

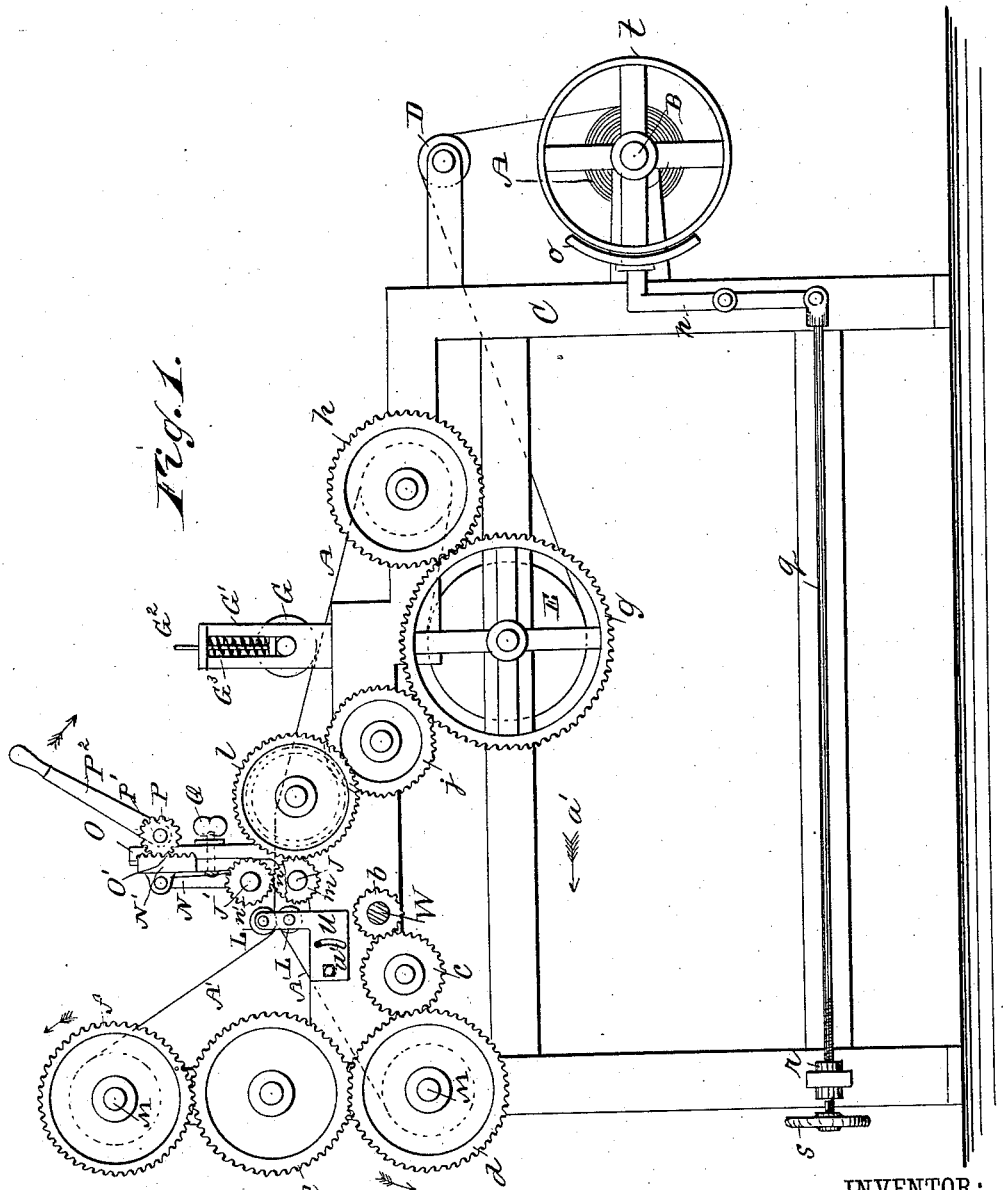
(No Model.)

2 Sheets—Sheet 1.

R. ATHERTON.  
PAPER CUTTING MACHINE.

No. 307,372.

Patented Oct. 28, 1884.



WITNESSES:

*Theo. G. Hooper*  
*C. Bulgwick*

INVENTOR:

*R. Atherton*  
BY *Munn & Co*  
ATTORNEYS.

