

J. R. PULSIFER.
SLITTING MACHINE.
APPLICATION FILED MAR. 8, 1906.

929,876.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.

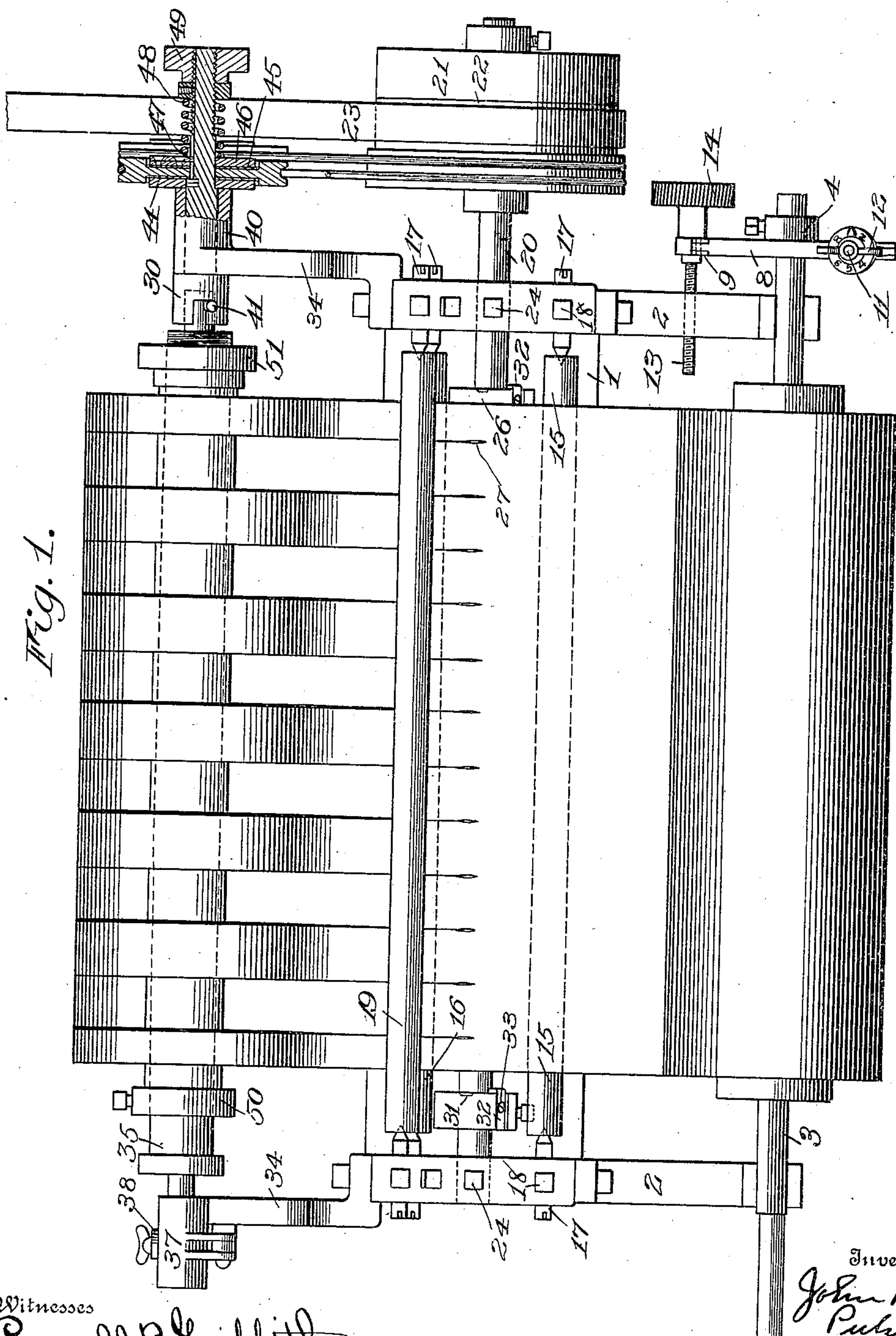


Fig. 1.

