(No Model.)

C. A. THOMPSON.

ROTARY PRINTING MACHINE.

No. 400,269. Patented Mar. 26, 1889.

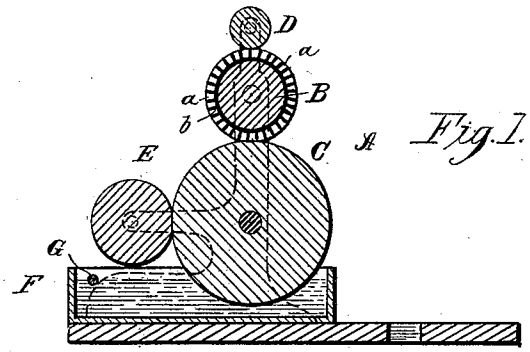


Fig. 1.

Fig. 2.

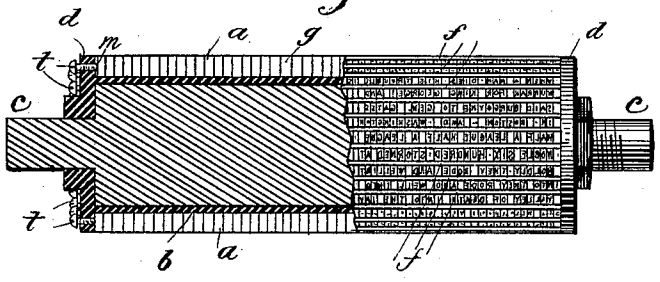


Fig. 3.

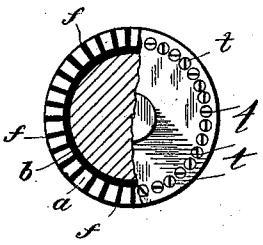


Fig. 4.

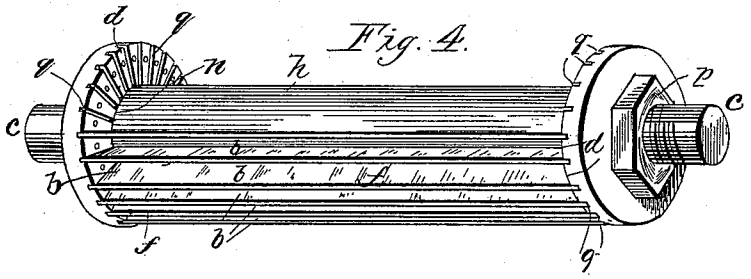


Fig. 5.

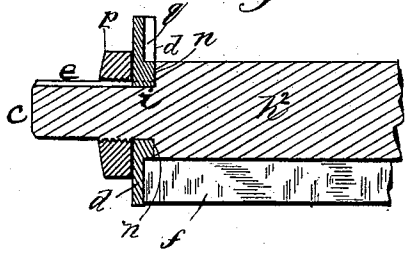


Fig. 7.

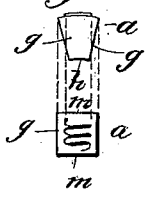
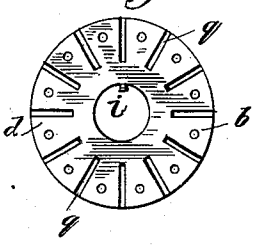


Fig. 6.



WITNESSES:

John F. Nelson

John A. Kennie.

INVENTOR

Chas. A. Thompson,

BY

Wm. Hare Bellows,

his ATTORNEY.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES A. THOMPSON, OF NEW YORK, N. Y.

ROTARY PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 400,269, dated March 26, 1889.

Application filed May 16, 1887. Renewed February 8, 1889. Serial No. 299,354. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. THOMPSON, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Rotary Printing-Machines, of which the following is a specification.

This invention relates to printing-machines in which cylindrical forms are used with provision for holding the type within parallel pockets between rules or plates around the circumference of the cylinder; and the primary object of my improvement is to provide for the use of type of different size and style within said pockets, and thereby adapt the same cylinder for different styles and character of work.

Other matters of improvement, both of construction and of combination of such printing-machine, will be hereinafter described and made the subject of specific claim.

In carrying out my invention I employ a device which is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the type drum or cylinder comprising the present invention arranged in relation to other parts to form a printing-machine. Fig. 2 is in part a side view of the type drum or cylinder and in part a longitudinal axial section thereof. Fig. 3 is in part an end view of the type drum or cylinder and in part a cross-section thereof. Fig. 4 is a perspective view of the type drum or cylinder constructed in accordance with this invention and provided with means for changing the size of the type-receptacles. Fig. 5 is a partial axial sectional view of the same. Fig. 6 is a view of the inner face of one of the end collars of the drum or cylinder, and Fig. 7 is a side and a face view of the type used in the device.

