R. KRAUS.

PRINTING PRESS ATTACHMENT.

APPLICATION FILED MAR. 13, 1915.

1,168,651.

Patented Jan. 18, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

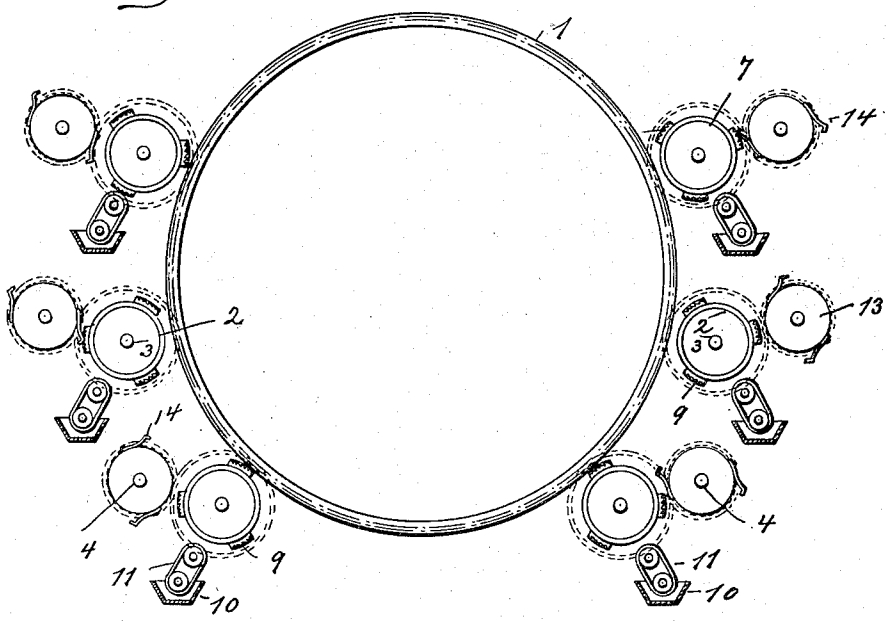


Fig. 2.

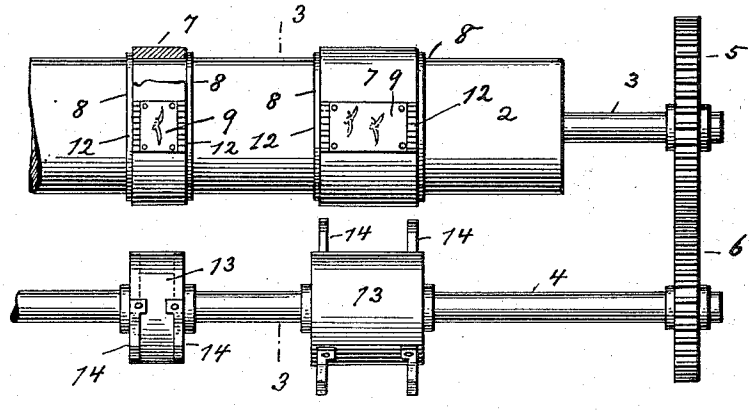
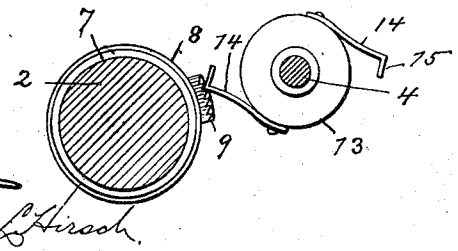


Fig. 3.



WITNESSES:

Julius A. Smith.

Madeline L. Hirsch.

INVENTOR

Rudolf Kraus

BY

Brieser & Grupe

ATTORNEY.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

R. KRAUS.

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2 SHEETS—SHEET 2.

Fig. 4.

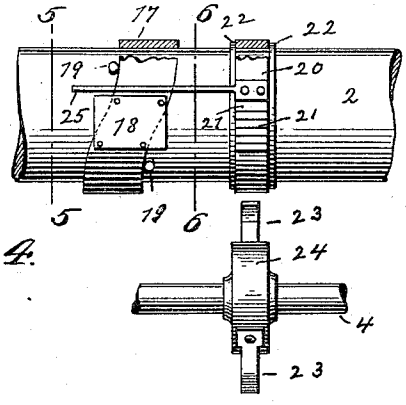


Fig. 5.

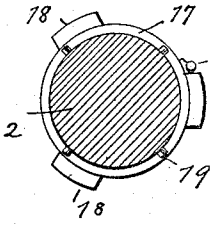


Fig. 6.

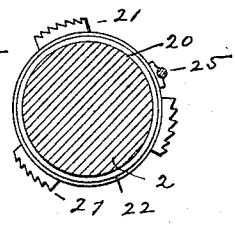


Fig. 7.

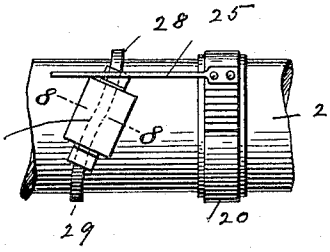


Fig. 8.