Witnesses

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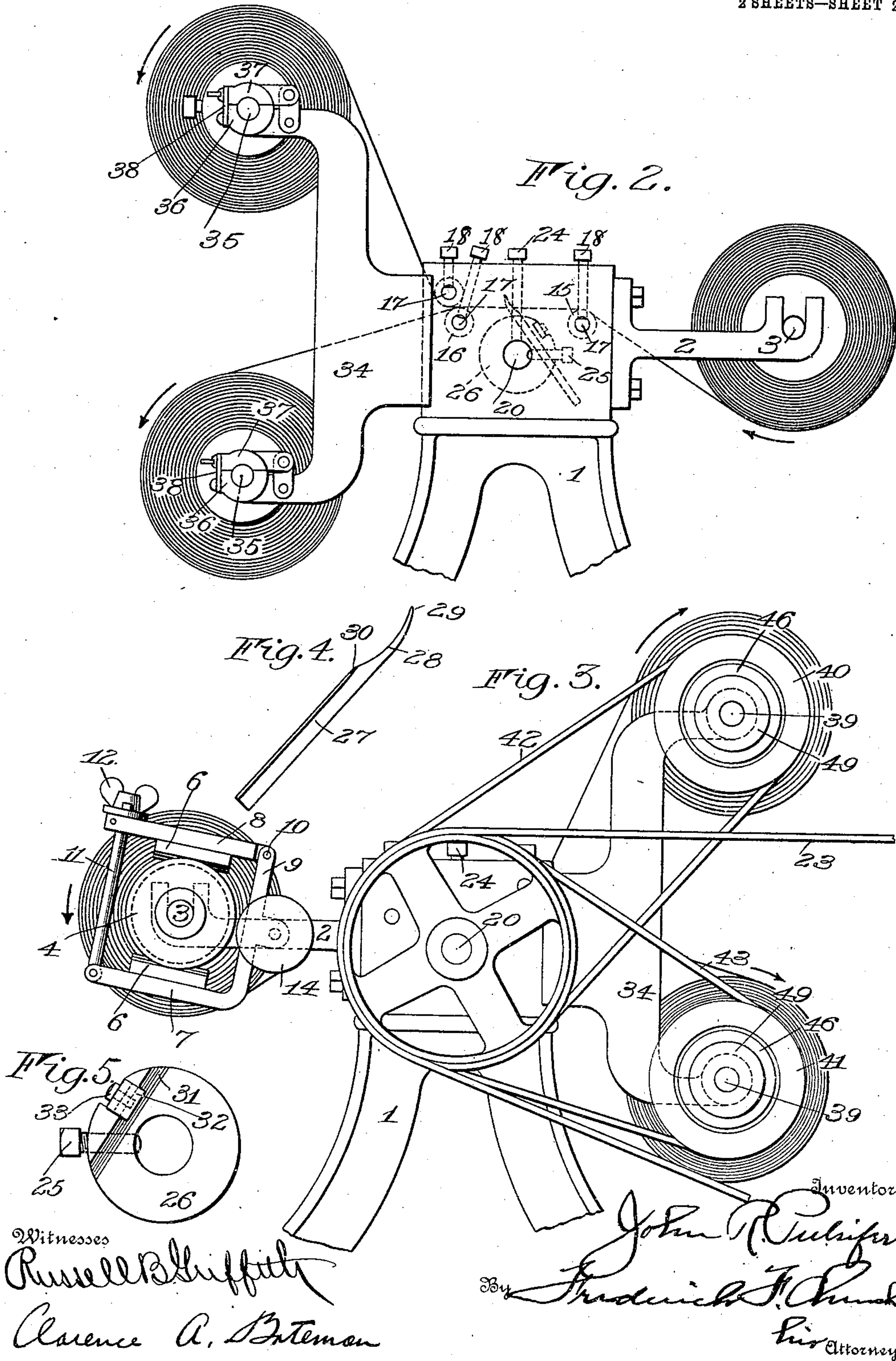
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UNITED STATES PATENT OFFICE.

JOHN R. PULSIFER, OF ROCHESTER, NEW YORK, ASSIGNOR TO PULSIFER PAPER COMPANY,
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SLITTING-MACHINE.

No. 929,876.

Specification of Letters Patent.

Patented Aug. 3, 1909.

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To all whom it may concern:

Be it known that I, JOHN R. PULSIFER, of Rochester, in the county of Monroe and State of New York, have invented certain
5 new and useful Improvements in Slitting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of
10 the specification, and to the reference-numerals marked thereon.

