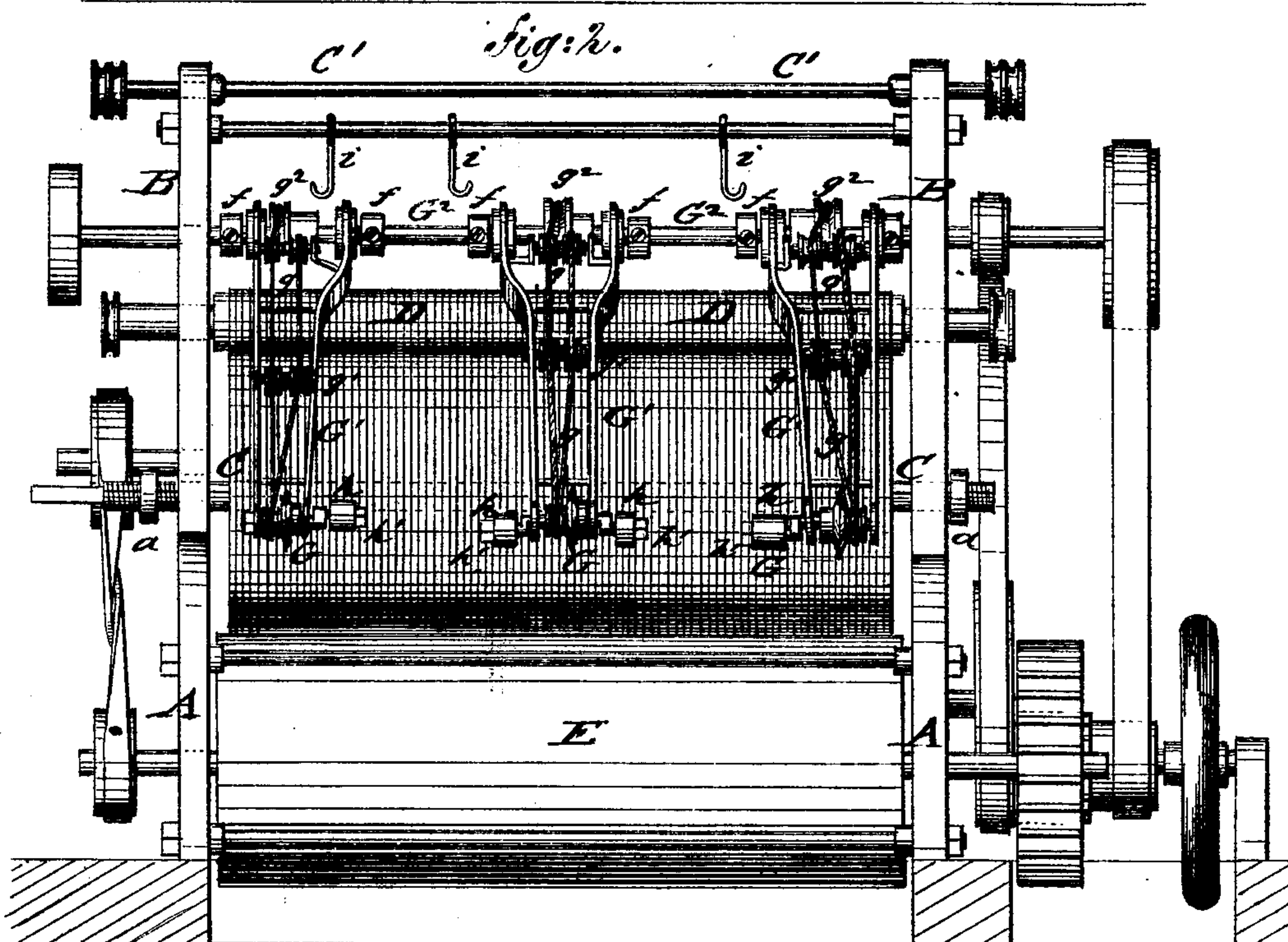
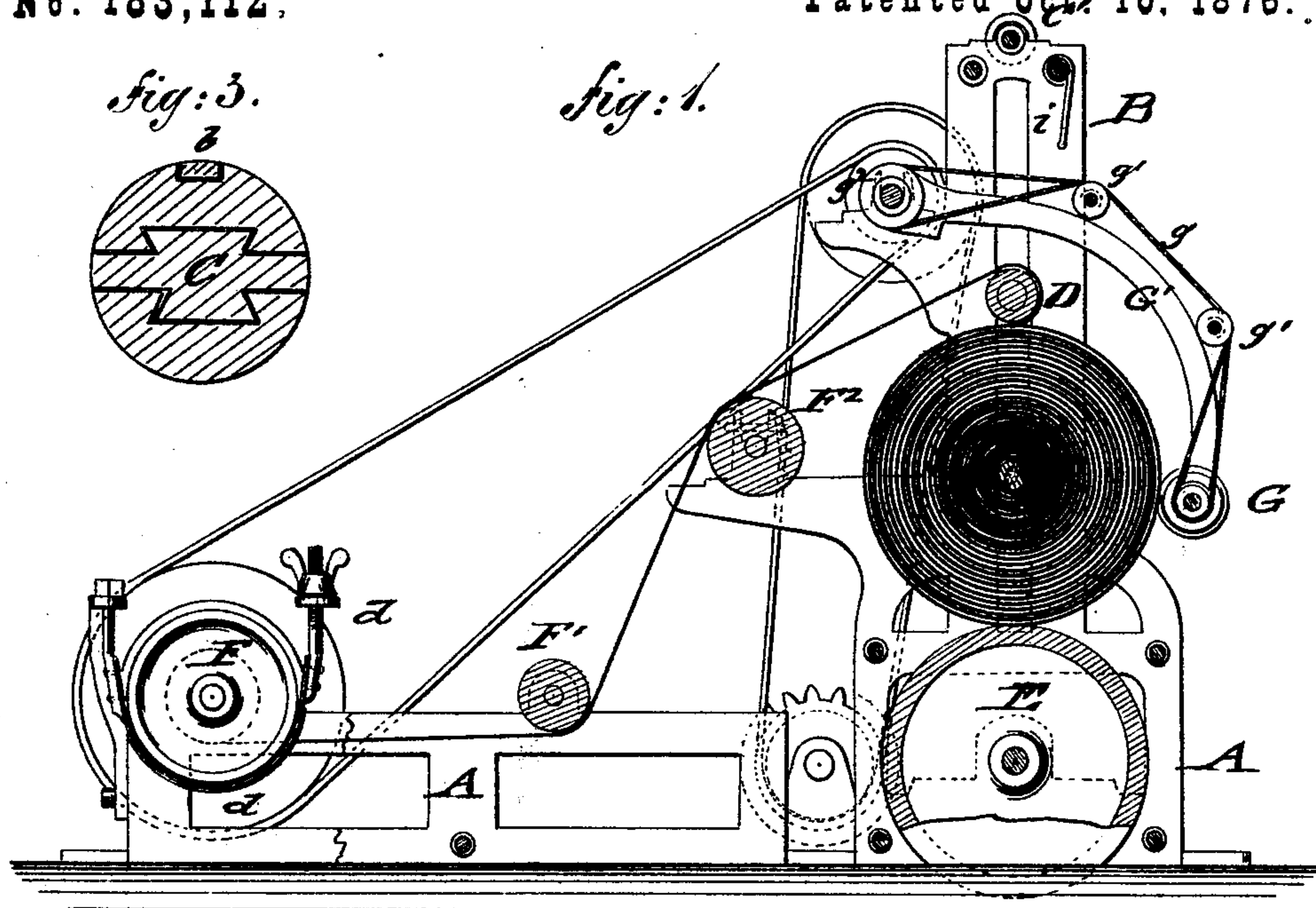


