

(No Model.)

4 Sheets—Sheet 1.

M. E. KNIGHT.
REEL.

No. 521,413.

Patented June 12, 1894.

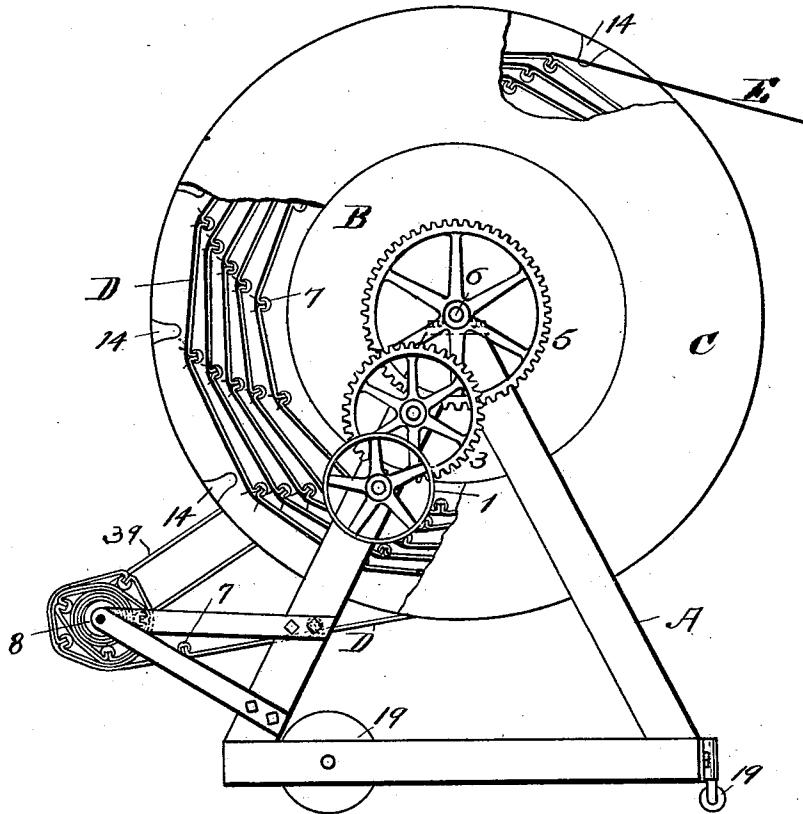


Fig. 1.

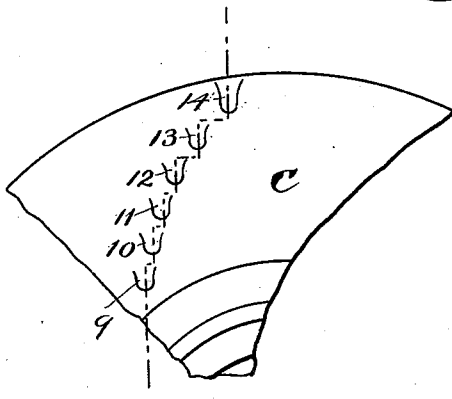


Fig. 2.

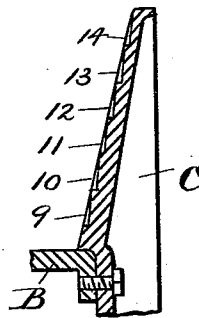


Fig. 3.

WITNESSES

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INVENTOR

Margaret E. Knight

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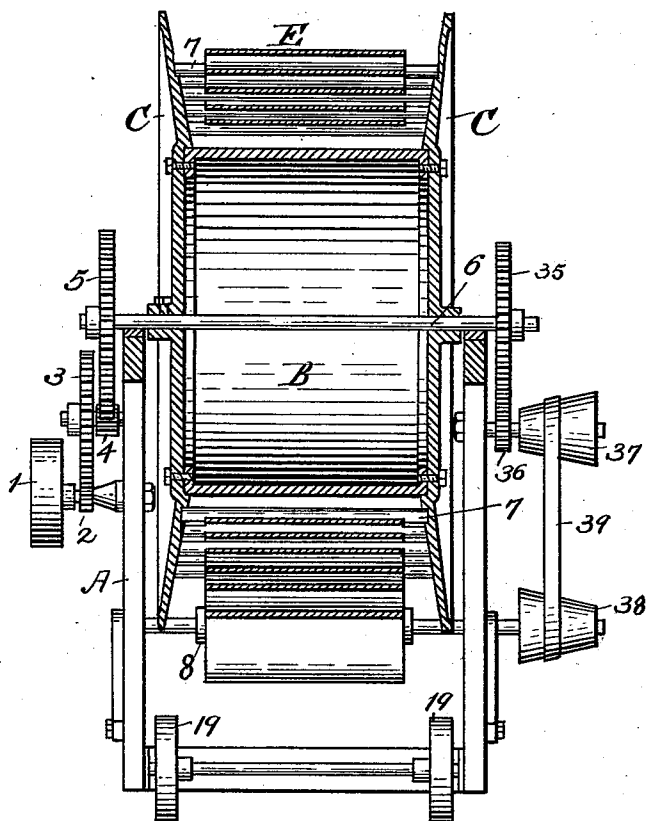


