(No Model.) 2 Sheets—Sheet 1.

W. W. McMAINS.

HAND PRINTING ROLLER.

No. 419,540. Patented Jan. 14, 1890.

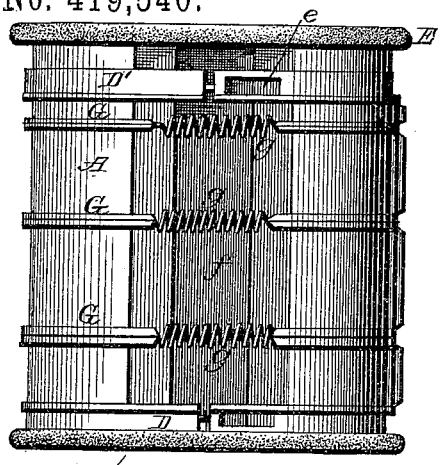

Fig. 1.

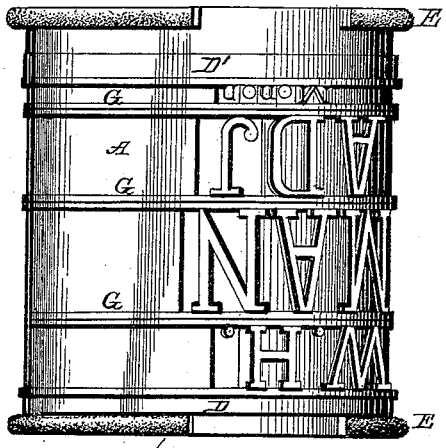

Fig. 2.

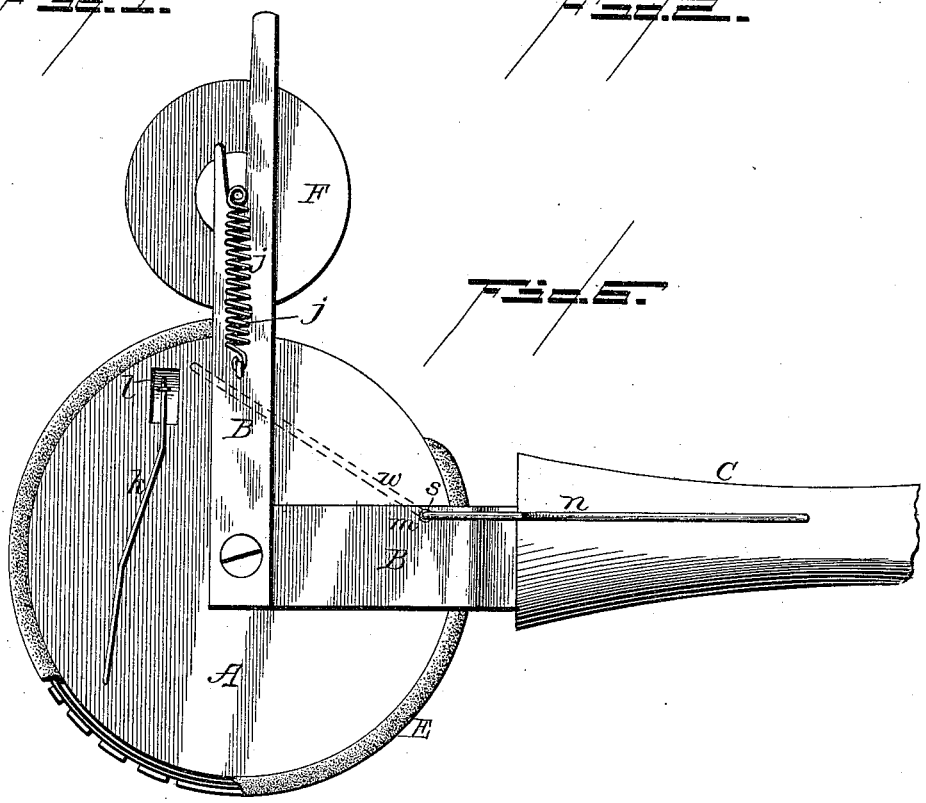

Fig. 3.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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HAND PRINTING ROLLER.