C. T. BISCHOF.  
MACHINES FOR ROLLING PAPER.

No. 183,112.

Patented Oct. 10, 1876.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES T. BISCHOF, OF GLOGGNITZ, AUSTRIA.

## IMPROVEMENT IN MACHINES FOR ROLLING PAPER.

Specification forming part of Letters Patent No. **183,112**, dated October 10, 1876; application filed May 27, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES T. BISCHOF, of Gloggnitz, Austria, have invented a new and Improved Machine for Rolling Paper, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved machine for rolling paper; Fig. 2, an end view of the same, and Fig. 3 a detail cross-section of the sectional winding-up roller.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide for meeting the increased demand for rolls of continuous paper, to be used in the printing of newspapers by the latest styles of printing-presses, an improved machine or apparatus for rolling paper in rolls of any required widths, and cutting the paper simultaneously with the rolling, so as to furnish the rolls wound up in tight and uniform state, ready for packing, shipment, and use.

The invention consists of a sectional roller of longitudinal wedge-shaped center and side sections, on which the paper is wound from the drum by means of suitable rollers that produce the stretching, smoothing, and rolling of the paper. The core-roller is movable in slotted side standards, to adjust itself to the varying diameter of the paper-rolls. Curved and laterally adjustable arms or frames carry revolving cutting-knives and eccentric guide-rollers, which are set in motion by pulley and cord connection with a top shaft, to which the frames are hung.

