

A. P. BROOKS & C. N. GALLAND.
 COLOR PRINTING ATTACHMENT FOR PRINTING PRESSES.
 APPLICATION FILED JUNE 25, 1909.

1,040,268.

Patented Oct. 8, 1912.

3 SHEETS—SHEET 1.

Fig. 1

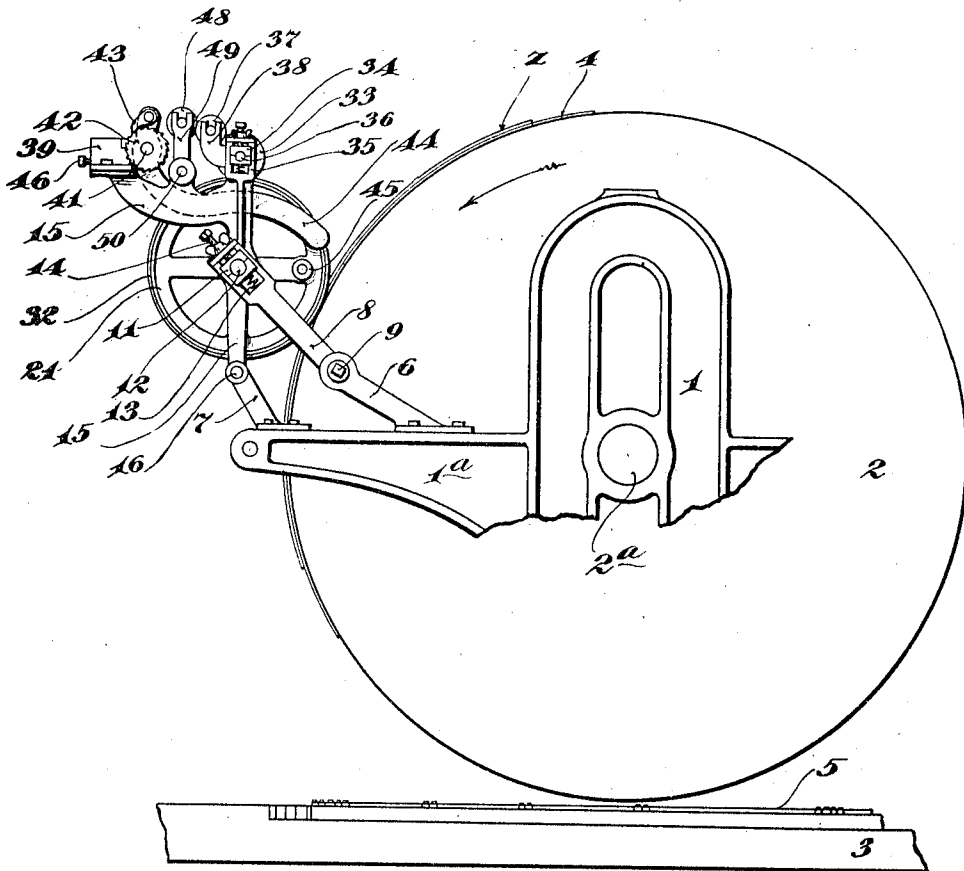


Fig. 5

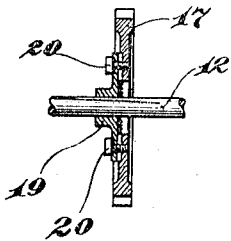
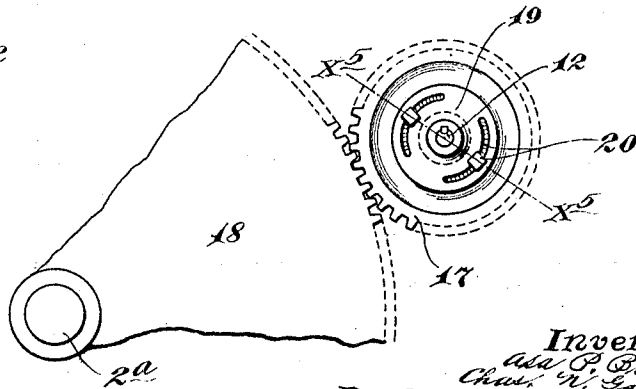