My present invention has for its object to provide a machine for cutting or slitting webs of sheet material into strips or ribbons
15 comprising generally a support for the material to be operated upon, cutting devices and a plurality of rewinding devices arranged to receive adjacent strips or ribbons, emerging in rear of the cutting devices, to
20 withdraw and separate them into different planes, so that in the manipulation of delicate tissues the separate rolls may be easily removed without liability of injury.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

30 In the drawings: Figure 1 is a top plan view of a machine constructed in accordance with my invention. Figs. 2 and 3 are views showing in elevation the two ends of the machine. Fig. 4 is a perspective view of one
35 of the cutting knives, and Fig. 5 is a side elevation of one of the knife holders.

Similar reference numerals in the several figures indicate similar parts.

A slitting machine constructed in accordance with my invention is adapted for cutting a web of paper into continuous strips or ribbons and is intended particularly for
40 slitting paper, the original character of which has been changed by an application of a coating material such as wax or paraffin, and it is provided with specially designed cutting devices and means for separating the alternate strips or ribbons to prevent them from crowding so that the exposed
45 fibers at their adjacent edges cannot become engaged between adjacent convolutions of a proximate roll thus permitting them to be more easily removed from the ar-

bors or winding devices and injury to the narrow strips prevented.

In illustrating the present embodiment of my invention I have shown a machine comprising a main frame 1 having at one side the forwardly projecting brackets 2—2 provided with suitable bearings in which a shaft
60 3 carrying the material to be operated upon may be journaled. At one end of this shaft is provided a disk or collar 4 having a circumferential groove in which rest the V-shaped edges of blocks 6 supported on the
65 arms 7 and 8 of a yoke 9 forming a tension device for retarding the rotary movement of the shaft 3. The arm 8 is preferably pivoted at one of its ends, as indicated at 10, and its opposite extremity is secured by a
70 bolt 11 provided with an adjustable thumb nut 12. The tension device is held stationary on the frame of the machine and in order to provide means for effecting a longitudinal movement of the shaft 3 it is supported
75 upon a threaded adjusting rod 13 provided at its outer end with a small hand wheel 14. Arranged upon the frame 1 are supports or guides over which the material to be operated upon is passed, which in the
80 present instance comprise rollers 15 and 16 journaled upon the pointed ends of screws 17, secured in adjusted position by set screws 18. Arranged slightly in rear of the rollers or guides 16 and above the latter is a
85 similar roller 19.

Extending transversely between the side pieces of the frame and between the guides or rollers 15 and 16 is a bar 20 one end of which projects beyond the side of the machine and carries an idler pulley 21 and a driving pulley 22 operated by a belt 23. The bar 20 is capable of a rotary movement but is normally held stationary in adjusted position by a set screw 24. The bar is provided with a longitudinally extending groove
95 or channel receiving the ends of set screws 25 carried in collars 26, a plurality of which are provided on the bar to form the supports for the cutting knives, any desired number
100 being employed and arranged relatively to each other in such positions as to sub-divide or slit the web of material passing over the guides into two or more strips or ribbons of the desired width. The cutting knives comprise blades 27, such as shown in Fig. 4,

having curved cutting edges 28 each of which is arranged at an angle to the plane of the guides, its outer end or point 29 projecting above and in rear of its lower end or heel 30, the said extremities of the cutting edge being arranged respectively above and below the web which it engages. The knife blades are seated in transversely extending slots 31 in each of the collars 26 and are removably secured therein by clamping plates 32 held by screws 33. By this arrangement of the parts it will be seen that the cutting edges of the knife blades may be positioned relatively to the bar 20 and the latter rotated either forwardly or rearwardly to pitch the cutting edge in the desired angular position relatively to the material operated upon. I have found by practice that the cutting or slitting of paper coated with wax or paraffin, on account of the gummy nature of the material, has a tendency to adhere to the sides of the blade and to form a coating thereon which tends to force the advancing side of the web upwardly off the ends of the knives and to overcome this inconvenience and provide a cutting edge of the same length I curve it, as shown in Fig. 4.