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Fig. 3a

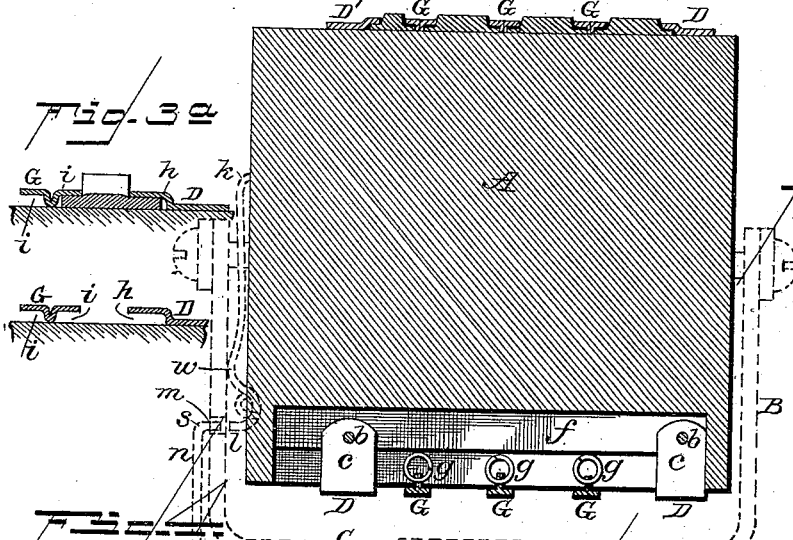


Fig. 3.

Fig. 4.

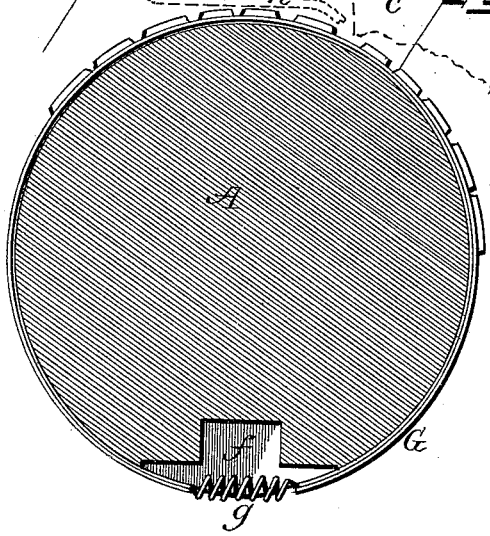


Fig. 5.

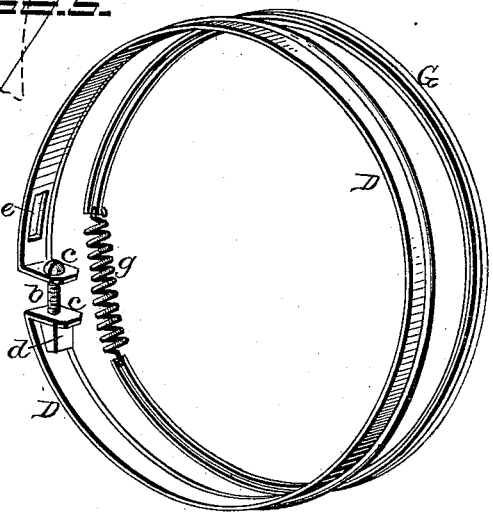
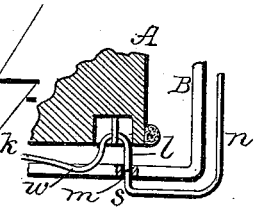


Fig. 2.

Fig. 7.



WITNESSES

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his Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM W. McMAINS, OF MONONGAHELA CITY, PENNSYLVANIA.

HAND PRINTING-ROLLER.

SPECIFICATION forming part of Letters Patent No. 419,540, dated January 14, 1890.

Application filed September 3, 1888. Serial No. 284,384. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. McMAINS, a citizen of the United States, residing at Monongahela City, in the county of Washington and State of Pennsylvania, have invented new and useful Improvements in Hand Printing-Rollers, of which the following is a specification.

My invention consists of certain novel parts and combinations of parts constituting improvements in hand printing-rollers.

The specific points of novelty will be designated in the claims concluding this specification.

The following is a description of the drawings in which are illustrated my improvements:

Figure 1 is a side view of the roller, showing the letter-retaining bands thereon. Fig. 2 is a similar view showing the manner of retaining the printing-letters in separate rows by the spring-connected bands. Fig. 3 is a longitudinal section of the printing-roller. Fig. 4 is a cross-section thereof. Fig. 5 shows the bands for retaining the letters upon the roller. Fig. 6 is an end view of the device. Fig. 7 is a detail of the spring-stop for the roller, and Fig. 8 is one of the rubber letters.

I prefer to make the cylinder or roller A of wood for lightness and cheapness. It is mounted by journal-pins in a hand carrying-frame B, having a bail or handle C for operating it.