Fig. 4

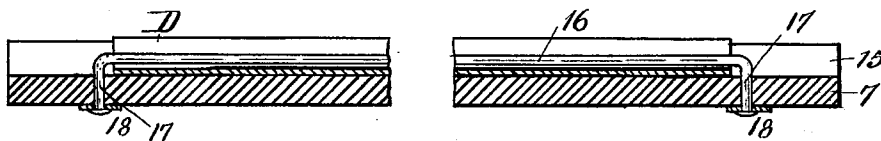


Fig. 5

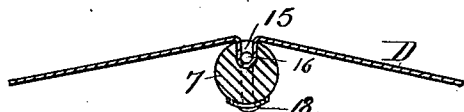


Fig. 6

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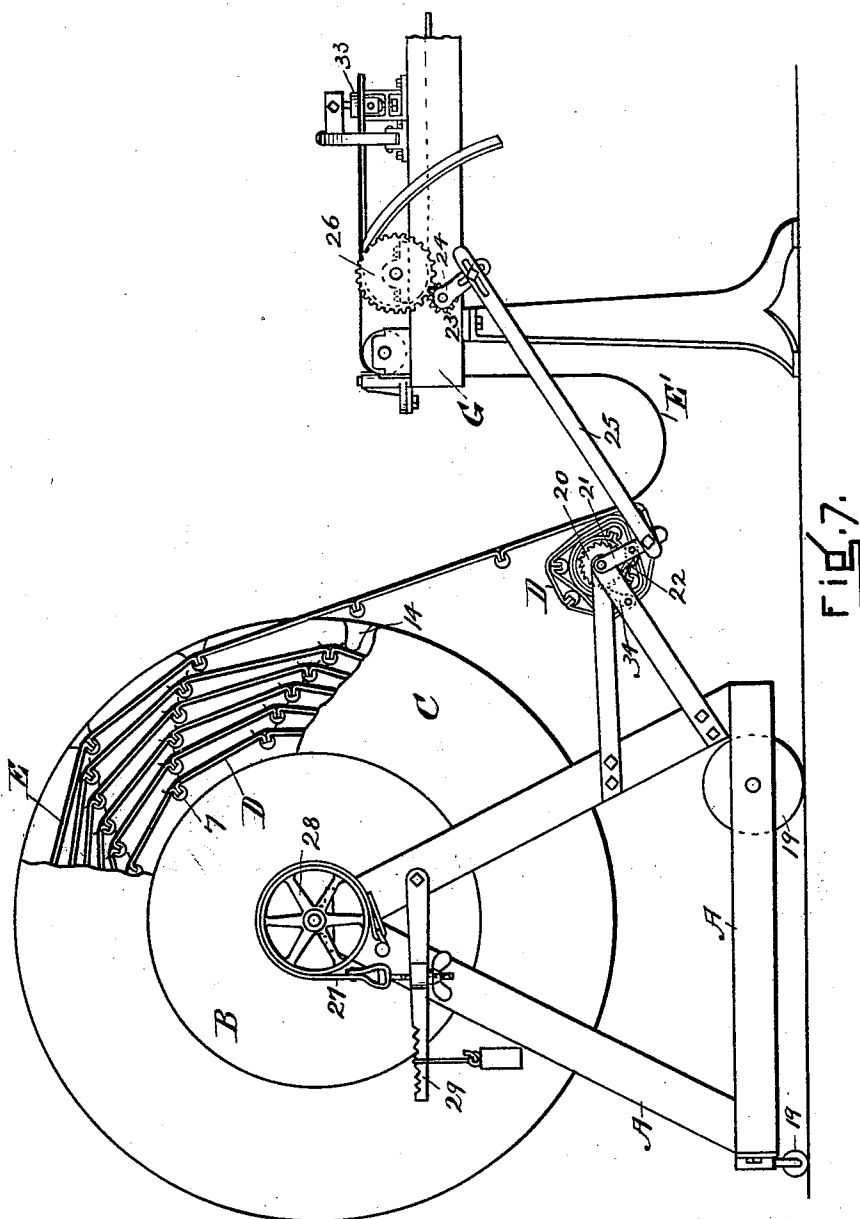


Fig. 7.