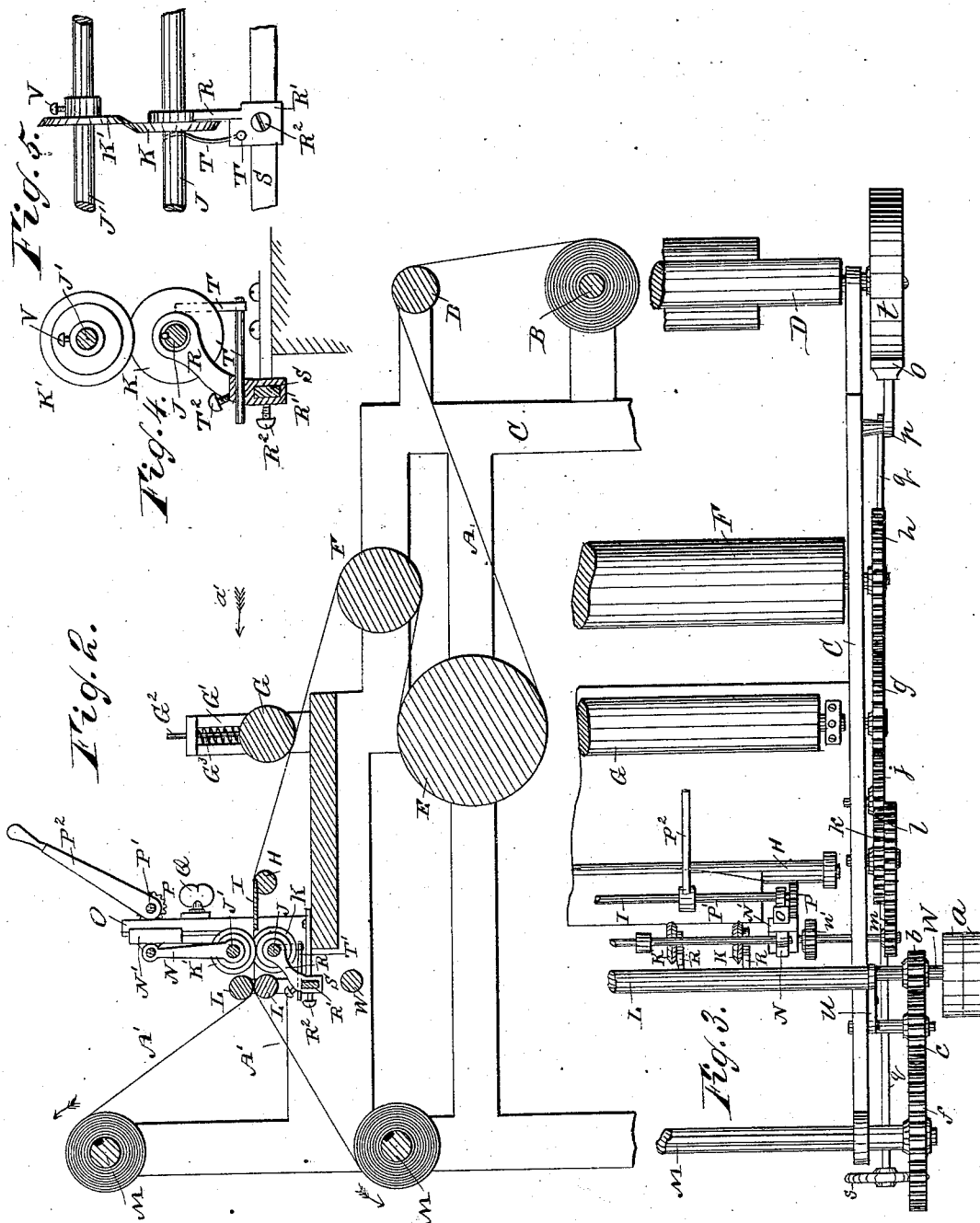
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*L. Sedgwick*

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# UNITED STATES PATENT OFFICE.

ROBERT ATHERTON, OF PATERSON, NEW JERSEY.

## PAPER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 307,372, dated October 28, 1884.

Application filed May 18, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT ATHERTON, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and Improved Paper-Cutting Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for cutting a roll of paper into bands or strips, which machine is so constructed that the paper will be cut as rapidly as it is rolled up, and thus the danger of tearing the paper bands or strips is avoided.

My invention consists in the peculiar construction and arrangement of the parts, as hereinafter more fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal elevation of my improved paper-cutting machine. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a plan view of the same, parts being broken out. Fig. 4 is a cross-sectional elevation through the cutter-shafts. Fig. 5 is an edge view of the cutters.

The paper, A, to be cut is wound on a drum or shaft, B, journaled in arms at one end of frame C, and from the drum or shaft B the paper is passed over a tension-roller, D, from there partly around a drum, E, then partly around a drum, F, above and between the drum E and the roller D. It then passes under a tension-roller, G, journaled in vertically-slotted standards G', containing rods G<sup>2</sup>, surrounded by springs G<sup>3</sup>, for pressing the said roller G downward. The paper then passes over a roller, H, and over a platform, I, in front of which the shafts J J' are arranged, on which shafts the circular cutters or disks K K' are loosely mounted. The strips A', into which the paper web A has been cut, pass between two rollers, L, in front of the cutting-disks, and are secured to two separate rollers, M M, on which they are wound. The lower cutter-shaft, J, is fixed; but the upper one, J', is journaled in a series of arms, N, hanging downward from slides N', to which they are pivoted, which slides slide on standards O, and are provided with racks O',