In the drawing, A represents the supporting-frame of my improved machine for winding paper, which guides in vertically-slotted side standards B, the sectional winding-up roller C, and the weighted top roller D. A hollow cast-iron cylinder, E, is arranged at the lower part of standards below the slots, and revolved by suitable power, the cylinder E being designed to serve as support to the vertically-sliding roller C. The roller C is made of three detachable longitudinal sections, and of round cross-section, as shown in Fig. 3, the sections being tapering or wedge-shaped, and connected longitudinally by dovetail tongues and grooves. The ends of the

roller-sections are provided with screw-threads for the screw-fastening bands *a*, that lock the sections in the nature of screw-nuts. One of the roller-sections is arranged with a longitudinal groove and spring, *b*, that serves to retain firmly the end of the paper to be wound. The roller C is readily detached from the center of the paper-rolls by unscrewing the end bands, and withdrawing the central section by suitable mechanism, so that the side sections become loose, and may be readily taken out. The weighted roller D bears on the top of the sectional roller C, and rises in connection with the latter in the slotted standards, according as the thickness of the paper-roll increases thereon. The paper is passed over the weighted roller, and then on the sectional roller, the weighted roller serving to produce the smooth and tight winding up throughout the entire length of the paper.

The paper coming from the paper-machine is wound up on a drum, F, that turns in bearings at the end of frame A, the tension of the paper unwinding therefrom by the action of the winding-up roller being regulated by an adjustable spring-brake mechanism, *d*. The paper is then conducted past a stretching-roller, F<sup>1</sup>, and a second roller, F<sup>2</sup>, to the roller D and sectional roller C. The roller F<sup>2</sup> revolves in a direction opposite to the motion of the paper, and may be slightly adjusted in its bearings, to impart direction and uniform tension to the paper.

The roller F<sup>2</sup> is intended to smooth out any creases or folds that may be formed in the paper, and to secure by moving against the paper the tight rolling of the same on the winding-up roller.

Another advantage of the roller F<sup>2</sup> consists in the fact that any weak and injured portions of the paper are instantly indicated, as they are not strong enough to resist the tension exerted by the smoothing-roller. The damaged portions are then cut out, and the ends connected by gluing.

In this manner the apparatus exercises a perfect control over the quality of the paper, and secures the homogeneous character of the entire roll.

In connection with the winding-up roller are arranged adjustable cutting devices G, that



trim the edges or cut up the paper into rolls of any desired width, simultaneously with the rolling of the same.

The cutting devices  $G$  are hung by curved arms or frames  $G^1$  to a revolving top shaft,  $G^2$ , of standards  $B$ , and adjusted laterally thereon by collars and set-screws  $f$ . Circular cutting-knives, at the ends of the swinging frames  $G^1$ , are rotated by means of cords or belts  $g$ , and intermediate pulleys  $g^1$ , in connection with pulleys  $g^2$ , that are fastened by set-screws to the shaft. The shafts of the cutting-knives are eccentrically extended beyond the frames, and provided with press or guide rollers  $h$ , that are adjusted on the eccentric shaft ends by means of set-screws  $h^1$  bearing on the arms or frames  $G^1$ . The rollers are lined with cloth, made of smaller diameter than the cutting-knives, and set by means of the eccentric shafts and screws to greater or less proximity to the paper, to admit the knives to enter more or less into the paper. The knives adjust themselves by their swinging frames to the increasing size of the rolls, and bear, by means of the curved shape of the frames, throughout the rolling process on the paper, whatever be the size of the rolls.

If any one of the knives is not required, the frame of the same is hung to pendent top hooks  $i$  of the supporting-frame, in which position, as the knives continue to rotate, the same may be readily sharpened, and the press or guide rollers set to the same. The replacing of the knives has to be attended to before the machine is started, and also the exact setting of the knives and their frames to the width of the rolls.

The weighted top roller  $C$  is raised by means of a differential hoisting mechanism, in connection with a shaft,  $C'$ , having double

end pulleys, the roller being retained in hoisted position, for detaching the rolls from the winding-up roller, when the required thickness has been obtained. The sectional roller is then withdrawn, and the rolls removed for being packed. They may also be wound on suitable cores, if desired, the cores being then mounted in suitable manner.

The apparatus accomplishes thus the rolling and cutting of the paper in a quick, cheap, and uniform manner, so as to be capable of direct application in the printing-press.

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

1. In a paper-rolling machine, the winding-up roll  $C$ , made in three longitudinal sections, the two outer dovetailed to the middle one, and the latter arranged to slide in and out of the other two, as and for the purpose specified.

2. In a paper-rolling machine, the combination, with the stretching and winding-up rollers, of a smoothing-roller, that turns in opposite directions to the motion of the paper, substantially as specified.

3. The combination, with a revolving driving top shaft of a paper-rolling machine, of curved and swinging arms or frames, being adjustable on the shaft, and having revolving cutting-knives and guide-rollers at the ends, substantially as specified.

4. The shafts of the cutting-knives, having eccentric extensions, with guide-rollers and set-screws, for adjusting the rollers to the required depth of the cutting-knives, substantially as set forth.

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Witnesses:

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