WITNESSES

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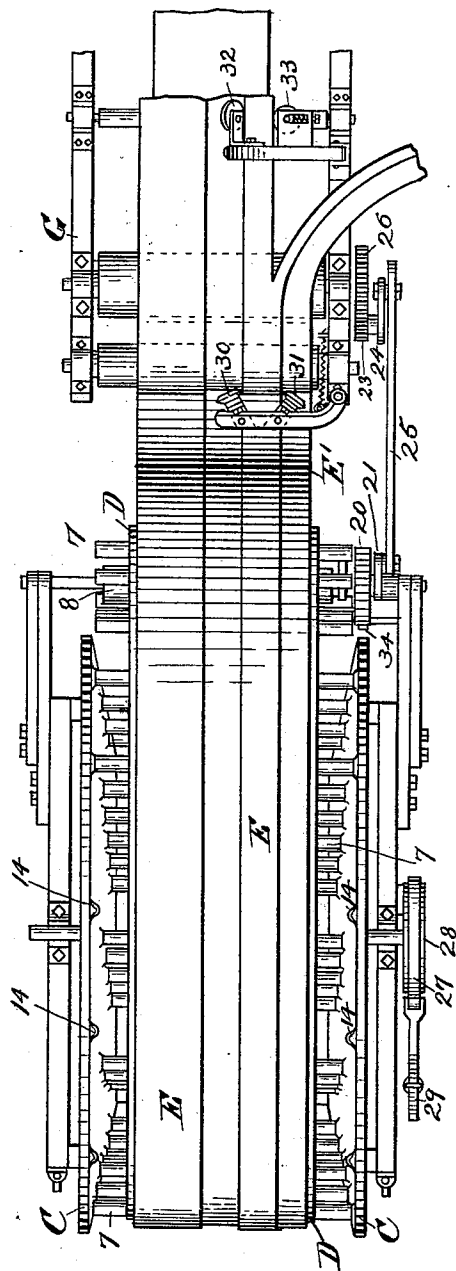


Fig. 8.

WITNESSES

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UNITED STATES PATENT OFFICE.

MARGARET E. KNIGHT, OF SOUTH FRAMINGHAM, ASSIGNOR TO HERSELF,
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REEL.

SPECIFICATION forming part of Letters Patent No. 521,413, dated June 12, 1894.

Application filed July 31, 1893. Serial No. 482,033. (No model.)

To all whom it may concern:

Be it known that I, MARGARET E. KNIGHT, of South Framingham, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Reels, of which the following is a specification.

My improvements relate to reels adapted for winding strips of material in a plastic, undried or unhardened condition, and are especially useful for winding sheets of unvulcanized india-rubber as it is delivered from the calendering machine, and consist of a strip of fabric or other flexible material, having a series of rods secured transversely upon one surface thereof, at definite intervals and which is wound upon the drum of the reel simultaneously with the plastic material and beneath it, also in slots or pockets on the inner surface of the rims of the reel, into which the ends of the said transverse rods drop and are supported as the strip of fabric is wound up.

The details of construction will be understood by reference to the drawings, in which—

Figure 1, is a side elevation of the reel winding plastic material from the calenders, with a portion of one flange or rim broken away to show the arrangement of the fabric supporting the plastic material when wound upon the reel. Fig. 2, is an elevation of a detached portion of one of said flanges showing the slots or pockets which receive the ends of the said rods. Fig. 3, is a vertical section of a portion of said flange taken through a series of said slots. Fig. 4, is a front elevation of the reel, with the drum, its flanges and contained fabric in central vertical section. Fig. 5, is a longitudinal section of one of said transverse rods showing a convenient manner of attaching it to the fabric. Fig. 6, is a transverse section of one of said rods. Fig. 7, is a side elevation of the reel in position to have the plastic material unwound and fed to a cutting machine, for instance, a portion of which is illustrated. Fig. 8, is a plan view of the reel and part of the machine shown in Fig. 7.

Referring to the drawings in which the same part of the apparatus is indicated by similar characters in the several figures, A, is the supporting frame; B the drum of the reel and C the disk-shaped flanges or rims secured to each end of the drum. In Figs. 1 and 4, the

pulleys and gears for turning the reel to wind on the strip of plastic material, are shown, 1 being the driving pulley to which a belt may be run from a counter shaft, and by a series of gears 2, 3, 4, 5, the last of which is keyed to the shaft 6, of the drum B, the said drum is revolved. The apron, or strip of flexible material D, with the rods 7 attached thereto, is wound upon a roll 8, and at the beginning of the operation, the end of the said apron is pulled up beneath the drum B, and the ends of the rod nearest to that end of the apron are dropped into two of the inner series of pockets 9, on the inside of the rims C.