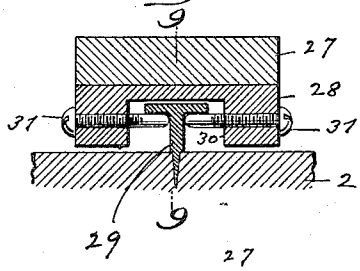


Fig. 9.

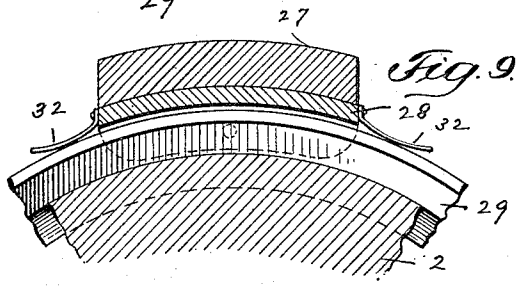


Fig. 10.

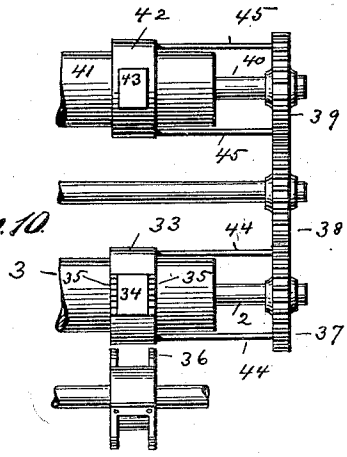
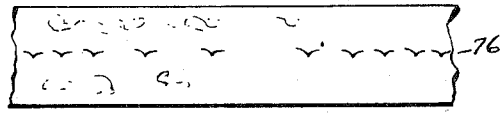


Fig. 11.



Fig. 12.



WITNESSES:

Julius H. Hirsch.

Madeline L. Hirsch

INVENTOR

Rudolf Kraus

BY

Briesen & Gruppe

ATTORNEYS.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RUDOLF KRAUS, OF NEW YORK, N. Y.

PRINTING-PRESS ATTACHMENT.

1,168,651. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed March 13, 1915. Serial No. 14,049.

To all whom it may concern:

Be it known that I, RUDOLF KRAUS, a citizen of the United States, and a resident of New York city, in the borough of Queens and State of New York, have invented certain new and useful Improvements in Printing-Press Attachments, of which the following is a specification.

This invention relates to an attachment for printing presses more particularly adapted for printing wall paper borders. Heretofore, the pattern of the print block, was repeated on the paper in such a manner, that any one impression was equidistant from the next impressions, the entire picture thus presented being symmetrical from end to end of the roll. By my invention, this somewhat monotonous arrangement is so changed, that the consecutive impressions of one and the same printing block, will be placed at different arbitrary distances from each other, the spacing between the various impressions constantly changing. In this way, say a flight of birds will be so represented that the birds at one time will be flocking together, while at other times they will be strung out. A close study of the paper will thus be invited, which will reveal novel and interesting changes in grouping, and adapts the paper well for nurseries, though of course it is also well adapted for representing hunting scenes and other features which will readily suggest themselves.

In the accompanying drawing: Figure 1 is a transverse section of a printing press drum and rollers embodying my invention; Fig. 2 a side view partly in section of part of a printing roller and transposing roller; Fig. 3 a cross section on line 3—3, Fig. 2; Fig. 4 a side view partly in section of a modification; Fig. 5 a cross section on line 5—5, Fig. 4; Fig. 6 a cross section on line 6—6, Fig. 4; Fig. 7 a side view of a further modification; Fig. 8 an enlarged cross section on line 8—8, Fig. 7; Fig. 9 a section on line 9—9, Fig. 8; Fig. 10 a side view of a pair of printing rollers, showing a two-color printing arrangement; Figs. 11 and 12 show examples of strips of wall paper printed according to my invention.

Referring more particularly to Figs. 1–3 there are arranged around the periphery of the drum 1 of a printing press, a suitable number of printing rollers 2, fast on shafts 3, which are driven in suitable manner (not shown). Intergeared with each shaft 3 is a paralleling transposing shaft 4, the transmission 5, 6, being such that shaft 4, is driven at a greater speed than shaft 3. Upon roller 2 there are fitted one or more freely rotatable or shiftable bands 7, the drawing showing two of such bands, of which one is wider than the other, though the number and relative width of the bands may be varied at pleasure. Band 7, is held against lateral deflection during its travel around the roller by means of a pair of flanges 8 formed on the roller sidewise of the band. Upon band 7 there are mounted one or more printing blocks 9 carrying a suitable design which is supplied with color from fountains 10 in the usual manner by bands 11. At each side, block 9 is provided with a rack or similar device 12 which is curved concentrically to roller 2. Opposite to band 7, there is mounted on shaft 4, a relatively fixed collar 13, the length of which coincides with that of the band. To collar 13 there are secured opposite racks 12, a pair of arms or pushers 14, that are arranged somewhat tangential to the collar and are furnished with bent toes 15 that are adapted to engage the racks. In operation, the unequal speed of shafts 3 and 4, will cause a constant change in the relative position between the racks 12 and pushers 14. The pushers on hitting the racks at some place will thus shift the bands 7 and consequently the blocks 9 more or less around the roller 2 while when the pushers do not hit the racks, no shifting movement will be imparted by them to the block. In this way, the blocks will be intermittently displaced by a sort of a hit or miss arrangement in an irregular or spasmodic manner relatively to shaft 3 and consequently to drum 1, so that the impressions on the paper

will be correspondingly placed at constantly varying distances from each other. Thus as shown in Fig. 12, the birds 16 appear sometimes near together and sometimes far apart, the same as a flock of birds would be apt to appear in nature.

