

No. 847,393.

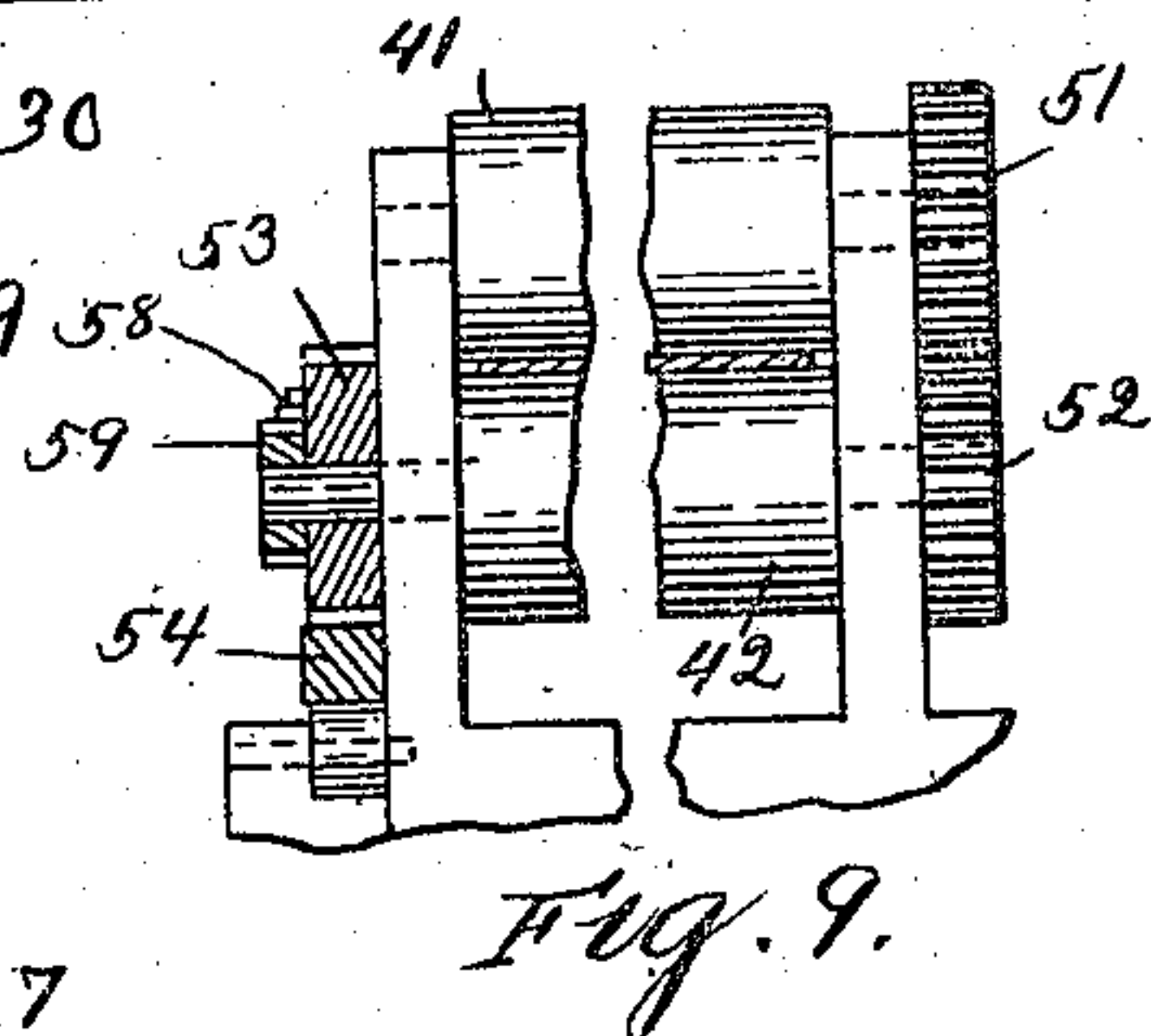
