(No Model.) 2 Sheets—Sheet 1.

T. G. SAXTON.

PRINTING ATTACHMENT FOR PAPER REELS.

No. 423,394. Patented Mar. 11, 1890.

Fig. 1

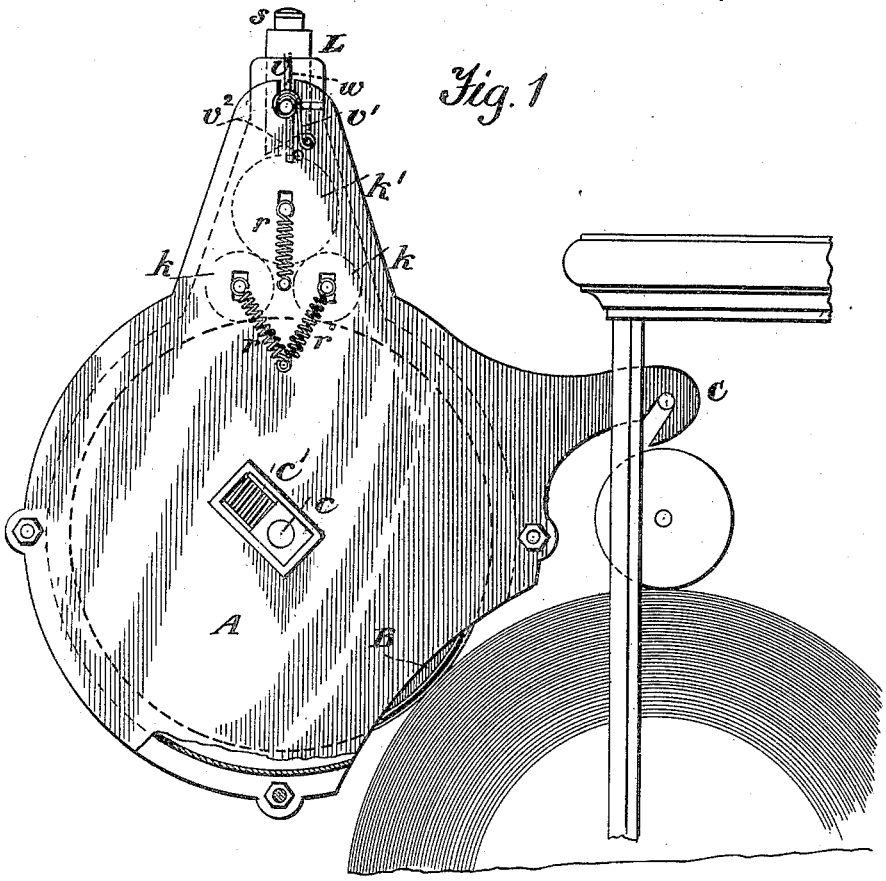


Fig. 2.

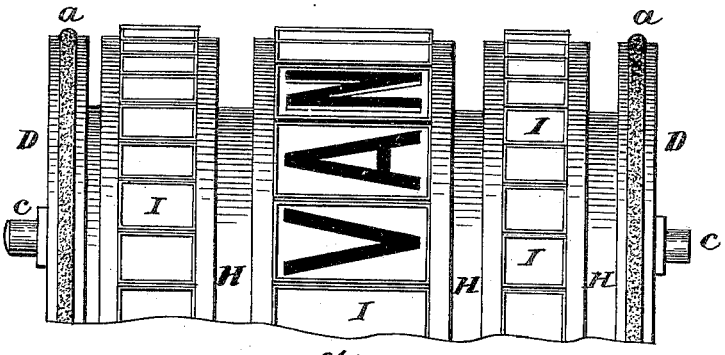
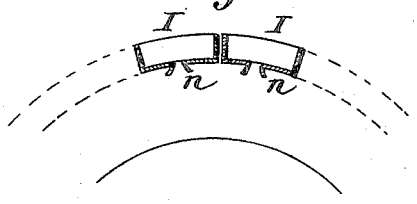


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

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PRINTING ATTACHMENT FOR PAPER REELS.

No. 423,394. Patented Mar. 11, 1890.

Fig. 3.