Fig. 4



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3 SHEETS-SHEET 2_x

Fig. 2

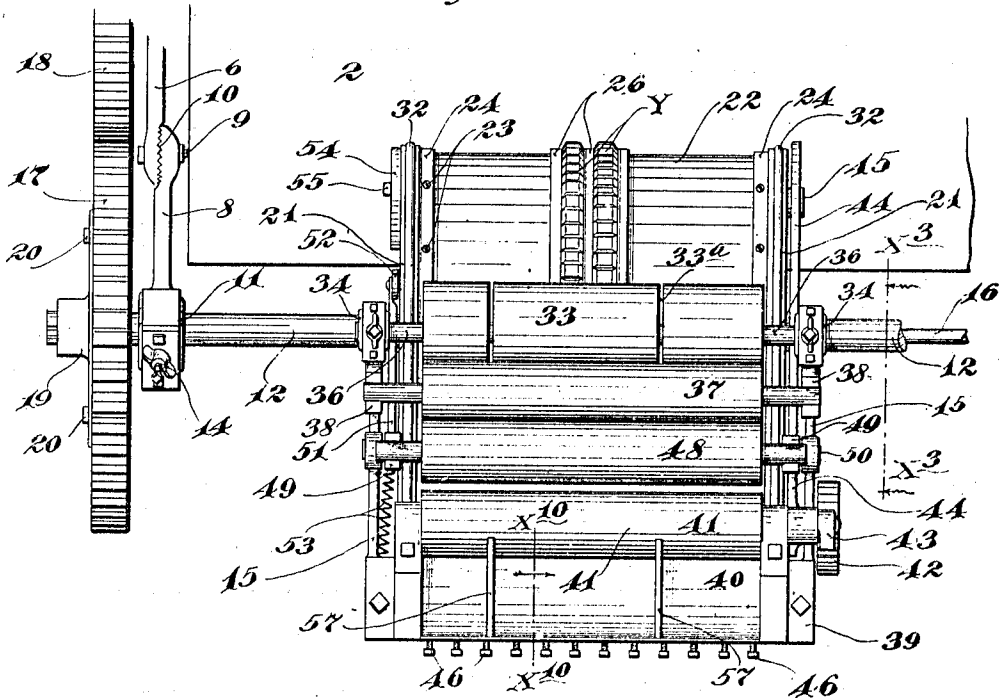
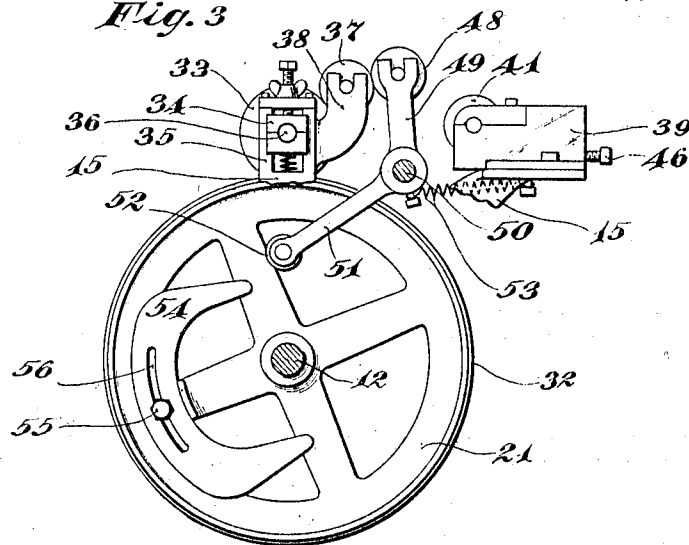