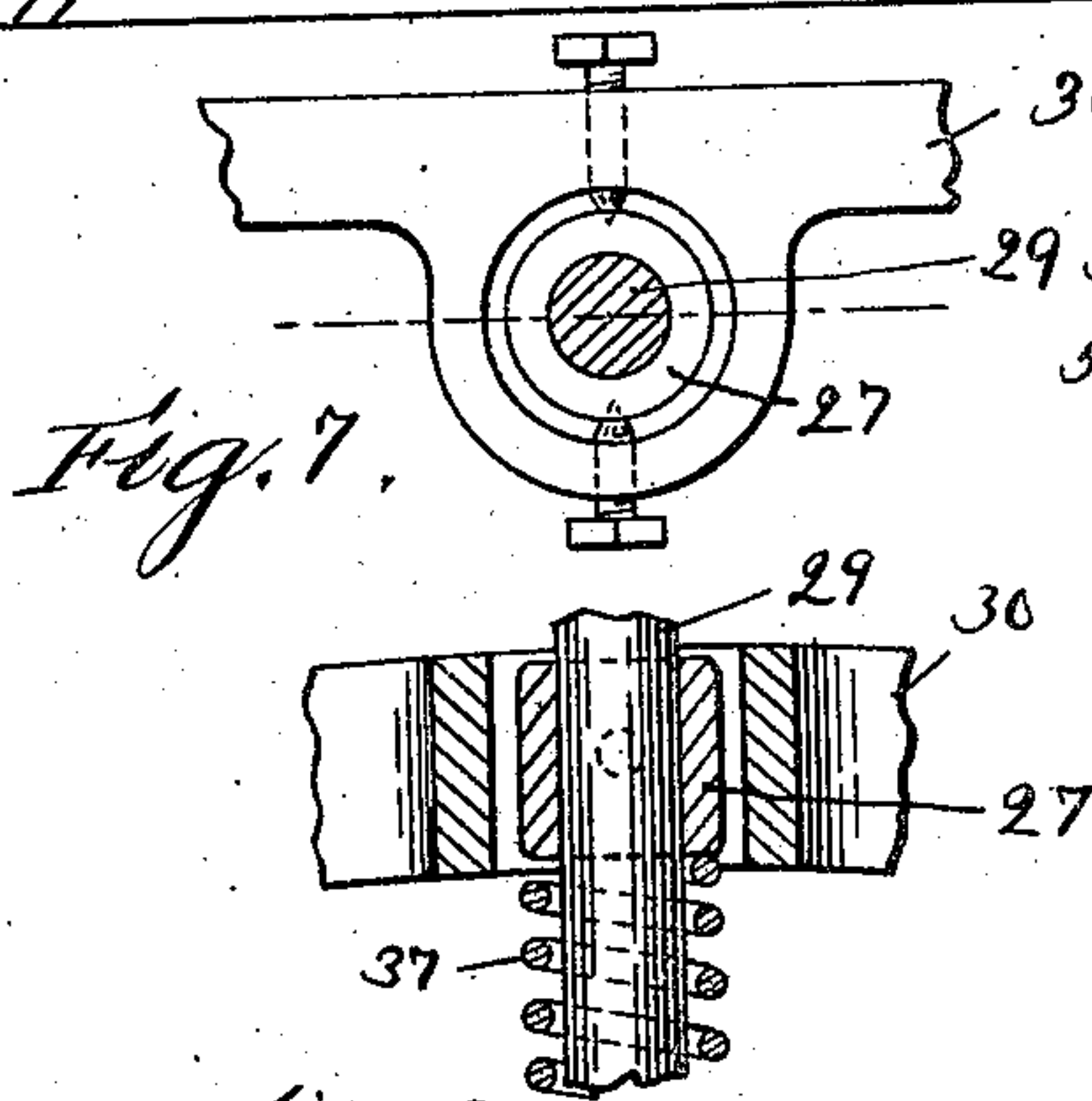
