

(No Model.)

A. L. FLINT.
SPINDLE FOR PAPER ROLLS.

No. 494,329.

Patented Mar. 28, 1893.

Fig. 1.

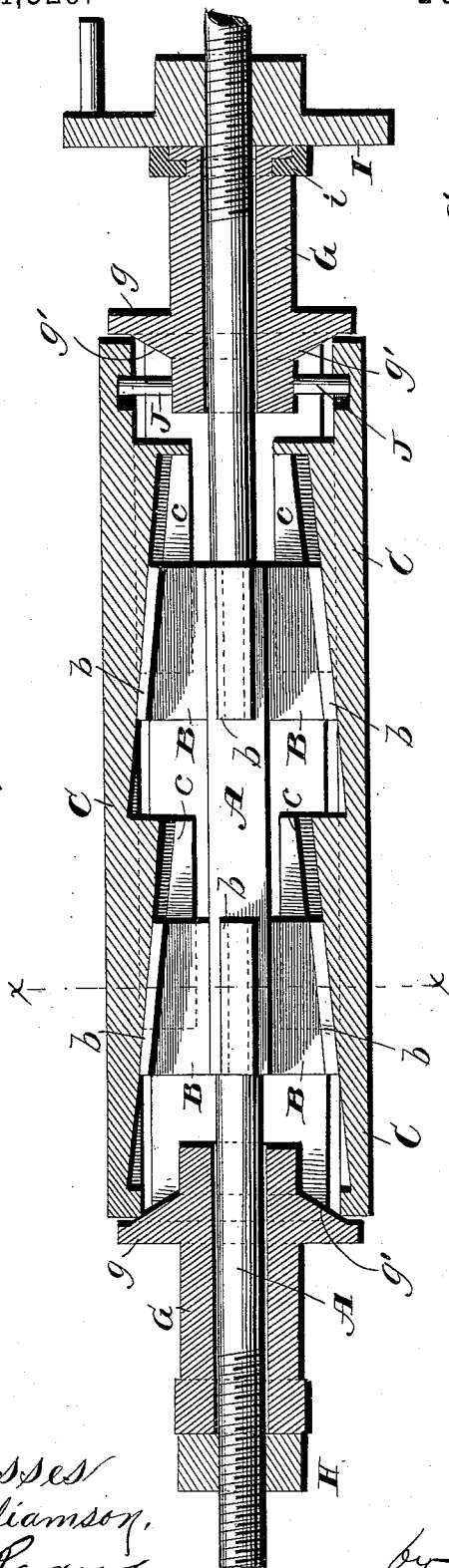


Fig. 3.

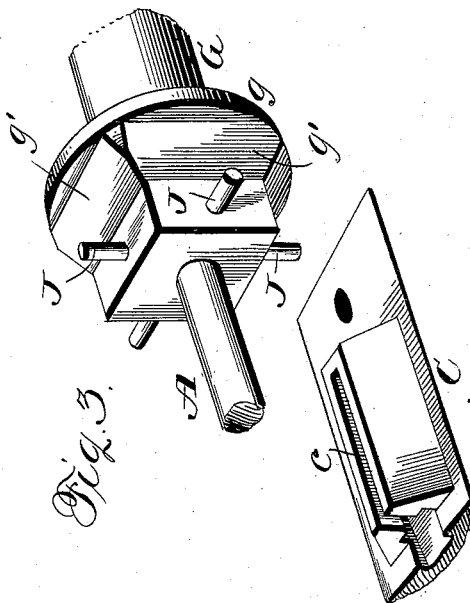
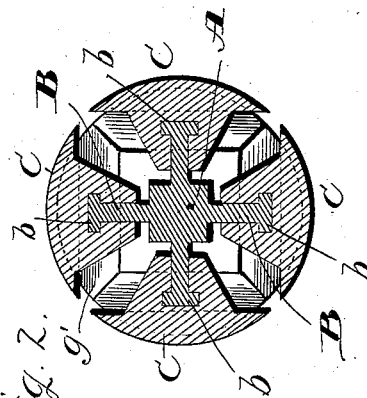


Fig. 2.



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UNITED STATES PATENT OFFICE.

AUSTIN LOVEL FLINT, OF WATERTOWN, NEW YORK.

SPINDLE FOR PAPER-ROLLS.

SPECIFICATION forming part of Letters Patent No. 494,329, dated March 28, 1893.

Application filed October 1, 1892. Serial No. 447,502. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN LOVEL FLINT, a citizen of the United States, residing at Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Spindles for Paper-Rolls; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in quills or spindles for winding paper upon for use upon web printing presses; the quill being adapted to be quickly and readily removed from the roll at the paper mill after the paper has been wound thereon; thus avoiding the necessity of shipping it to the place of use of the paper, and which can be as readily and quickly replaced at the printing establishment, to provide a revolving or journaled support for the roll in the printing press.