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 6

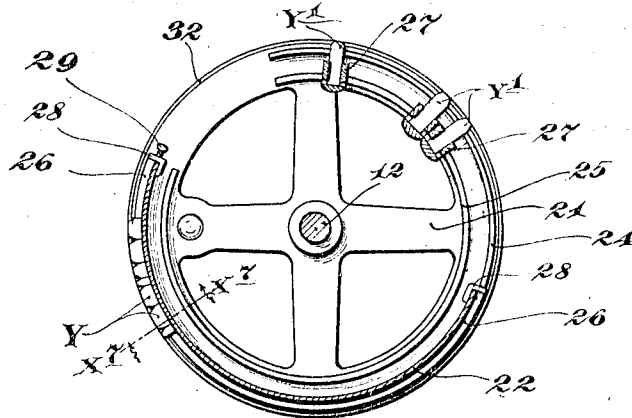


Fig. 7

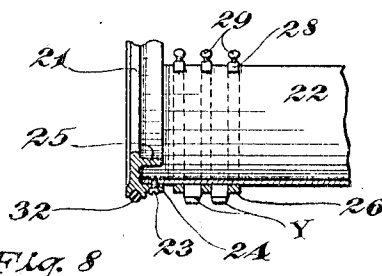
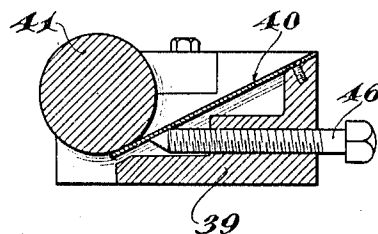
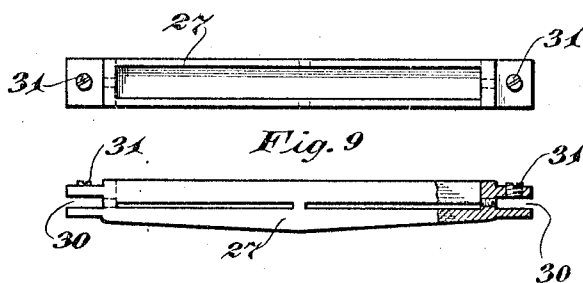


Fig. 8

Fig. 10



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UNITED STATES PATENT OFFICE.

ASA P. BROOKS, OF REGINA, SASKATCHEWAN, CANADA, AND CHARLES N. GALLAND, OF MINNEAPOLIS, MINNESOTA, ASSIGNORS TO MULTI-COLOR ATTACHMENT COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

COLOR-PRINTING ATTACHMENT FOR PRINTING-PRESSES.

1,040,268.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed June 25, 1909. Serial No. 504,363.

To all whom it may concern:

Be it known that we, ASA P. BROOKS and CHARLES N. GALLAND, citizens of the United States, residing, respectively, at Regina, Province of Saskatchewan, Canada, and Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Color-Printing Attachments for Printing-Presses; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to printing-presses and has for its object to provide an improved attachment or auxiliary printing device therefor especially adapted for use in printing advertisements, notices and other special matter in the body of a newspaper.

To the above ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, with some parts broken away and with some parts removed, showing the improved printing attachment applied to a cylinder press of standard construction; Fig. 2 is an enlarged view in plan of the parts shown in Fig. 1, some portions being broken away; Fig. 3 is a view chiefly in side elevation, but with some parts broken away and some parts sectioned, on the line $x^3 x^3$ of Fig. 2; Fig. 4 is a fragmentary view looking from the left toward the right with respect to Fig. 2, and showing the gear connection between the shafts of the main and auxiliary cylinders of the improved machine; Fig. 5 is a detail in section on the line $x^5 x^5$ of Fig. 4; Fig. 6 is a transverse vertical section taken through the main cylinder of the press approximately at its longitudinal center; Fig. 7 is a fragmentary detail in section on the line $x^7 x^7$ of Fig. 6; Fig. 8 is a detail in plan of one of the transverse type-holding bars of the auxiliary cylinder; Fig. 9 is a side elevation of the bar shown in Fig. 8; and Fig. 10 is a vertical section taken on the line $x^{10} x^{10}$ of Fig. 2 and showing the ink font on an enlarged scale.

Of the standard parts of the cylinder press, it is only desirable to note the frame 1, the cylinder 2 and the reciprocatory plate 3. The cylinder 2 has the usual peripheral tympan 4 provided with suitable devices, not shown, for holding the paper sheet z in position under rotary movement of the cylinder 2 in the direction of the arrow marked thereon in Fig. 1, and which movement carries the said sheet against the type forms 5 that are carried by the plate 3.