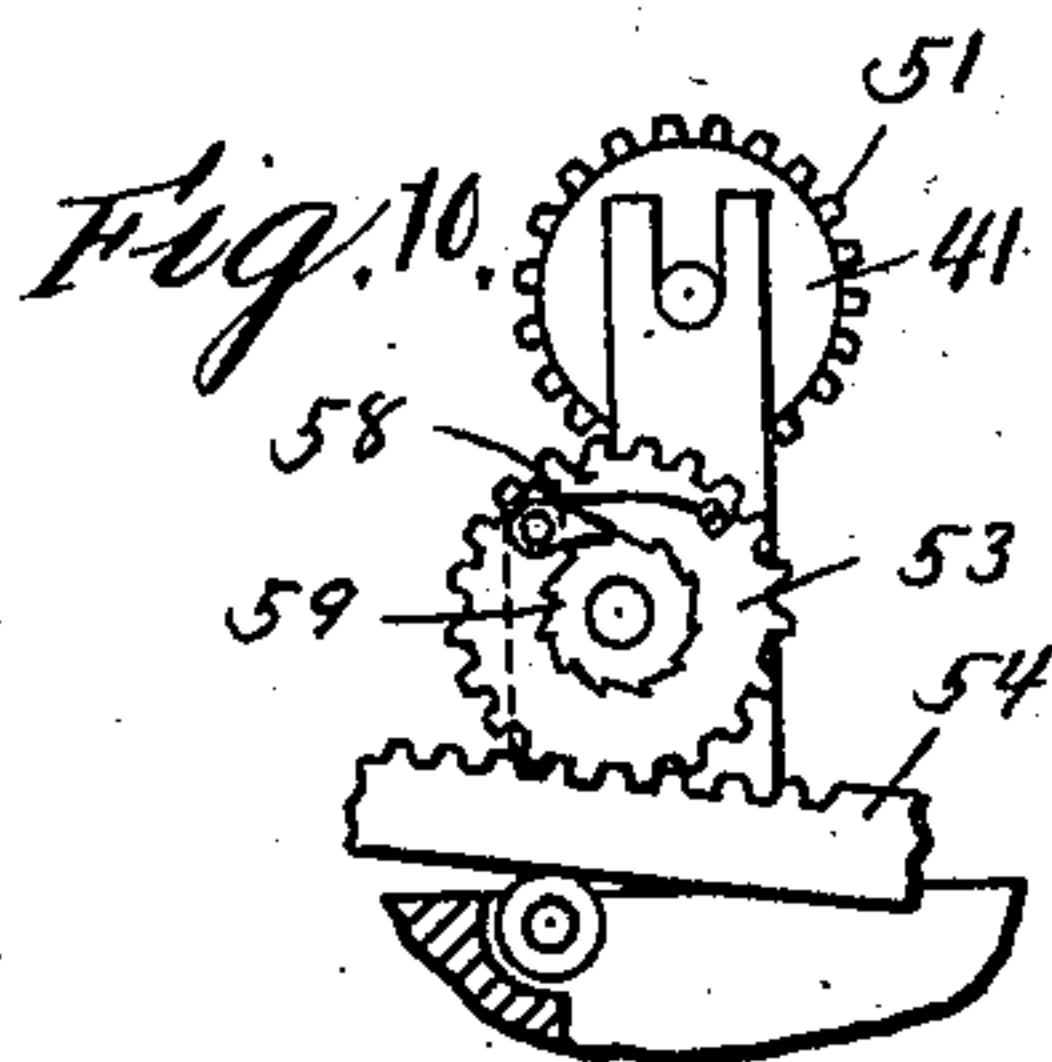
