

No. 692,474.

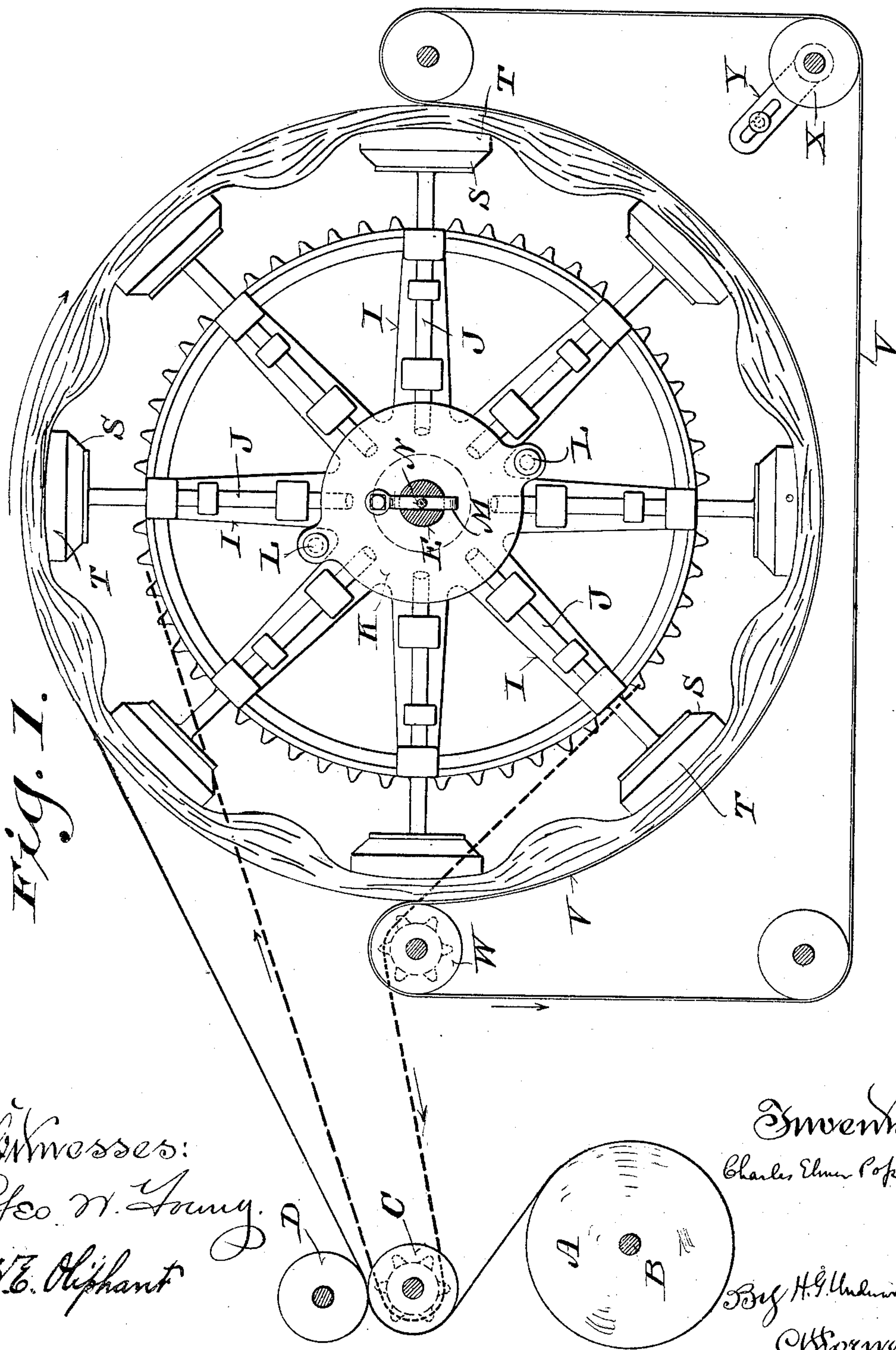
Patented Feb. 4, 1902.