The improved attachment or auxiliary device is supported by forwardly projecting arms 1^a of the side frames 1, and to this end two bearing brackets 6 and 7 are bolted or otherwise rigidly but detachably secured to each of the said arms 1^a. The bearing brackets 6 are provided with extensions or bearing arms 8 pivotally connected thereto by short nutted bolts 9, but normally held against accidental pivotal movement by serrated hub faces 10. The free ends of the bearing arms 8 are slotted to afford seats for adjustable bearing boxes 11, in which a transversely extended rotary shaft 12 is journaled. The boxes 11 are yieldingly pressed outward by springs 13, and are adapted to be moved inward and held or set by adjusting screws 14 applied in the extreme outer end portions of said arms 8. At its intermediate portion, the shaft 12 is journaled in the intermediate portions of a pair of laterally spaced bearing frames 15, the depending ends of which are pivotally connected to the bearing brackets 7 by a long transverse rod 16. The brackets 6 and 7 constitute anchoring devices, respectively, for the arms 8 and bearing frames 15. At one end the shaft 12 carries a spur pinion 17 that meshes with a large spur gear 18 which is secured to and carried by the shaft 2^a of the press cylinder 2. In Fig. 4 said gear and pinion are shown with portions of their teeth indicated by dotted lines only, but in practice they will, of course, be complete gears and pinions. The pinion 17 is preferably made adjustable, for an important purpose, in respect to the shaft 12 and, as shown, this is accomplished by securing a disk 19 directly to said shaft and by adjustably securing the said pinion thereto by slot and screw connections 20, best shown in Figs. 4 and 5.

Rigidly secured to the shaft 12, between

the bearing frames 15, is an auxiliary printing cylinder or drum which, as shown, is made up of a pair of laterally spaced wheel-like heads 21 directly secured to said shaft 12 and directly connected by an approximately semi-cylindrical web 22. This web 22, as shown, is secured by screws 23 (see Fig. 7) to outer segmental flanges 24 of the said heads 21, which heads are also provided with inner segmental flanges 25, the purpose of which will presently appear.

For printing the advertising or other special matter on the newspaper, both vertically and horizontally in respect to the ordinary printed columns, segmental type clamping bars 26 and channel-shaped type holding bars 27 are provided. The segmental clamping bars 26 are extended circumferentially of the auxiliary printing cylinder, over the outer surface of the segmental web 22 and at their ends are provided with hooks or detents 28 that hold the same in position. Set screws 29 are preferably applied to the keepers 28 at one end of the bars 26 to rigidly secure said bars in any desired lateral adjustment on the segmental web 22. This web 22, it will be noted, affords a bearing surface for the type Y that are held between the bars 26. The channeled bars 27 are adapted to hold type Y¹, and at their ends they are notched at 30 to straddle the inner flanges 25 of the cylinder head 21 and are provided with set screws 31 engageable with said flanges to secure the bars 27 in any desired set adjustment circumferentially of the auxiliary printing cylinder.

The cylinder heads 21 are provided with peripheral grooves that partly receive small rubber tires 32 that run with frictional contact with the peripheral portion of the main cylinder 2. These tires 32 hold the auxiliary printing cylinder properly spaced from the main cylinder or, in other words, hold the said auxiliary cylinder so that the faces of the type Y and Y¹ will be brought into proper printing contact with the paper sheet *z* carried downward by the main cylinder 2. It is, of course, evident that with this arrangement of the auxiliary printing device, the advertising or other matter set up by the type Y and Y¹ will be printed on the sheet before the sheet is subjected to the main body of type 5, and it will also be understood that this auxiliary printing device will print in space on the paper sheet corresponding to blank space left in the main body of type 5. Attention is here called to the fact that by adjustment of the auxiliary printing cylinder circumferentially, the type Y and Y¹ may be set to print in the desired space on the paper sheet. This adjustment is made possible by adjustment of the gear 17 in respect to the disk 19, which latter, it will be remembered, is

rigidly secured to the shaft 12. Also the printing point of the type Y and Y¹ may be varied by movement of the type between the bars 26 circumferentially of the cylinder, as well as transversely thereof.