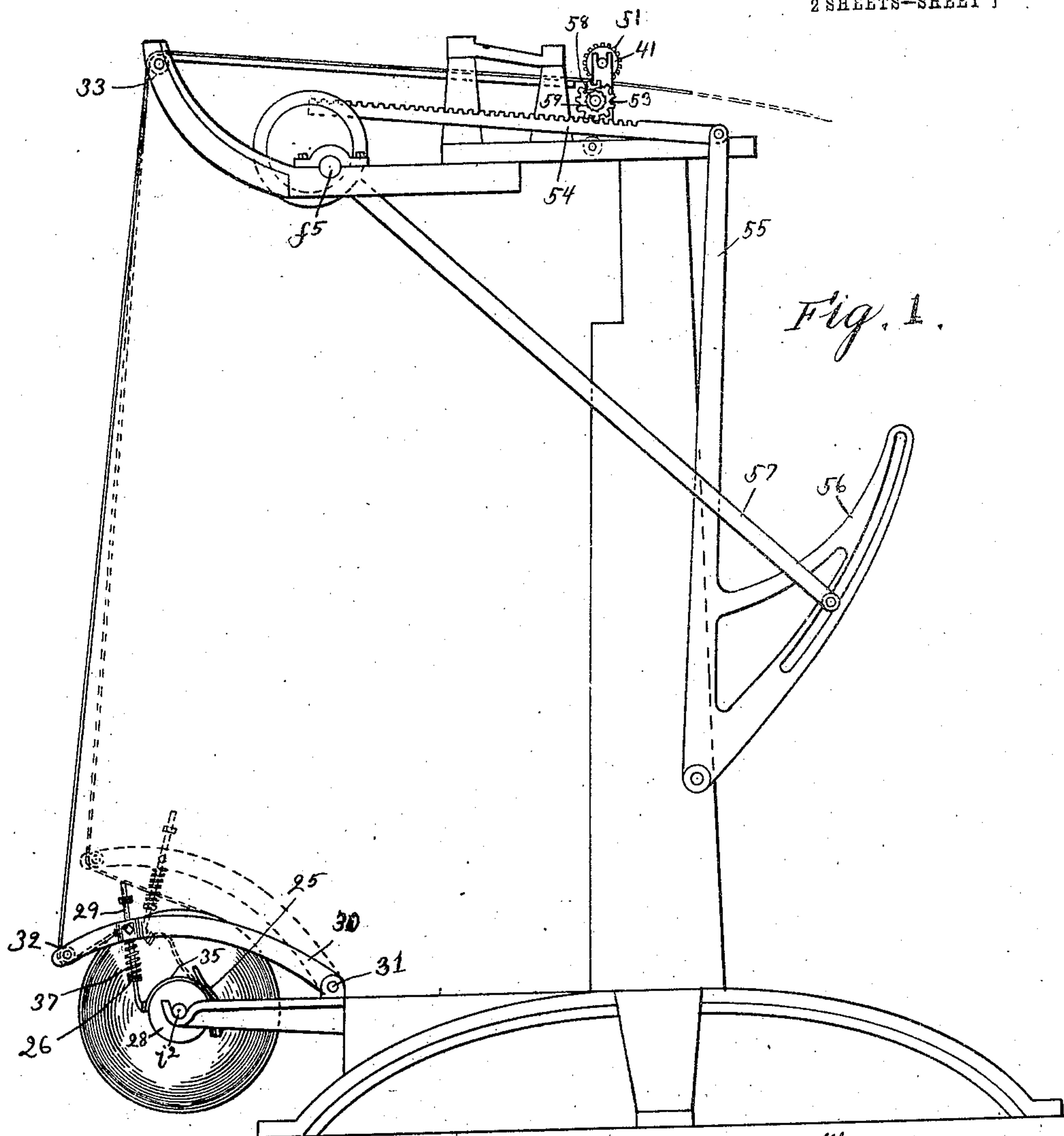
PATENTED MAR. 19, 1907