To this end and to such others as the invention may pertain, the same consists in the quill or spindle having the construction and combination of parts hereinafter specified, and illustrated in the accompanying drawings, in which,

Figure 1, is a longitudinal section of my device. Fig. 2, is a transverse section upon the line x, x of Fig. 1. Fig. 3, is a detail perspective view of a portion of one of the cylinder sections, and one end of the shaft with the longitudinally movable collar or journal.

Reference now being had to the details of the drawings by letter, A designates a shaft, having its ends screw-threaded as shown, and provided on its middle unthreaded portion with two separated duplicate sets of radial lugs or projections B, B, as shown; there being four lugs B in each set, and they are arranged on diametrical lines that extend at right angles. The outer face of each lug inclines in the direction of the length of the shaft, the angle of inclination of each lug of both sets being the same and in the same direction. On each side of each lug, at its outer

face, is a rib or flange b . Engaging the two lugs B of both sets that are in line, are two grooved projections c, c , on the under side of a longitudinal strip or bar C, whose outer side is curved in the arc of a circle, and which, together with three similar lugs form a sectional cylinder. The grooves in the projections c, c are T shaped to conform to the shape of the lugs B, and the bottoms thereof are inclined to correspond with the inclination of the faces of said lugs which they engage. By reason of the inclinations, it will be seen that if the bars C be moved longitudinally, as they are adapted to be moved, they will be moved in radial directions in the diameter of the cylinder formed by their convex exteriors. The outer faces of the lugs B cause the outward movement, while the inner faces of the ribs b, b draw the bars inward. The movements of said bars are effected by the following devices.

Mounted loosely upon each end of the shaft A, so as to be capable of longitudinal movement thereon, is a cylindrical piece G having at its inner end a flange or collar g , to engage the adjacent ends of the bars or sections C, and having a diameter less than the diameter of the cylinder they form when drawn to their full extent inward. One of the pieces G serves as an abutment, while the other serves as a follower or carrier. The former is located at the end of the shaft in the direction of the higher ends of the lugs B, and its position longitudinally determines the diameter of the cylinder when fully expanded. It is therefore made movable longitudinally, in order that different diameters may be obtained, and such movement is limited by a nut H upon the threaded end of the shaft that engages the outer end. The follower or carrier is given its longitudinal movement by a nut on the other threaded end of the shaft in the form of a hand-crank wheel I having a swiveled connection i with the outer end of the cylindrical piece G.

On the inner face of each collar or flange g , is a hub g' having four flat inclined faces forming a rectangular shape, each of which faces is adapted to be engaged by the flat inner faces of one of the bars or cylinder sections C, and thus assist the lugs B in holding

said bars rigidly and in proper relation to each other. The inclination of the faces of said bars *g'* is such as to insure the contact of the bars when fully extended radially to the pre-determined extent.

Projecting from each face of the carrier hub *g* into an elongated opening in the face of the adjacent cylinder section *C*, is a pin *J* which constitutes the means by which the carrier draws said sections with it to contract the diameter of the cylinder when moved outward along the shaft *A*. If desired like pins may be provided on the hub of the abutment *G*.

The use of my device is as follows: Having determined the diameter to be given to the spindle, the abutment *G* is properly adjusted by the nut *H*. The hand wheel is then turned in the direction to cause the collar of the cylinder to engage the adjacent ends of the cylinder sections *C*, and move the latter longitudinally until they strike said abutment. In their longitudinal movement said sections will be moved radially by the inclined faces of the lugs *B*. The device is now mounted in the rolling or winding machine, using the two cylindrical pieces *G* as journals, and the paper is wound thereon. The roll being completed, the spindle is removed by first reducing its diameter by turning the hand wheel to withdraw the cylinder sections away from the abutment. The spindle after being duly expanded, is ready to be used again, and the roll is shipped to its destination without the

same, being equipped at the place of use with a like device, that is inserted in the opening in the roll in a contracted condition and then expanded therein.

Of course I do not limit myself to four cylinder sections *C*, as the number may be greater or less as may be desired, and other changes may be made which will not involve invention.

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

In a spindle for paper-rolls, in combination, a shaft, the two sets of radial lugs with outer faces all inclined in the same direction, the cylinder sections engaging said lugs, the cylindrical pieces *G*, with collars to engage the opposite ends of said sections, having on their inner faces hubs with flat sides to engage the similarly shaped portions of the cylinder sections, and a threaded nut on the shaft bearing against one cylindrical piece and a hand-wheel having swiveled connection with the other collar said hand-wheel having a screw-threaded hub engaging screw threads on the shaft substantially as described and for the purpose specified.

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

AUSTIN LOVEL FLINT.

Witnesses:

WILLIAM H. ALLEN,
JAMES BELLEW.