C. E. POPE.
REELING MECHANISM.

(Application filed Nov. 2, 1898. Renewed July 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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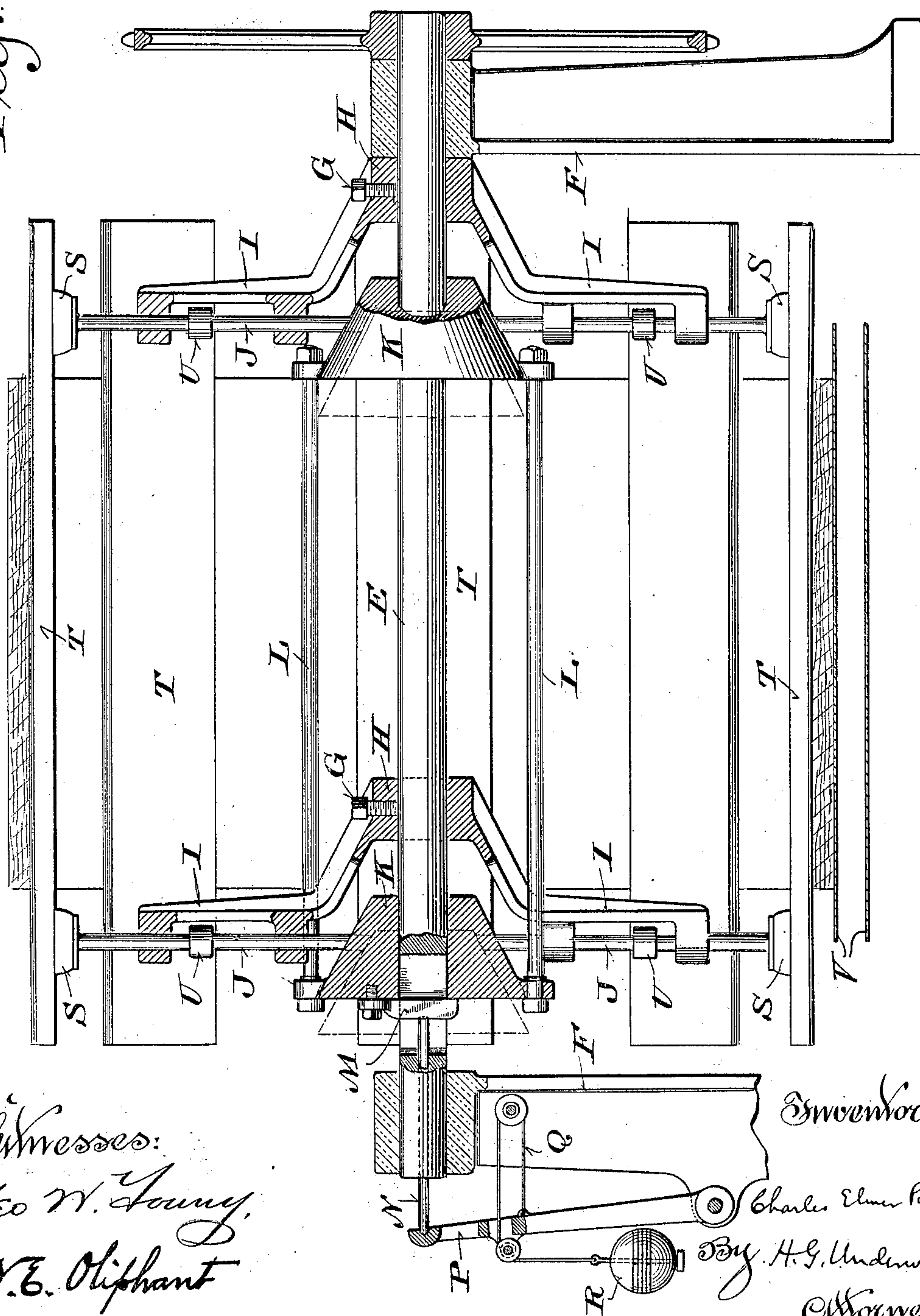
REELING MECHANISM.