With reference more particularly to Figs. 4–6, the band 17 carrying the printing blocks 18, is not only rotatable around the printing roller 2, but is also axially movable thereon to a certain extent. Band 17 is of a sinuous shape and is guided in its correspondingly devious course by pins 19 projecting from roller 2. In proximity to band 17, roller 2 is encompassed by an independently rotatable band 20 having racks 21 and confined by flanges 22. Racks 21 are adapted to be engaged by pushers 23 projecting from a drum 24 carried by the transposing shaft 4. From band 20 there extends laterally a finger 25 adapted to engage block 18. By this arrangement the irregular engagement between pushers 23 and racks 21 previously described, will cause corresponding irregular impulses to be imparted by finger 25, to block 18 and band 17 so that in this way the desired combined short rotary and axial displacement of the block will be obtained. With this construction the various imprints of the birds 26 (Fig. 11) will not only appear at different distances from each other, but also more or less out of a straight line, so that the desired irregularity of appearance is accordingly emphasized.

With particular reference to Figs. 7–9, the printing block 27, is secured to a flexible band 28 which is made to describe a spiral course while traveling around roller 2. Here there projects from roller 2, a curved continuous T rail 29, fitting into a corresponding groove 30 of band 28, and engaged by a pair of guide screws 31 tapped into the band. Block 27 is engaged by the finger 25 of band 20 as described with reference to Figs. 4–6 and carries at its ends a pair of friction springs 32. It will be seen that as band 28 advances along its spiral course, block 27 will not only move around roller 2, but will be tilted at an angle to the axis of said roller. In this way the imprints of the block on the paper will assume a corresponding dip, the dips of the various impressions adding to the desired irregular character of the pattern.

Fig. 10 shows the invention adapted for multiple color printing. Printing roller 3, is encompassed by band 33 to which is affixed printing block 34 having racks 35 that are adapted to be engaged by pushers 36. On shaft 2 of roller 3 is loose a gear wheel 37 which by wheel 38 rotates a wheel 39 of like size which is loose on a shaft 40. Upon shaft 40 is mounted a roller 41 encompassed by a rotatable band 42 carrying a second printing block 43. Band 33 is operatively connected to wheel 37 by rods 44, while band 42 is operatively connected to wheel 39 by rods 45. It will be seen that by the construction described, any impulses imparted to band 33 by pushers 36 will be transmitted to band 42, so that the impression of block 43 will always register with that of block 34.

It is of course evident that in practice a number of the usual printing rollers may be combined with one or more of the rollers carrying my shifting blocks, so that while parts of the design will be symmetrical other parts will be unsymmetrical.

I claim:

1. In a printing press, a rotatable shaft, a member shiftable on the shaft, a printing device on said member, and means for imparting successive irregular impulses to said member.

2. In a printing press, a rotatable shaft, a band shiftable thereon, a printing device on the band, and a pusher adapted to impart successive irregular impulses to the band.

3. In a printing press, a rotatable shaft, a band shiftable thereon, a printing device on the band, a rack adapted to actuate the band, and a pusher adapted to spasmodically hit or miss the rack.

4. In a printing press, a shaft, a band rotatable thereon, a printing device on the band, a rack adapted to actuate the band, a transposing shaft intergeared with the first named shaft, and a pusher mounted on the transposing shaft and adapted to engage the rack.

5. In a printing press, a shaft, a band rotatable and laterally movable thereon, a printing device on the band, a rack adapted to actuate the band, a transposing shaft and a pusher mounted on the transposing shaft and adapted to engage the rack.

6. In a printing press, a drum, a printing device and means for imparting irregular intermittent rotating impulses to said printing device.

7. In a printing press, a drum, a shaft mounted in proximity to the periphery of the drum, a printing device adapted to travel around the shaft and means for imparting irregular intermittent impulses to the printing device.

8. In a printing press, a drum, a shaft mounted in proximity to the periphery of the drum, a printing device adapted to travel around the shaft, a second shaft intergeared with the first named shaft, and a member carried by the last named shaft and adapted to impart intermittent impulses to the printing device.

9. In a printing press, a shaft, a printing device adapted to travel around the shaft, a

second shaft intergeared with the first named shaft, a second printing device mounted on the second named shaft and means for imparting impulses to the first named printing device.

10. In a printing press, a shaft, a band adapted to travel around the shaft, a printing block on the band, a second shaft, intergeared with the first named shaft, a second band and second printing block carried by the second shaft, and means for operatively connecting the first named band with the second named band.

RUDOLF KRAUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."