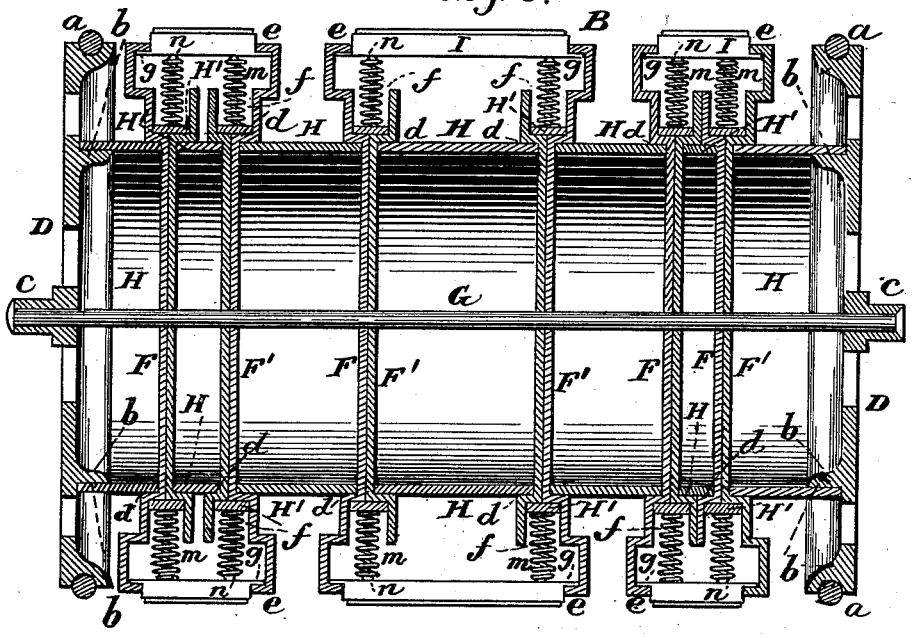


Fig. 4.

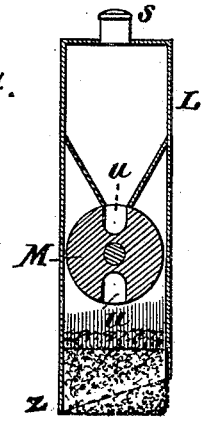
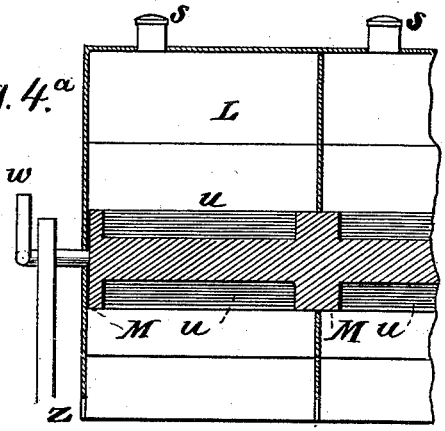
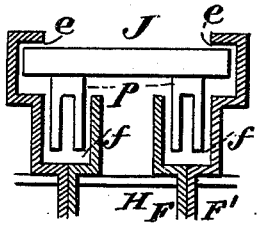


Fig. 4.a





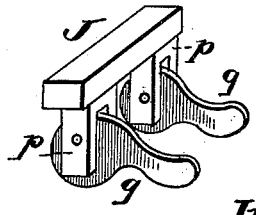


Fig. 6.

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UNITED STATES PATENT OFFICE.

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PRINTING ATTACHMENT FOR PAPER-REELS.

SPECIFICATION forming part of Letters Patent No. 423,394, dated March 11, 1890.

Application filed February 18, 1889. Serial No. 300,331. (No model.)

To all whom it may concern:

Be it known that I, THOMAS G. SAXTON, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Printing Attachments for Paper-Reels; and I 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.

This invention relates to rotary printing-machines; and it consists in certain improvements in the construction of rotary printing devices which are adapted for use in connection with paper-reels, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a side view of the improved printing attachment as applied to a paper-reel. Fig. 2 is an exterior view of the printing cylinder or roller. Fig. 3 is a longitudinal central section of the printing-roller. Figs. 4 and 4ª illustrate, in transverse and longitudinal section, respectively, the ink-supplying devices. Figs. 5 and 6 illustrate the locking devices for type-holders. Fig. 7 shows the type-holders in section.

A designates the casing of the printing attachment, the said casing being hinged or pivoted to a cross-bar and conforming to the printing cylinder or roller B, which is mounted therein. The casing is provided with an upward extension at the top, which forms a housing for the inking devices and an opening at the bottom for contact of the printing-surfaces with the paper roll on the reel. The casing is also provided with two arms C for detachably connecting it with the frame of the reel, as seen in Fig. 1.