(Application filed Nov. 2, 1898. Renewed July 1, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES ELMER POPE, OF KAUKAUNA, WISCONSIN.

REELING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 692,474, dated February 4, 1902.

Application filed November 2, 1898. Renewed July 1, 1901. Serial No. 66,742. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ELMER POPE, a citizen of the United States, and a resident of Kaukauna, in the county of Outagamie and State of Wisconsin, have invented certain new and useful Improvements in Reeling Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has especial reference to reeling tissue and other thin paper; but it is practical for reeling any continuous pliable material. The ordinary reel for this purpose is such that as the material accumulates thereon the circumference of the whole is gradually increased, each successive outer lap of said material being correspondingly lengthened. This being the case, the wound material when cut and spread out flat forms a pile having beveled ends. Therefore wasteful trimming has to be made in order to square the ends of said pile so that all the strands or sheets therein may be of equal length.

Previous to my invention it has not been possible within my knowledge to wind a continuous web of paper from a printing-press or decorating-machine so as to obtain accurate registration of the prints as they wind upon the reel, and with especial reference to tissue-paper the present method of laying out sheets of the same from a printing-press or decorating-machine is tedious, difficult, and troublesome.

In view of the foregoing my invention has for its main object to provide a reel by which continuous pliable material may be wound in successive laps of equal circumference.

A further object of my invention is to provide for winding a continuous web of pliable material from a printing-press or decorating-machine so that decorative matter on each lap of said material will accurately register with like matter on all the other laps, whereby an accumulation of the aforesaid material thus wound may be cut between decorated areas, this being a matter of considerable importance with reference to economical production of tissue-paper napkins.

Its objects having been stated, my invention will be found to consist in certain pe-

culiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings is a diagram illustrating my improvements, and Fig. 2 a vertical longitudinal section of a reel and apron embodied in said improvements.

Referring by letter to the drawings, A indicates a roll of continuous web pliable material on a spool B, that in practice has its support in conveniently-arranged bearings that may constitute parts of a stand for the arbors of parallel rollers C D, between which said material from said roll is passed. In practice the rollers serve to feed the pliable material from a roll of the same to the reel, hereinafter specified in detail; but they are not essential to the successful operation of said reel at all times, and they may be respectively utilized as the platen and print elements of a decorating-machine.

The shaft E of the herein-described reel is supported by standards F and revolved by any suitable means. In the organization herein illustrated link-belt and sprocket-wheel mechanism may be employed to connect the roller C and reel-shaft E, said gear being shown by full and dotted lines in Fig. 1; but other well-known gear mechanism may be utilized for the same purpose.

In the organization shown the rotary speed of roller C is about nine to one of the reel-shaft E; but in practice the relative speed of these parts may be varied indefinitely, and made fast on said reel-shaft by set-screws G or other suitable means are hubs H of a pair of spiders, having the radial arms I thereof provided with guide-lugs for loose rods J, the inner ends of these rods being beveled and opposed to cones K, loose on the aforesaid shaft.

Both of the cones K have their taper in the same direction and are caused to move in unison along the reel-shaft by means of connected rods L, one of said cones being provided with a detachable lug M, engaging a longitudinal slot in said shaft. As herein shown, means for holding the cones in manually-adjusted position may comprise a lug-opposing rod N, loose in the reel-shaft, and a weight-

controlled rod-opposing arm in pivotal connection with one of the standards. As a matter of detail the inner end of a flexible runner Q is shown connected to arm P and trained on pulleys supported by said arm and the adjacent standard, the hanger for the arm-controlling weight R being suspended from the outer end of the runner. To vary resistance to automatic movement of the cones on the reel-shaft, the weight may be increased or decreased, it being shown that said weight may comprise a series of removable sections in order to facilitate variation of its specific gravity.