As the drum B revolves the apron D is pulled from the roll 8 and wound upon the drum, the end of the strip of plastic material E, from the calenders being first run out and laid upon and secured to the apron. The distance between the successive rods 7, are made to correspond accurately with the spaces between the successive pockets arranged spirally around the inner surfaces of the two disks C, so that as the apron is drawn up by the movement of the drum, the ends of the rods will drop into the proper pockets and thus the several convolutions of the material will be held apart by its supporting apron, and a free circulation of air permitted across the whole surface; and to facilitate the deposit of the rods in the proper pockets in the flanges C, their inner surfaces are beveled or inclined outward as clearly shown in Fig. 3, and the rods which are to support each successive convolution of the apron are made correspondingly longer, as the distance between the inner surfaces of the disks C increases.

A convenient and easy manner of attaching the rods 7 to the apron D is that shown in Figs. 5 and 6, where a slot 15, is cut longitudinally of the rod and a loop of the fabric held securely therein by means of a wire 16, the ends of which are bent at right angles to its length, and these ends 17, passed through holes in the rod and riveted at 18, upon the outside thereof.

The apron may be made up of sections of substantially rigid material jointed together at the places where the rods should be severally located, and rigid projections be at-

tached to the sections to serve the purpose of the rods; but usually a strip of canvas will be found more economical and more easily constructed, as above described.

5 For convenience, the frame of the machine may be provided with rollers or casters 19, to facilitate its movement about.

Figs. 7 and 8 show the reel placed before a sole cutting machine, in position to have the plastic material unwound therefrom, and for this purpose a ratchet wheel 20, is secured to the shaft of the roll 8, and an arm 21, is pivoted upon the same shaft and carries a spring pawl 22, which engages the teeth of the said ratchet wheel 20. Upon the frame G of the sole cutting machine, a pinion 23, is pivoted, and secured to this pivot is a slotted crank arm 24; connecting the arms 21 and 24, is a rod 25, also slotted at one end for the purpose of readily adjusting its length. The pinion 24 meshes into a gear 26 upon the shaft of the outer feed-apron roll of the cutting machine. The revolution of the feed-apron roll and gear 26, will cause the pinion 23 and arm 24 to revolve. The revolution of the arm 24 will give the connecting rod 25, and arm 21, a reciprocating motion, and by the engagement of the pawl 22, with the ratchet wheel 20, each time that the arm 21 swings toward the reel, the wheel 20, and roll 8, will be turned a part of a revolution and wind up a portion of the apron D, at the same time pulling it from the reel. As the apron D is wound upon the roll 8, the strip of plastic material leaves it and hangs in a loop below, as at E'. The feed of the sole cutting machine being intermittent, the roll 8 will be turned at intervals and to prevent the reel from continuing to revolve after the pawl 22 has ceased to act upon the ratchet wheel 20, I provide a brake, a convenient form of which is a strap 27, running over a pulley 28, on the shaft of the drum B. One end of said strap being fastened to the frame of the machine and the other to a weighted lever, 29. Also, a stop-pawl 34, shown in dotted lines Fig. 7, is pivoted upon the frame of the machine in a position to engage the teeth of said ratchet wheel 20, to prevent its turning back when the pawl 22, is not acting upon it. It may also be found convenient to operate the pawl

22 by giving motion to the rod 25 from power derived from some other part of the machine than the gear 26 upon the feed-apron roll. And still further a continuous motion may be given to the drum B and the roll 8, either for the purpose of winding up or unwinding the apron D, by the use of the pulleys and gears 1 to 5, Fig. 4, and applying power to the roll 8, through a gear 35 upon the opposite end of the shaft 6, of the drum, and a pinion 36, and cone pulleys 37, 38, connected by the belt 39. By means of these cone pulleys the speed of the roll 8 may be properly proportioned to the speed of the drum B, whether in winding or unwinding.

The strip of plastic material is properly directed from the reel to the cutting machine by means of guide rolls, 30, 31, and 32, 33 (see Fig. 8) which devices are made the subject of application, Serial No. 482,032, filed July 31, 1893.

I claim—

1. A reel consisting of a flanged drum having a series of slots or pockets spirally arranged upon the inner surfaces of its flanges and a strip of flexible material which has a series of rods secured thereto at intervals corresponding successively to the intervals between the successive pockets, which rods are adapted to be drawn into and held in said pockets when the said strip of material is wound upon the drum.

2. A reel consisting of a drum having flanges provided with a series of slots or pockets and a flexible apron provided with projecting rods, which slots are adapted to receive said rods, and said rods to enter said slots, automatically, when the apron is wound upon the drum.

3. In a reel for winding and supporting strips of plastic material, a flexible belt or apron which has projecting rods secured thereto at intervals throughout its length, and a drum adapted to receive and support said rods, when the said apron is wound thereon, and thereby hold the successive convolutions thereof out of contact with each other.

MARGARET E. KNIGHT.

Witnesses:

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