M. H. BALLARD.

PAPER FEEDING DEVICE FOR WRAPPING MACHINES.

APPLICATION FILED MAR. 28, 1906.

2 SHEETS-SHEET 1



Witnesses:
H. B. Davis.
Cynthia Doyle.

Fig. 8.

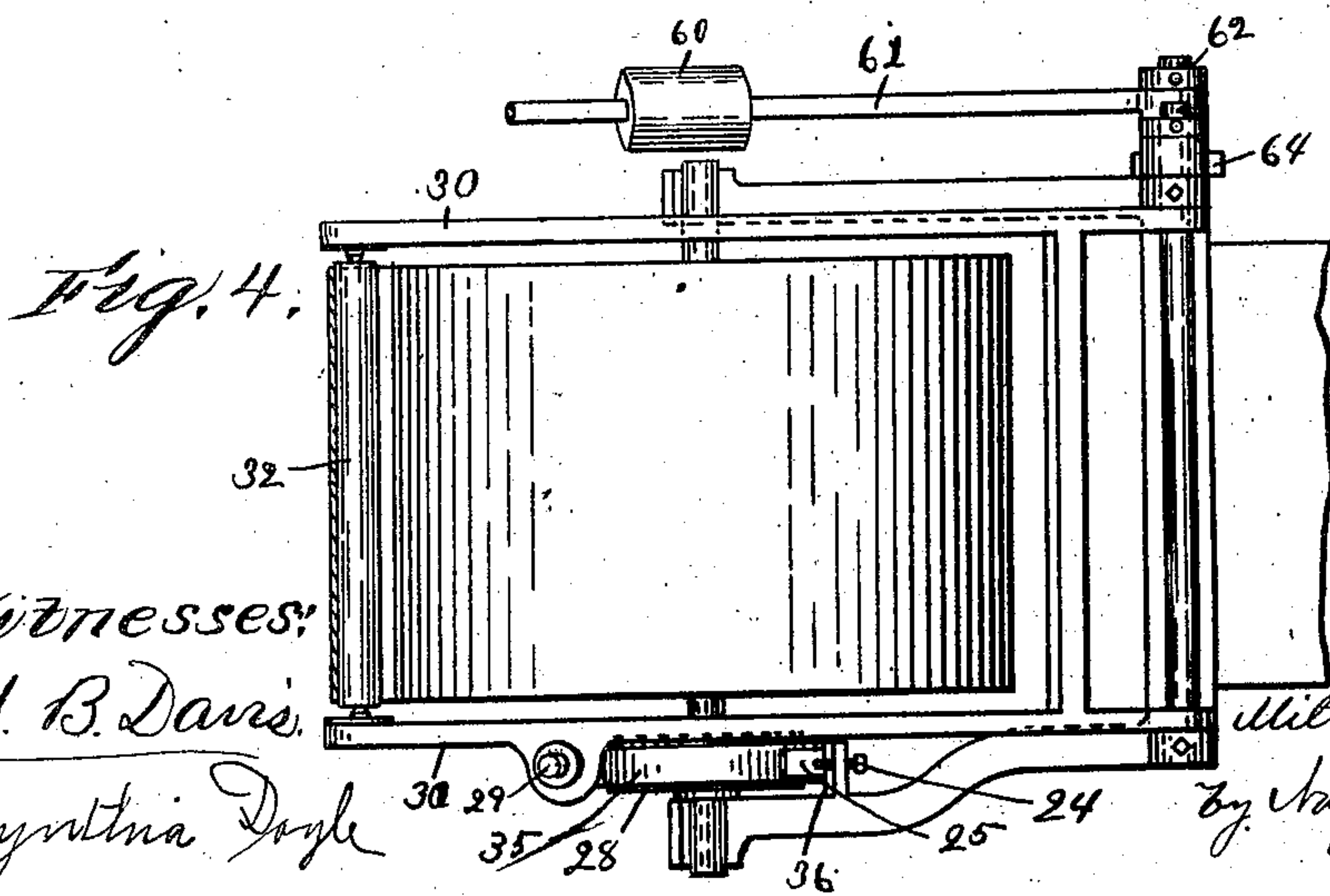
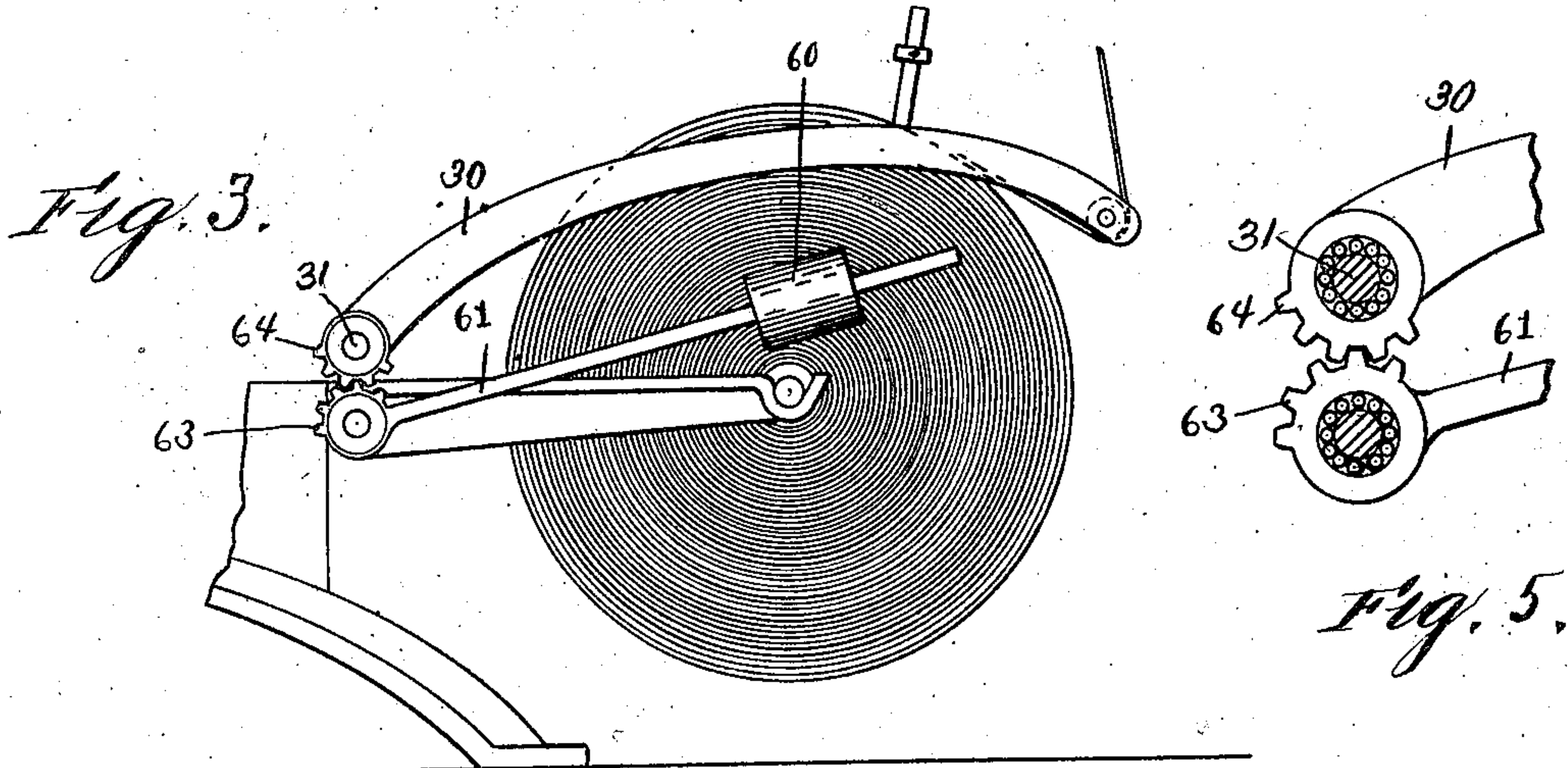
