to said first named recess, one of said shafts being positioned within said two recesses in a transverse relation with said plate, and means associated with said plate for supporting the same upon the other of said shafts.

2. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate being provided with an arcuate recess, a member mounted upon

said plate in an adjustable relation therewith, said member being provided with an arcuate recess complementary to said first named recess, a collar mounted upon one of said shafts, said collar entering said two recesses for supporting said plate upon said last named shaft, and means associated with said plate for supporting the same upon the other of said shafts.

3. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate being provided with an arcuate recess, a member mounted upon said plate in an adjustable relation therewith, said member being provided with an arcuate recess complementary to said first named recess, a collar mounted upon one of said shafts, said collar entering said two recesses for supporting said plate upon said last named shaft, and means associated with said plate for supporting the same upon the other of said shafts, said means including an arm extending from said plate, said arm resting upon said last named shaft.

4. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate being provided with an arcuate recess, a member mounted upon said plate in an adjustable relation therewith, said member being provided with an arcuate recess complementary to said first named recess, said recesses defining a circular opening when said member is in operative adjusted position with relation to said plate, said opening receiving one of said shafts in a transverse relation with said plate, a replaceable protective guard mounted upon said last named shaft and interposed therebetween and the body portions of said plate and said member adjacent said recesses, and means associated with said plate for supporting the same upon the other of said shafts.

5. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate being provided with an arcuate recess, a member mounted upon said plate in an adjustable relation therewith, said member being provided with an arcuate recess complementary to said first named recess, one of said shafts being positioned within said two recesses in a transverse relation with said plate, means for supporting said plate upon the other of said shafts, and means for maintaining said plate in contact with the end faces of said rollers.

6. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers at the areas thereof adjacent their contact, said plate constituting a shield for preventing the ink roller gathering ink at its end, and means for mounting said plate on at least one of said shafts, said plate at its upper edge being partially transversely cut out for providing an open oblong recess at a point past the contact point of said rollers for permitting draining of any ink carried by said ink roller past the contact point of the two rollers, said recess being in a substantially perpendicular relation with the horizontal plane of said ink roller.

7. In a printing machine, a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers, means for mounting said plate upon one of said shafts, an arm extending from said plate, said arm being on a plane parallel to the plane of the axes of the two shafts, said arm contacting a point in the periphery of the other of said shafts, and a member adjustable upon and in a longitudinal relation with said arm, said member contacting the periphery of said last named shaft at a point diametrically opposite from the point of contact of said arm.

8. In a printing machine, a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, a plate in contact with the end faces of said rollers, means for mounting said plate upon one of said shafts, an arm extending from said plate, said arm being on a plane parallel to the plane of the axes of the two shafts, said arm contacting a point in the periphery of the other of said shafts, and a member adjustable upon and in a longitudinal relation with said arm, said member contacting the periphery of said last named shaft at a point diametrically opposite from the point of contact of said arm, said plate and said member being in a spaced relation with said last named shaft on a plane transverse of a plane upon which said arm and said member contact said last named shaft.

9. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, an ink well above which said rollers and said shafts are disposed, a shield in contact with the end faces of said rollers for preventing ink from being gathered by said rollers adjacent the ends thereof, means for mounting said shield in a transverse relation with said shafts, and a resilient member adjustably supported by said ink well in a longitudinal relation with said rollers for maintaining said shield in contact with the end faces of said rollers.

10. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, an ink well above which said rollers and said shafts are disposed, a shield in contact with the end faces of said rollers for preventing ink from being gathered by said rollers adjacent the ends thereof, means for mounting said shield in a transverse relation with said shafts, a block supported upon the rim of said ink well in a longitudinally adjustable relation with said rollers, and a resilient member carried by said block, said resilient member bearing against said shield for maintaining the same in contact with the end faces of said rollers.

11. In a printing machine a pair of rollers in a longitudinal contacting relation, one of said rollers being an ink roller, shafts upon which said rollers are mounted, an ink well above which said rollers and said shafts are disposed, a shield in contact with the end faces of said rollers for preventing ink from being gathered by said rollers adjacent the ends thereof, means for mounting said shield in a transverse relation with said shafts, a mounting member supported upon the rim of said ink well, and a resilient member car-

ried by said mounting member, said resilient member bearing against said shield for maintaining the same in contact with the end faces of said rollers, said mounting member being longitudinally adjustable upon said rim for regulating the degree of pressure of said resilient member upon said shield.

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REFERENCES CITED

The following references are of record in the file of this patent:

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