(No Model.)

W. BERRI.

PRINTING CYLINDER.

No. 396,390. Patented Jan. 22, 1889.

Fig. 1.

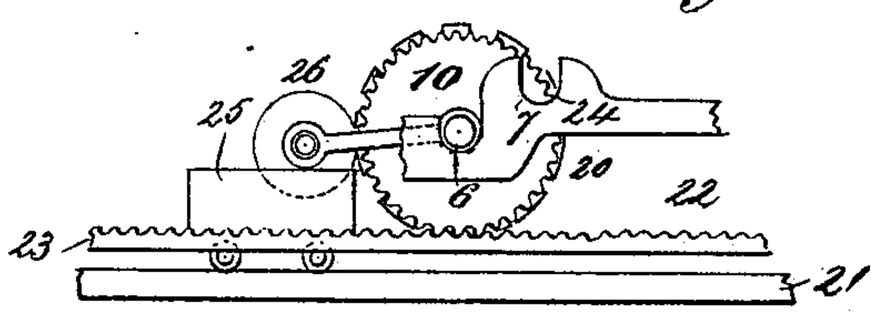


Fig. 3

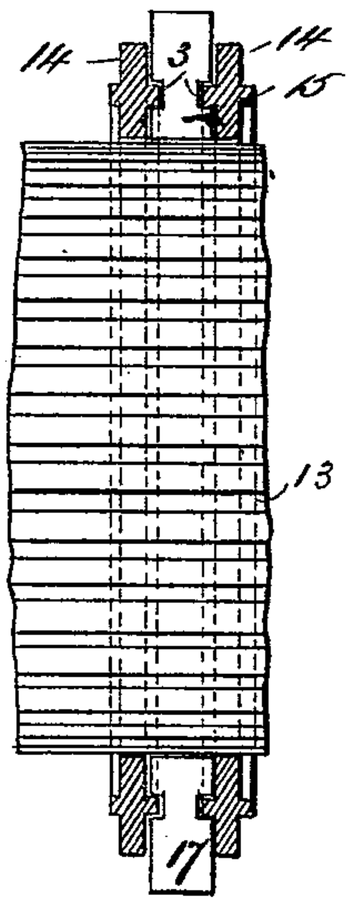


Fig. 2.