The printing-letters are of rubber, cast, preferably single, upon a thin base *a*, which is sufficiently wider than the letter to form two projecting edges, by which the letters are clamped to the surface of the roller in parallel lines. The letters are thus secured in by means of ring-bands, preferably of sheet metal, clamped in place around the roller in parallel relation. The outer end bands D D are connected at their ends by a clamp-screw *b*, by which they are bound upon the roller and upon the letter-base. As shown, the clamp-screw *b* is passed through holes in the bent ends *c c* of the bands and into a metal block *d*, into which the screw is driven by a driver inserted through a slot *e* in that bent end of the band which supports the screw-head. The roller has a longitudinal surface recess or groove *f* to receive the bent ends of these bands. The intermediate ring-bands have a width equal to the line-spacing between the letters, and they are connected at their ends by spiral springs *g*, which cross the recess *f*, as seen in Fig. 1. The outer or end bands are formed with recesses or grooves *h* around their inner edges only, while the intermediate bands have both their edges formed with a recess or groove *i*, and into these band-grooves the letters are confined by their edge base parts, which fit within the ring-grooves. The means for securing the ends of the intermediate bands, it will be seen, allow them to be shifted and set upon the roller to suit the size of the letters, and when so adjusted their spring clamping function holds them in place. When the matter to be printed is adjusted between the bands, the outer ones are clamped firmly upon the roller. I prefer to form these bands of sheet metal, because their edge grooves can be made by crimping or beading them, as shown, so as to bring the grooved edges out from the surface of the roller a distance equal to the thickness of the edge base parts of the letters. These adjustable bands allow the letters to be changed and set easily and conveniently, and their connections permit them to be easily removed when necessary. At its edges the roller is provided with rubber bands E E, which project slightly below the face of the letters and form guides for the roller, so that it will roll evenly and smoothly. The frame within which the roller is mounted supports an inking-roller F at the top of the printing-roller, which is kept in place by springs *j*, connected to its bearing ends. A spring-stop is arranged at one end of the roller to arrest and hold it at the starting-point. As shown, this stop is formed of a spring-arm *k*, fixed on the end of the roller, having its bent end *l* standing outward in position to spring into a hole *m* in the handle or bail frame and lock it to said frame. A second spring-arm *n*, fastened to the handle, serves by its bent end *s* to release the spring from its lock and allow the roller to turn.

An alphabet of rubber type letters is prepared for use with the roller, whereby it can be made very convenient for making any desired change in form for printing handbills and circulars.

Referring to the stop-spring *k* and to Fig. 3

of the drawings, it will be seen that the spring is placed between the arm of the handle-frame and the end of the roller, and that said spring has an outward bend *w* adjacent to its locking end *l*, so that as the roller is revolved in printing this bend *w* first strikes against the under side of the frame-arm, and thereby causes the bent end *l* to be moved inward, so that it will clear the under edge of the frame-arm. In this position of the roller the spring stands inclined upward, so that the bend *w* will be above the locking-point *l*, and as the roller revolves this bend *w* will pass above the said frame-arm just in time to allow the spring to spring outward, and thus force its locking-point *l* into the hole *m* in said frame-arm, as seen in Fig. 7.

Referring to the bands for retaining the letters in their proper relation, it will be seen that by unclamping and loosening one of the end bands, as D′, the intermediate spring clamping-bands can be adjusted endwise upon the roller to suit any disposition and size of letters without removing any of said bands. These bands therefore serve to clamp the letters upon the face of the roller, while the bands D D′ serve to bind the letters up against the edges of all the bands, and thus give a firm hold to each letter in two directions.

I claim—

1. The combination, with the printing-roller, of the ring-clamping bands having inwardly-bent ends *c c* and provided with slots *e e*, their clamping-screws *b b*, and the metal screw-blocks *d d*, and the intermediate ring-clamping bands having a yielding connection for their ends, substantially as described, for the purpose specified.

2. The combination, with the roller, of the bands having their ends connected by tightening-screws and the intermediate bands having their ends connected by springs, substantially as described, for the purpose specified.

3. The combination, with the printing-roller having a longitudinal surface recess *f*, of the ring-clamping bands D D′, having inwardly-bent ends, and their clamping-screws, and the spring-connected intermediate clamping-bands, the connections for the said bands crossing the said surface recess below the circumferential printing-line, substantially as described.

4. In a printing-roller, the type-retaining ring-bands formed of sheet metal and corrugated or crimped to form middle side bearing-beads and edge grooves and means for connecting their ends together, substantially as described.

5. The combination, with the printing-roller and its handled mounting-frame, of a locking-stop for holding said roller at the starting-point, consisting of the spring-catch secured in the end of the roller and the releasing spring-arm secured in the frame, both the catch and the releasing-arm operating in a hole in the said frame, as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM W. McMAINS.

Witnesses:
WM. H. ARISON,
WM. W. SPEER.