The cylinder B is chiefly formed of the heads D, a series of disks F F′, and a series of rings H. The heads D are provided with hollow trunnions *c*, grooves on their peripheries, in which are placed the elastic bands *a*, and annular flanges *b* on their inner faces, as shown. The disks F F′ are perforated at the center, and a shaft G extends through them and has its extremities secured in the hollow trunnions of the heads D. The said disks are usually constructed, as shown in Fig. 3, to form annular chambers at the periphery of the printing-cylinder to receive the type-holding devices and the springs connected with them. Thus each half part of an annular chamber or receptacle for type-holders is formed on two disks F F′, which are placed close together, two similar disks being placed together to form the other part. The annular chamber thus formed extends around the cylinder and has an annular opening between the flanges *e*, in which opening is placed a row of type-holders. The said disks are arranged on the shaft G, so that the two parts of an annular chamber may be near each other or somewhat apart, according to the size of the type-holders to be used. (See Fig. 3.)

For properly spacing the disks and securing them in place a series of rings H of different widths are employed, said rings being placed between the parts and extending around the central shaft G and under shoulders *d*, formed by the chambers. The rings next to the heads D rest on the flanges *b*. Similar rings H′ are placed in the annular grooves *f*, formed in the annular chambers.

I indicates the type-holders, which are in the form of shallow cases or boxes, in which types of wood, rubber, metal, or any suitable material may be placed. These type-holding cases are usually stamped in proper shape, being curved to correspond with the periphery of the printing-roller and provided with flanges *g* at their extremities. Two holes are punched in the bottom of each of the cases I to form projections *n*, with which the spiral springs *m* are connected. The cases with the type fitted in them are placed in the openings with the flanges *g* under and against the flanges *e* of the cylinder and the springs *m* in the grooves *f* of the annular chambers. The type-holders when in place are pressed outward by the springs and secured against the flanges of the cylinder with the type projecting beyond the periphery and the contact of the printing-surface with the paper on the reel if steady and uniform.

It is found in practice that the paper roll does not always present an even surface to the printing-cylinder, and consequently the impressions of the type are liable to be defective. This difficulty is obviated by the

use of the springs, by which the type-holders adapt themselves to irregularities in position of the paper on the roll, and the impressions of the type are uniformly distinct.

In order to lock the lines or forms of type in place when such is desired, lock-forms are provided, which may be placed in the annular chambers. These are formed of plates J, which are provided with downward projections or legs *p*, which extend into the grooves *f*. Cam-levers *q* are pivoted to the legs *p*, and by pressing these levers downward the plates J may be raised and pressed upward against the flanges *e*, and thus locked in place.

Within the housing at the top of the casing A are mounted two ink-distributing rollers *k*, which are in contact with the printing-cylinder. Above said rollers *k* and in contact with them is a larger roller *k'*, and all three of these rollers are on shafts having bearings in slots in the casing, and are provided with springs *r*, which serve to hold them toward the printing-cylinder. Above the roller *k'* is removably placed in an opening in the top of the casing an ink-fountain L, which is provided with one or more mouths for filling with screw-stoppers *s*. Under the fountain L is placed a valve which is formed of a roller M, which has two opposite grooves *u* in its periphery and is mounted on a shaft having its bearings in the casing in vertical slots *v*, and the springs *v'* serve to retain the shaft in place. One end of said shaft is turned upward at *w*, and a fixed pin or stop v^2 prevents it being turned more than half a revolution, that being sufficient either to feed the ink from the fountain or to shut it off, as desired.

Under the valve M is placed sponge, felt, or other suitable porous material to receive the ink and convey or distribute it to the roller *k'*, from which it is distributed to the printing-cylinder by the rollers *k*. To prevent the sponge or felt from spreading out or being carried along by the roller *k'*, the casing of the fountain L is extended downward, as seen at *z*, so as to nearly touch the said roller.

The fountain is usually constructed of sheet metal and fits loosely in the opening in the top of the casing, and may, with its attachments, be lifted out. When in place, it is held taut by the springs *v'*.

The trunnions *c* of the cylinder have bearings in boxes placed in slots in the casing and pressed by the springs *c'*, which tend to press the cylinder to the paper roll.

I claim—

1. In a printing-cylinder provided with two heads, a series of disks mounted between the heads and constructed to form annular chambers at the periphery of the cylinder, in combination with a series of removable type-holders loosely mounted in said annular chambers and provided with springs, substantially as set forth and described.

2. In a printing-cylinder, the heads D, provided with trunnions *c*, in combination with shaft G, disks F F', provided with flanges *e* and grooves *f*, intervening rings H, and cases I, provided with flanges *g* and springs *m*, substantially as and for the purposes described.

3. The combination, with a printing-cylinder and a casing provided with slots *v* and a stop v^2, of an ink-fountain removably mounted in the casing, a valve formed of a roller provided with grooves *u*, and a shaft which is mounted in slots *v* and is constructed to connect with stop v^2, substantially as set forth and described.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS G. SAXTON.

Witnesses:
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H. B. CLAY.