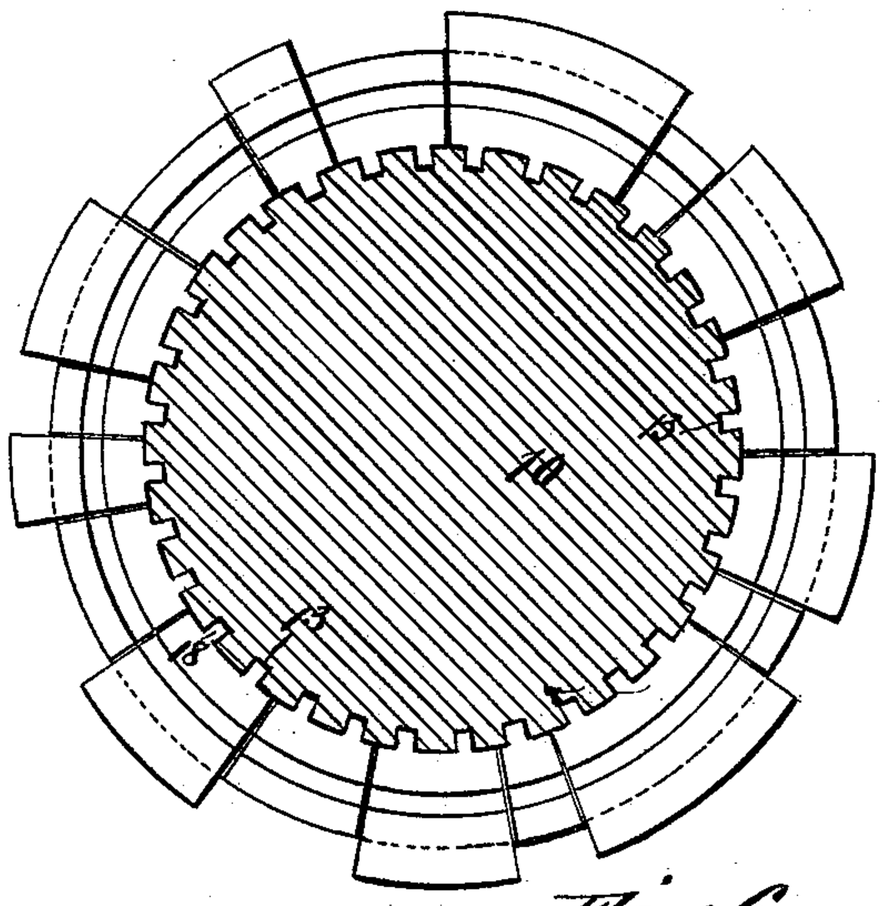


Fig. 4

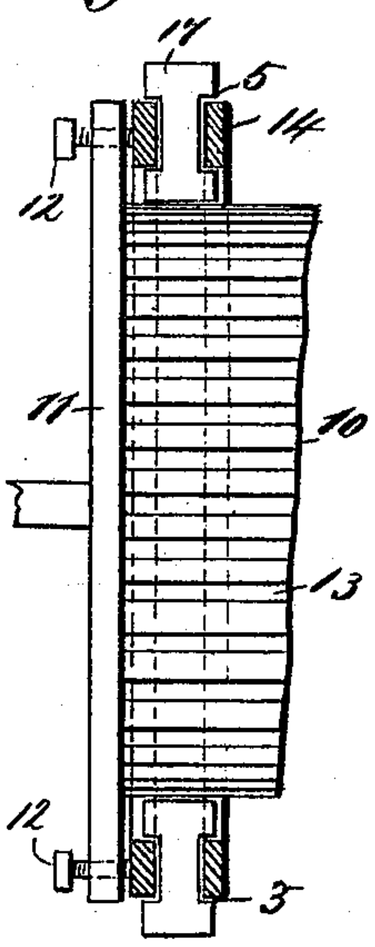


Fig. 5

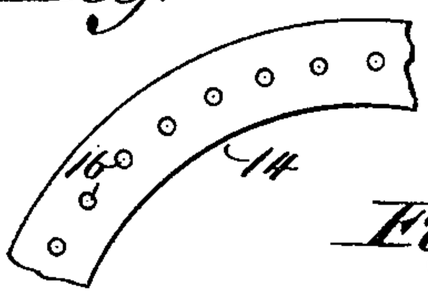


Fig. 6

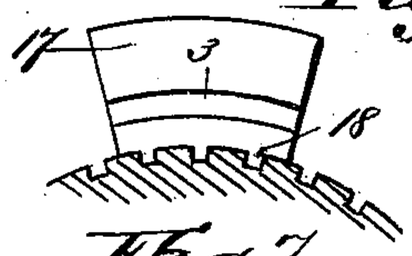


Fig. 8

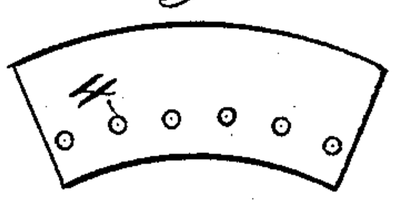


Fig. 12.

Fig. 7.

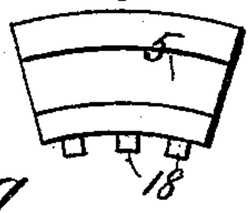


Fig. 10

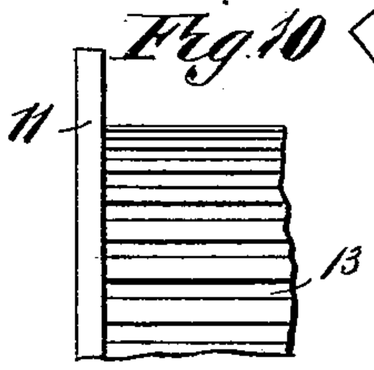


Fig. 9.