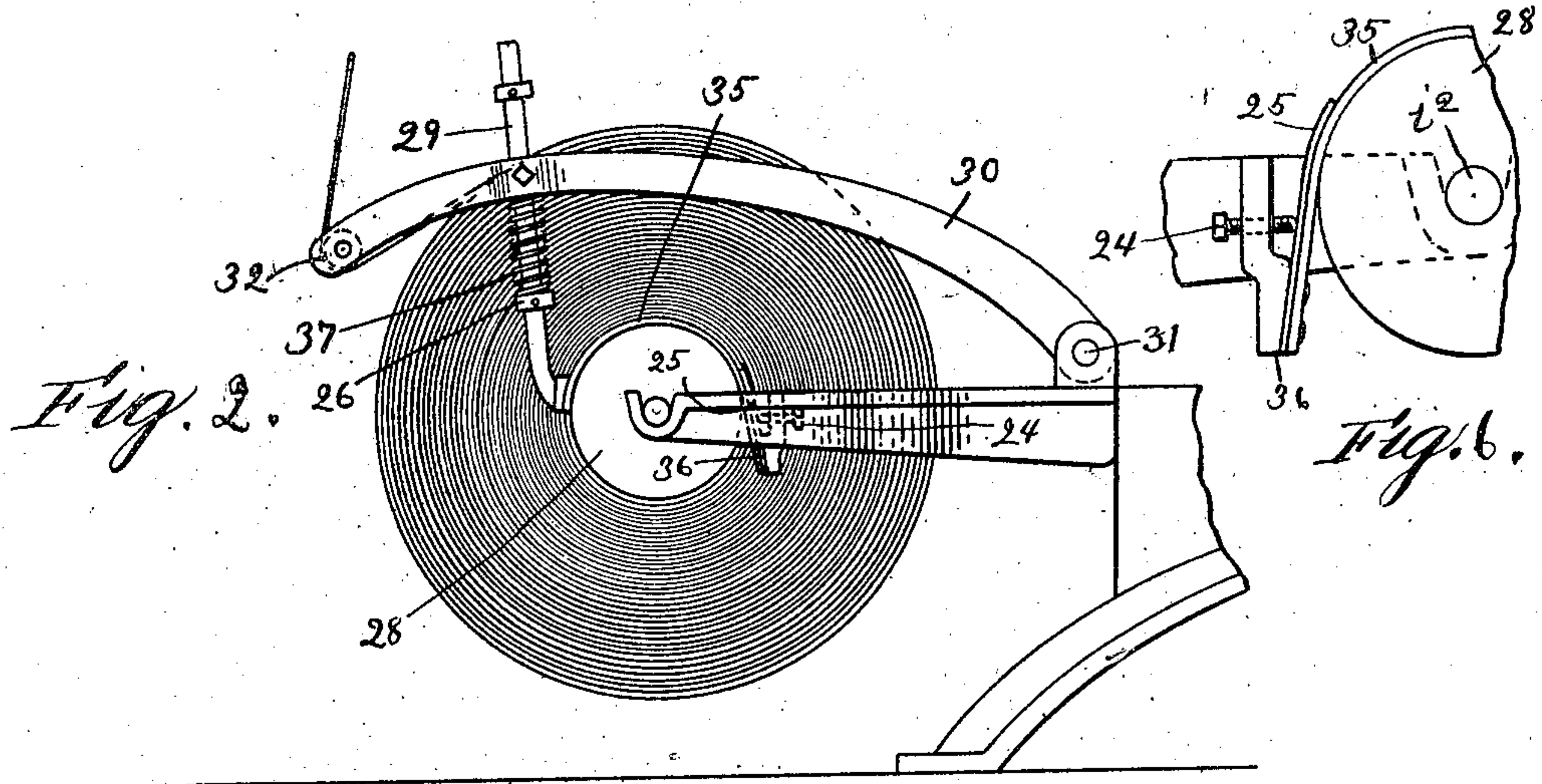
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