To supply ink automatically to the type Y and Y¹, we provide an inking mechanism which is preferably constructed as follows: At each rotation of the auxiliary printing cylinder, the said type are moved against the under surface of an ink delivery roller 33, the shaft of which is mounted in bearing boxes 34 adjustably seated in bifurcated projections 35 of the bearing frames 15. The ink delivery roller 33 is preferably made up of several longitudinally spaced sections separated by grooves or gaps 33^a and secured to a common shaft 36, the ends of which are journaled in the above noted bearing boxes 34. Running in engagement with the said roller 33 is a distributing roller 37, the shaft of which, as shown, is detachably mounted in bifurcated arms 38 of the bearing frames 15. At their free outer ends, the bearing frames 15 are secured to a trough-like ink font 39 having a spring metal bottom plate 40, the lower edge of which is in constant and close engagement with an ink take-up roller 41, the shaft of which projects at one end and is provided outside of the ink font with a ratchet wheel 42. This ratchet wheel is engaged by a driving dog 43 carried by the free outer end of a cam lever 44, that is pivotally mounted on the shaft of said roller 41 adjacent to the said ratchet wheel 42. Once at each rotation of the auxiliary printing cylinder, a cam projection, preferably in the form of a roller 45, carried by one of the heads 21, engages the depending curved end of said cam lever 44, forces the same upward and causes the dog 43 to impart a step of rotary movement to the ratchet wheel 42 and to the take-up roller 41. The engagement of the free lower edge of the spring bottom plate 40 with the roller 41 is maintained and properly regulated by a multiplicity of set screws 46 applied in the bottom portion of the font 39. The lever 44 is retracted or returned to normal position by its own weight. An ink transfer roller 48 is loosely journaled in an upwardly projecting arm 49 of a rock shaft 50, that is loosely journaled in the bearing frames 15, and provided with a depending arm 51 preferably equipped at its free end with a roller 52. A coiled spring 53, shown as attached to the font 39 and to a projection on the hub of the arm 51 yieldingly holds the roller 48 engaged with the roller 37. One of the cylinder heads 21 carries a cam plate 54 that is adjustably secured thereto, as shown, by a screw 55 engaged with said head and working through the segmental slot 56 of said cam plate. Once at each rotation of the auxiliary printing

cylinder, this cam plate 54 engages the roller 52 and forces the ink transfer roller 48 from engagement with the roller 37 into engagement with the roller 41, and in this way the ink is taken up from the font 39 and delivered to the roller 33 and from the latter onto the face of the type Y and Y¹. The sections of the ink delivery roller 33, it will be noted, are of different length. This permits the same to be put together on the shaft 36 in different ways so that each roller section will cover different zones of the printing surface represented by the set type Y and Y¹.

By means of movable partition plates 57, the ink font may be divided into sections corresponding in number and in length and location to the sections of the delivery roller 33. These partition plates 56 should be cut on their edges to closely fit the inclined bottom plates 40 and the adjacent surface of the roller 41. In practice, we have found that they may be held in position by glue or even by putty. Ink of different color may be placed in the several compartments of the font and the several colors of ink will, by the several intermediate rollers 37 and 48, be delivered to the respective sections of the roller 33. In this way, the auxiliary printing device may be made to simultaneously print in several different colors, the different colors being distributed over the zones or areas which are variable by adjustment of the partitions 57 and of the sections of the roller 33.

What we claim is:

1. The combination with a printing press having printing devices including a paper delivery cylinder, of an auxiliary printing cylinder cooperating with said paper delivery cylinder, type-holding means on said auxiliary cylinder adjustable lengthwise of the latter, and inking mechanism to supply inks of different colors to different sections or zones of said auxiliary cylinder, said mechanism comprising an ink-font divided into adjustable compartments, and an ink-

ing roller divided into adjustable segments, said ink-font compartments being adjustable independent of the adjustment of said inking roller segments so that the length of the compartments of the ink-font can be made to substantially correspond to the length of the segments of the inking roller.

2. The combination with a printing press having printing devices including a paper delivery cylinder, of an auxiliary printing cylinder cooperating with said delivery cylinder, type-holding means on said auxiliary cylinder and adjustable lengthwise thereof, and an automatic inking device cooperative with said auxiliary cylinder and comprising a sectional inking roller to contact therewith, and a sectional ink-font to deliver inks of different colors to the respective sections of said inking roller, the sections of said ink-font and inking roller being adjustable independent of each other to vary the widths of the printing zones.

3. The combination with a printing press having a paper delivery cylinder, of adjustable shaft bearings in the vicinity of the ends of said cylinder, a shaft journaled in said bearings, an auxiliary printing cylinder carried by said shaft for cooperation with said paper delivery cylinder, type-holding devices on the periphery of said auxiliary printing cylinder, bearing frames pivotally mounted on said shaft and extending both above and below the same, anchoring devices applied to the lower ends of said bearing frames, and an ink font and ink delivery rollers mounted on the upper portions of said bearing frames for delivering ink to type carried by said auxiliary printing cylinder, the said inking rollers being driven by said auxiliary cylinder.

In testimony whereof we affix our signatures in presence of two witnesses.

ASA P. BROOKS.

CHARLES N. GALLAND.

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