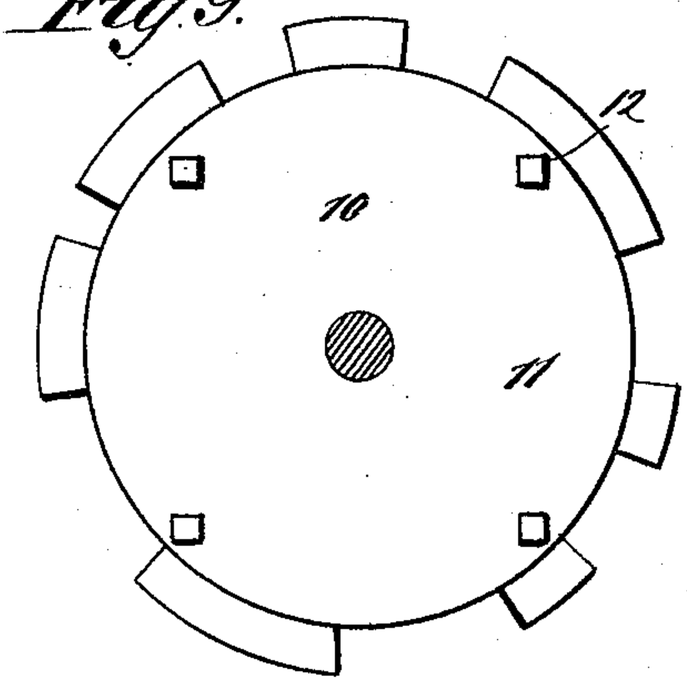
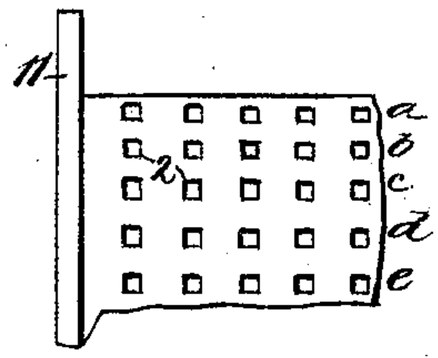


Fig. 11



WITNESSES:

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C. Sedgwick.

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM BERRI, OF BROOKLYN, NEW YORK.

PRINTING-CYLINDER.

SPECIFICATION forming part of Letters Patent No. 396,390, dated January 22, 1889.

Application filed December 13, 1887. Serial No. 257,775. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BERRI, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Printing-Cylinder, of which the following is a full, clear, and exact description.

This invention relates to party-color printing, the object of the invention being to provide for the quick and accurate setting up of the pattern; and to this end the invention consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of a portion of a machine embodying my invention. Fig. 2 is an enlarged cross-sectional view of the printing-cylinder. Fig. 3 is a side view of a portion of the cylinder, showing two of the binding-rings in cross-section. Fig. 4 is a similar view of one end of the cylinder and showing a modified form of ring. Fig. 5 is a side view of a portion of one of the binding-rings, representing a still further modification. Fig. 6 is a side view of one of the printing blocks or dies constructed for use in connection with such a ring as is illustrated in Fig. 3, a portion of the cylinder being shown. Fig. 7 is a similar view of a printing block or die constructed for use in connection with such a ring as is shown in Fig. 4. Fig. 8 is a view of a printing block or die constructed for use in connection with the binding-ring illustrated in Fig. 5. Fig. 9 is an end view of the cylinder. Fig. 10 is a detail view of a portion of the peripheral face of the cylinder. Fig. 11 is a similar view of a modified construction, and Fig. 12 is a side view of one of the spacing-blocks employed in connection with my invention.

In the drawings, 10 represents a cylinder that is formed with end flanges, 11, which carry binding-screws 12. In the peripheral face of this cylinder there are formed a series of longitudinal grooves or recesses, 13; or, instead of being continuous, these recesses might be arranged as shown in Fig. 11, wherein there are represented apertures 2, arranged in parallel longitudinal rows *a b c*, &c., the spaces between the centers of the recesses of each row bearing the same ratio to the circumference of the cylinder as does a certain given unit to the circumference of a circle formed by the peripheral faces of a number of the printing blocks or dies employed in connection with the cylinder, as will be hereinafter explained.

About the cylinder there is placed a number of binding-rings, 14, that are formed with laterally-extending flanges or projections 15, these rings being preferably formed to fit closely against the peripheral face of the cylinder 10; or the printing-rings could be formed with laterally-extending pins or projections 16, as shown in Fig. 5; or the internal circumference of the ring could be increased and the ring somewhat thickened, as shown in Fig. 4.

In connection with the cylinder and binding-rings above described I employ segmental printing blocks or dies, the peripheral faces of which blocks are equal in length to a given unit or to a multiple of such unit, and in the side faces of these blocks I form recesses 3, that are properly located and proportioned to receive the flanges or projections 15; or recesses 4 might be formed in the said side faces of the blocks so located as to receive the pins or projections 16 shown in Fig. 5; or recesses 5, adapted to receive a binding-ring, such as the one shown in Fig. 4, might be employed. If the constructions illustrated in Figs. 5 and 8 are employed, the spaces between the centers of the recesses 4 and projections 16 will be proportional with the unit of length of the peripheral faces of the dies or printing-blocks.