with which cog-wheels P engage, mounted on a shaft, P', journaled in jaws of the standards, and provided with a lever or handle, P<sup>2</sup>. The standards O are provided with binding-screws Q, for locking the slides in place. The cutter-disks K are mounted to slide longitudinally on the shaft J, and to turn with the same, and are held between an arm, R, of a block, R', sliding on the bar S in front of and below the shaft J, and a spring-finger, T, held to a rod, T', adapted to slide transversely—that is, at right angles to the bar S in the blocks R'. The blocks R' can be locked in place on the bar S by means of binding-screws R<sup>2</sup>, and rods T' can be locked in place in the blocks R' by means of binding-screws T<sup>2</sup>. The rollers L are journaled in frames or plates U, pivoted to the sides of the frame C in such a manner that the rollers L can be swung upward and from the cutter-shafts, and which plates U are provided with segmental slots U', through which a binding screw or pin passes into the frame C, for locking the said frames U in the desired position. The cutter-disks K' on the upper cutter-shaft, J', are provided with binding-screws V, for locking them in place on the shaft. The driving-shaft W is provided with belt-pulleys a and a pinion, b, engaging with a cog-wheel, c, which engages with a cog-wheel, d, on the end of the lower drum or shaft M. An intermediate cog-wheel, e, engages with the cog-wheel d on the end of the lower drum or shaft M, and with a cog-wheel, f, on the upper drum or shaft M. A cog-wheel, g, is mounted on the end of the drum E, and engages with a cog-wheel, h, on the end of the roller F, and a cog-wheel, j, journaled on the frame C, and engaging with a cog-wheel, k, made integral with a larger cog-wheel, l, engaging with a pinion, m, mounted on the lower cutter-shaft, J. Pinions n and n' are mounted on the lower and upper cutter-shafts, respectively, and engage with each other. A brake-shoe, o, is secured to the upper end of a lever, p, pivoted to the side of the frame C, and having its lower end pivoted to a rod, q, having a threaded part passing through a nut, r, on the frame C, which rod is provided with a hand-wheel, s. A pulley, t, against which the brake-shoe can be pressed, is rigidly mounted on the shaft B.

The shoe *o* is pressed against the pulley *t* by turning the shaft *q* by means of the hand-wheel *s*, and the brake-shoe is released from the wheel *t* by turning the shaft *q* in the reverse direction by means of the hand-wheel *s*.

The operation is as follows: The drums or shafts *M M* are revolved in the direction of their arrows by the cog-wheels above described from the driving-shaft *W*, and consequently draw the paper in the direction of the arrow *a'* through the machine. The paper in passing over the drum *E* revolves the same, and the roller *F* assists. The motion of the drum *E* is transmitted by the above-described gearing to the cutter-shafts, which are revolved very rapidly, and cut the sheet or web of paper *A* into strips *A'*. It will be observed that the cutter-shafts are not operated from the driving-shaft *W*, but from the drum *E*, which is driven by the paper. The speed of the cutter-shafts is thus governed entirely by the speed of the paper as it passes through the machine. If the paper moves rapidly, the knives or cutters cut rapidly, and, vice versa, if the paper moves slowly, the knives cut slowly. By means of tension-roller *G* the desired tension can be given to the paper to enable it to revolve the drum *E*, the roller *F*, and the other above-mentioned parts. By pressing the brake-shoe *o* against the pulley *t* the too rapid uncoiling of the paper can be prevented. The cutter-disks *K K'* can easily and rapidly be adjusted laterally on the shafts *J J'*, according to the width of the strips or bands desired. As the lower cutter-disks, *K*, are held at one side by a spring-finger, they can give laterally, if necessary, and are always pressed against the corresponding upper disks. The upper cutter-shaft, *J'*, can be adjusted vertically, so that the upper cutter-disks overlap the lower disks more or less, and the upper blades can be held raised while introducing the uncut paper into the machine. The rollers *L L* can be adjusted so that they will always be about midway between the horizontal planes of the rollers *M M*.

The above machine can be used for cutting any kind of fabric, &c., as well as paper.

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

1. In a paper-cutting machine, the combination, with cutters or knives, of devices, substantially as described, for transmitting motion to the cutters from a drum or roller which is revolved by the paper passing over it, as set forth.

2. In a paper-cutting machine, cutter-disks mounted to turn and slide longitudinally on their shaft, combined with an adjustable block having an arm and a spring-finger, between which a cutter or disk is held, substantially as herein shown and described, and for the purpose set forth.

3. In a paper-cutting machine, the combination, with the shafts *J J'*, of the disks *K'* on the shaft *J'*, the disks *K*, held to turn and fitted to slide on the shaft *J*, the sliding block *R'*, having an arm, *R*, the rod *T'*, passing through the block *R'*, and of the spring-finger *T* on the end of the rod *R*, substantially as herein shown and described, and for the purpose set forth.

4. In a paper-cutting machine, the combination, with the cutting-disks, of the receiving-rollers, rollers *L L*, and the pivoted frames *U*, in which the rollers *L* are journaled, substantially as herein shown and described, and for the purpose set forth.

5. In a paper-cutting machine, the combination, with the cutting and pulling devices, of the drum *E*, around or over which the paper is passed, and of devices, substantially as described, for transmitting the motion imparted to the drum by the paper to the cutting devices, substantially as herein shown and described, and for the purpose set forth.

ROBERT ATHERTON.

Witnesses:

OSCAR F. GUNZ,  
C. SEDGWICK.