Heads S on the outer ends of opposite rods J are connected by slats T, and movement of these rods in either direction may be limited by the arrangement of collars U thereon between the guide-lugs projecting in pairs from the spider-arms.

The aforesaid shaft, cones, spiders, and slat-connected rods constitute a contractive reel, and stretched on rollers under the reel, so as to be concentric with the same, is shown an endless apron V, and, as illustrated by dotted lines, one apron-roller W may be in gear with roller C and the reel-shaft to move said apron at the same rate of speed as the pliable material that is being wound. Another apron-roller X is preferably suspended in adjustable hangers, one of which is herein shown, and a set of these hangers governs slack of the apron.

Radial extension of rods J is governed by manual adjustment of cones K on shaft E, and wind of pliable material on the slats T causes gradual contraction of the reel, for the reason that there is gradual recedence of said cones against weight R or other yielding resistance, owing to inward pressure of said rods caused by tension of said pliable material and accumulation of the same between the reel-slats and the apron V or its equivalent, if employed. Owing to contraction of the reel the tension of the pliable material is automatically maintained, and this tension may be varied by increase or decrease of the aforesaid yielding resistance or by adjusting the slack of the surface that is concentric to the reel.

As pliable material increases on the reel and the latter contracts the slack of said material will accumulate between the slats of said reel, and thus each lap of the aforesaid material will have the same predetermined radius as all the other laps.

The periphery of the material accumulating on the reel is regulated by adjusting slack of apron V or its equivalent, and an endless traveling apron arranged, as herein shown, to be driven at the same speed as the material being reeled acts as a binder to prevent slip of said material. In case the material being reeled is thin tender paper the tension of the same need not be depended upon to contract the reel, as the latter operation may be had as the result of said paper increasing between said apron and reel-slats.

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

1. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with said shaft, cone-opposing rods loose in each series of guides, slats connected to the outer ends of alined rods, and means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the slats.

2. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a lug on one of the cones engaging a longitudinal slot in said shaft, a loose rod opposing the cone-lug, a pivotal arm in contact with the lug-opposing rod under pressure, a plural series of radially-disposed guides rotative with the aforesaid shaft, rods loose in the guides against the cones, and slats connected to outer ends of alined rods.

3. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a lug on one of the cones engaging a longitudinal slot in said shaft, a loose rod opposing the cone-lug, a pivotal arm in contact with the lug-opposing rod, a flexible runner connected to the arm and trained on pulleys supported by said arm and an adjacent stationary portion of the machine, a weight suspended from the runner, a plural series of radially-disposed guides rotative with the aforesaid shaft, rods loose in the guides against the cones, and slats connected to outer ends of alined rods.

4. A reel comprising a rotatory shaft, a plurality of connected cones rotative with the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the reel-slats, and an apron arranged circumferentially of a portion of the reel in opposition to said material.

5. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the reel-slats, and an endless traveling apron arranged circumferentially of a portion of the reel in opposition to said material.

6. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to

the outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by tension and accumulation of material winding on the reel-slats, a supporting-roller for the material on its way to the reel, and gearing connecting said reel and roller.

7. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially - disposed guides rotative with the shaft, cone-opposing rods in each series of guides and slats connected to the outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under

pressure by tension and accumulation of material winding on the reel-slats, an apron arranged circumferentially of a portion of the reel in opposition to said material, and a supporting-roller for the aforesaid material on its way to the reel, and gearing connecting said reel and roller.

In testimony that I claim the foregoing I have hereunto set my hand, at Kaukauna, in the county of Outagamie and State of Wisconsin, in the presence of two witnesses.

CHARLES ELMER POPE.

Witnesses:

FRANK HOBERY,
HAMPTON CORBETT.