The inner faces of the blocks are formed with transverse ribs or projections 18, adapted to fit in the grooves 13 of the cylinder 10; or, instead of transverse ribs, projections arranged to enter the recesses 2 of the construction shown in Fig. 11 might be employed.

In setting up a pattern by-means of the parts above described, the cylinder is placed on end and all of the clamping-rings except one are raised to the upper end of the cylinder, and blocks of the required length of peripheral face are selected and inserted in

proper position about the peripheral face of the cylinder. After a series of blocks have been placed in position and properly spaced by means of such blocks as those shown at 19 in Fig. 12, which blocks are made in lengths that are proportional with that of the unit adopted, a clamping-ring is lowered and adjusted so that its projection or projections will enter the recess or recesses formed in the upper faces of the printing blocks or dies and the spacing-blocks arranged between said printing blocks or dies, it being understood that said blocks or dies when originally placed upon the cylinder were adjusted so as to receive the projection or projections of the lower clamping-ring, while the projections or ribs 18 were arranged to enter the grooves 13 or the recesses 2, formed in the peripheral face of the cylinder. After the pattern has been completed the blocks are locked to place by bringing the binding-screws 12 to bear against the outer binding-rings. When it is desired to make an impression wider than that of a single block or die, two or more dies are placed so that their side faces will abut, and in this case such a clamping-ring as the one shown in Fig. 4 is employed, correspondingly-formed dies of course being used in connection with such rings.

In applying the cylinder above described for use in printing it may be mounted upon a carriage, 20, which runs upon ways 21 at either side of a bed, 22, an accurate register between the bed and cylinder being maintained by means of racks 23, fixed at the sides of the bed, and gears 24, that are carried by the cylinder. The carriage 20 is provided with a color-trough, 25, and with a color-distributing roller, 26, which runs in the color-trough and in connection with the printing-faces of the blocks or dies 17. During the operation of printing the cylinder 10 is supported in bearings 6; but when it is desired to reverse the direction of the travel of the carriage the cylinder is raised so that it will rest in bearings 7.

This printing-cylinder is designed especially for use in the printing of warp-threads that are to be used in the weaving of tapestry carpets, and in such use it will be understood that a number of printing-cylinders and a number of supporting-carriages would be employed, each cylinder and carriage being arranged to imprint a different color upon the yarn; but, although the invention is so especially designed for use in the printing of warp-threads to be used in the manufacture of tapestry carpets, I desire it to be distinctly understood that the cylinder could be used for many other purposes; and although I have described a specific form of carriage that is arranged for use in connection with a stationary bed, I desire it to be understood that the cylinder might be employed in connection with a revoluble impression-cylinder, or that any other proper impression appliances might be used in connection with my printing-cylinder.

I further desire it to be understood that the binding-rings 14 could be made with a single laterally-extending flange or projection, or with a single series of laterally-extending pins.

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

1. A segmental printing block or die formed with recessed side faces and with projections extending from its inner circumferential face, as and for the purpose stated.

2. A printing block or die formed with recessed side faces and transverse ribs on its inner face, substantially as described.

3. The combination, with a cylinder provided with a series of recesses on its peripheral face, of printing-blocks having recessed side faces and projections on their inner faces, and binding-rings provided with laterally-extending projections, substantially as described.

4. The combination, with a cylinder provided with a series of longitudinal grooves, of segmental printing blocks or dies provided with recesses on their side faces and with transverse ribs on their inner faces, clamping-rings provided with laterally-projecting flanges, and binding-screws, substantially as herein shown and described.

5. The combination, with a cylinder formed with a recessed peripheral face, of printing blocks or dies having recessed side faces and provided with projections which extend from their inner circumferential faces, said projections being arranged to enter the recesses formed in the peripheral face of the cylinder, clamping-rings arranged about the cylinder and formed with laterally-extending projections arranged to enter the recesses of the printing blocks or dies, and a means for locking the parts together, as and for the purpose stated.

WILLIAM BERRI.

Witnesses:
MAX RUDIGER,
WM. H. AITKEN.