At the rear of the machine and on each of the side pieces are brackets 34 having arms provided at their extremities with bearings supporting arbors 35 which are arranged out of alinement with the plane of the guides 15 and 16 and are adapted to carry the spools or reels on which the strips or ribbons are wound. One end of each arbor is removably supported in a bearing 36 having a removable cap piece 37, held in operative position by a latch plate 38, which may be disengaged to permit the bearing to be opened. The opposite extremity of each arbor fits within an aperture in a spindle 39, journaled in bearing 40, and it is secured thereto by a pin 41 fitting in a bayonet joint in the spindle. Alternate strips or ribbons severed from the web after they have passed the rollers 16 and 19 are attached respectively to the upper and lower arbors, as shown in Figs. 1 and 2, so that their adjacent edges are held out of contact and the separate spools or thimbles, on which the several portions of the web are rewound, are separated enabling them to be easily handled and removed from the arbors 35.

The arbors are rotated to withdraw the material from the rolls supported on the shaft 3 and to this end the spindles 39 are provided with pulleys 40 and 41 driven by belts 42 and 43 encircling the driving pulley 22. The driven pulleys are loosely mounted on the spindles between a stationary disk 44 and a movable disk 45, attached to the shaft by a plate 46 having an end projecting into a key way 47, and it is held

in frictional engagement with the pulley by a coil spring 48 the tension of which may be adjusted by means of a hand wheel 49.

In setting the machine to perform a cutting or slitting operation the collars 26 are positioned, after loosening the set screws 25, by a longitudinal adjustment on bar 20. Spools or thimbles are then selected, equal in length to the spaces between the several cutting knives, which are slipped onto the arbors 35 and secured thereto in alinement with the spaces between the knives by means of an adjustable collar 50 and a threaded nut 51. The web of paper or other material is then drawn from the roll, supported on the shaft 3, and is led over the guides 15 and 16 and beneath the roller 19, a sufficient portion thereof being cut by manual operation to provide the ends of the strips or ribbons which may be pasted or otherwise secured alternately to the thimbles on the different arbors. In doing this the operator exercises care to have an equal tension on each of the strips before shifting the belt 23 from the pulley 21 to the driving pulley 22 when the operation becomes automatic and continues until the supply roll is exhausted.

A slitting machine embodying my invention is particularly adapted for cutting waxed or similarly coated paper as the speed of the latter in passing the cutting knives may be regulated so that its friction on the knives will not produce sufficient heat to affect the coating or paper, and the knives being stationary and operating on the paper as the latter is drawn into engagement therewith it will be cut in straight lines. Further, the arrangement of the winding arbors is advantageous as it enables each strip to be wound separately, preventing their edges from accidentally overlapping and permitting the operator to inspect them during the winding operation.

I claim as my invention:

1. In a slitting machine, the combination with a frame, a support for a roll of material at one side thereof and winding devices at the other side of the frame, of a bar revolvably mounted between the support and winding devices, a plurality of knives arranged on the bar and means for rigidly securing the latter in any position to which it may be adjusted to vary the inclination of the knives relatively to a sheet of material extending between the support and winding devices.

2. In a slitting machine, the combination with a frame, a support for a roll of material at one side thereof and winding devices at the other side of the frame, of a bar, collars adjustable longitudinally thereon, knife blades supported on the collars, said bar being revolvably supported on the frame to permit the knives to be adjusted into various positions, and means for rigidly securing

said bar in any position to which it may be adjusted.

3. In a slitting machine, the combination with a frame, a guide thereon over which the material to be operated upon is passed, a knife blade located in rear of the guide at an inclination to a sheet traveling on the guide having a concave cutting edge and devices for drawing the material into engagement with the concaved cutting edge of the knife.

4. The combination with a frame, a shaft journaled thereon for supporting a roll of material and a disk attached to the shaft and provided with a circumferential groove, of a yoke comprising relatively movable arms engaging the groove at opposite sides of the disk and means for adjusting the arms relatively to each other, a screw threaded in the frame and engaging the yoke to adjust it

laterally relatively to the frame, devices for withdrawing the material from the shaft and means for operating them.

5. In a cutting machine, the combination with a frame, bearings thereon, a shaft journaled therein for supporting a roll of material, of a bar mounted in the frame having an end projecting outwardly therefrom, cutting knives arranged on the bar and means for securing the latter in adjusted position, a driving pulley journaled on the projecting end of the bar, and winding arbors arranged in rear of the bar, a driven pulley on each arbor and connections between the driving and driven pulleys.

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Witnesses:

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