The same letters of reference indicate the same or corresponding parts in all the figures.

In the drawings, the letter A represents a printing apparatus, of which B is the type drum or cylinder, which comprises my invention.

C is the main or impression roller.

D is the inking-roller.

E is a squeezer-roller.

F is a tank for liquid, and G is a guide roller or rod located in the said tank.

In printing it is often advantageous to have the paper which is to receive the impression from the type in a moistened condition, and this is secured by first passing the paper, which, preferably, is in strips of indefinite length, under the guide roller or rod G into the liquid in the tank, when it becomes saturated, thence to and between the main or impression roller C and the squeezing-roller E, and thence to and between the top of the main roller or impression-roller and the printing-roller B.

The type roller or drum B for receiving the movable type *a* is provided in its outer periphery with a series of longitudinal channels or pockets, *b*, at regular intervals, which have end walls, *d*. The longitudinal channels or pockets *b* are of flaring shape, as seen in Figs. 1, 3, 4, and 6—that is, they are smaller at their bottoms than at the opening or top, and such a form of pocket or receptacle is secured by the employment of longitudinal ribs or rules *f*, radial in relation to the axis of the drum. The type used in these pockets is illustrated at *a* in Figs 2, 3, and 7, and is shown as having beveled sides *g g*, converging toward the lower or inner end of the type and corresponding with the flare of the pockets in the drum, and when placed within the pockets of the drum the inner end, *h*, of the type will rest against the body of the drum, while the face of the type is formed in the arc of a circle corresponding to and concentric with the circumference of the drum and pockets, so as to project beyond the periphery of the same and present an unobstructed cylindrical face for operation in printing.

The matter is made up with the movable type in the pockets *b* of the drum in a usual or suitable manner, and when a line is completed such type are secured firmly in place in such pocket by a set of clamping-screws, *t*, screwing through one end wall, *d*, against the flat side *m* of the type, as plainly seen in Fig. 2.

In Figs. 4, 5, and 6 a construction of type-drum is more clearly illustrated, whereby one drum or cylinder may be adapted to receive type of different width or extent of face. It

will be seen that the body or spindle *h* of the drum is formed with shoulders *n* at each end, against which the collars *d*, forming the end walls of the pockets, are forced by screw-nuts *p*, engaging with threads on the ends of the spindle. These collars are provided at their inner faces with grooves *q*, (see Figs. 4, 5, and 6,) which grooves serve to receive and confine the ends of the longitudinal ribs or rules *f*, forming the sides of the pockets for the type. By removing the collars *d* and replacing the same with other collars in which the grooves *q* are farther apart or closer together, and inserting the metal ribs or rules in these grooves, pockets may be obtained of a size suitable to the desired size and style of type to be used.

As seen in Figs. 2 and 5, it will be understood that the journal-bearings *c c* of the type-cylinder are formed with a screw-thread and a longitudinal groove, *e*, and the collars *d d* are provided with splines *i*, fitting into said grooves, so as to prevent the collars from turning upon the cylinder, while at the same time allowing of their removal and replacement by others. Were it not for this provision the type-confining rules or plates would be liable to get out of axial alignment, as the collars would be liable to turn upon their bearings and twist the rules out of line not only under the friction in turning the clamping-nuts against them, but in the printing operation.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a printing-machine, the type-cylinder consisting of the cylinder having journal-bearings provided with screw-threads and longitudinal grooves *e*, the collars *d d*, having radial-face grooves, and splines *i*, matching the journal-grooves, the clamping-nuts, and the type-confining rules or plates, the latter and the collars being removable for interchangeable parts to suit the desired size and style of type to be used, substantially as described.

2. In a printing-machine, the type-cylinder having collars at each end, provided with radial grooves on their inner faces, and rules or plates bound within said grooves and maintained in axial alignment by means which clamp and lock the collars to the cylinder, as herein set forth.

3. In a printing-machine, the combination, with a type-cylinder, of an impression-roller, a squeezing-roller, and a tank for containing water, arranged to immerse the lower portion of said impression-roller, substantially as described, for the purpose specified.

4. In a printing cylinder or drum, the combination of a spindle having shoulders near its ends, collars upon the spindle and bearing against the said shoulders and formed with radiating grooves, clamping-nuts upon the ends of the spindle bearing against the collars, and ribs or rules extending longitudinally of the spindle, and having their ends in the grooves of the collars, as shown and set forth.

5. The combination of a type cylinder or drum having longitudinal pockets formed by longitudinal and radial partitions or rules, and type having two sides or edges beveled or converging toward the inner end to fit in the pockets, and having the face formed in an arc corresponding to and concentric with the circumference of the drum, as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two witnesses.

CHARLES A. THOMPSON.

Witnesses:

WM. SEARS BELLOWS,

CHAS. S. SENTELL.