MILTON H. BALLARD, OF LYNN, MASSACHUSETTS, ASSIGNOR TO TRIPP
FRUIT WRAPPING MACHINE CO., OF SAN FRANCISCO, CALIFORNIA,
A CORPORATION OF MAINE.

PAPER-FEEDING DEVICE FOR WRAPPING-MACHINES.

No. 847,393.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed March 28, 1906. Serial No. 308,413.

To all whom it may concern:

Be it known that I, MILTON H. BALLARD, of Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Paper-Feeding Devices for Wrapping-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

In certain forms or types of wrapping-machines—such, for instance, as shown in Letters Patent No. 472,202, dated April 5, 1892—the web of paper is drawn from a roll by means of devices which act to feed it forward to a severing device which severs the web, and thereby produce wrappers of suitable size to be used for wrapping oranges and other things. The feeding device acts intermittently and also rapidly to feed forward a predetermined length of paper for the wrapper and when starting from a position of rest will violently pull upon the web of paper and draw it from the roll. In practice I find much difficulty is experienced in controlling the web of paper when drawn from the roll by the feeding device, particularly when operating the machine at high speed.

This invention has for its object to provide means independent of the feeding device for drawing a predetermined length of paper from the roll, corresponding to the length of paper required for a wrapper, so that the feeding device may operate to perform only its regular function of feeding forward the paper, and also in connection with said means to provide a brake for the roll by which the drawing off of the paper from the roll is controlled in such manner as to enable said means to subsequently control the web of paper which is drawn from the roll.

Figure 1 shows a sufficient portion of a wrapping-machine to illustrate the paper-feeding device embodying this invention, the means for drawing the paper from the roll being shown in full lines in the position it will occupy when a predetermined length of paper corresponding to the length of paper required for a wrapper has been drawn from the roll and in dotted lines the position it will occupy when the predetermined length of paper which has been drawn from the roll has been taken up by the feeding device. Fig. 2 is an enlarged side view of the means

for drawing the paper from the roll. Fig. 3 is a similar view taken at the opposite end of the paper-carrying roll. Fig. 4 is a plan view of the means employed for drawing the paper from the roll. Fig. 5 is a detail showing the connecting means between the counterbalancing arm and means for drawing the paper from the roll. Fig. 6 is a detail of the means for applying pressure to the brake-band. Figs. 7 and 8 are details of the means connecting the brake-band with the means for drawing the paper from the roll. Figs. 9 and 10 are details of the feeding device for the paper which when operated feeds forward a predetermined length of paper for a wrapper.

The intermittently-operated feeding device by which predetermined lengths of paper are fed forward is herein shown as a pair of feeding-rolls 41 42, journaled in suitable bearings, the upper roll 41 bearing a toothed gear 51 and the lower roll 42 bearing a toothed gear 52, which engages said toothed gear 51, whereby one of the rolls is driven by the other roll. A pinion 53 is loosely mounted on the shaft of the lower roll bearing one or more pawls 58, which engages the teeth of a ratchet-wheel 59, which is secured to said roll, and said pinion is engaged by a rack-bar 54, which is supported in suitable bearings and which is loosely connected at one end to an upright bar 55, pivoted at its lower end to the main frame. At the lower end of the bar 55 a lateral extension 56 is provided, having a curved slot, and a bar 57 is adjustably connected at one end to said slotted extension 56, its opposite end being connected to an eccentric on the main shaft f^5 . As the shaft f^5 revolves the bar 57 is reciprocated and the rack-bar 54 correspondingly moved longitudinally and the feeding-rolls operated to feed forward a predetermined length of paper.

I desire it to be understood that my invention comprehends the employment of any other form of feeding device in lieu of the form herein shown, which is adapted to be intermittently operated to feed forward predetermined lengths of paper.

i^2 represents the paper-carrying roll, the shaft of which is journaled in suitable bearings in the frame. As a means of drawing from the roll i^2 predetermined lengths of

paper a pull-off device is provided which is adapted to operate and draw the paper from the roll while the feeding device is at rest, and said pull-off device is also adapted to hold the web of paper thus drawn off under constant tension while the feeding device operates to feed forward a corresponding length of paper, and the pull-off device herein shown illustrates one practical embodiment of my invention. The pull-off device herein shown consists of a pair of arms 30, pivoted at 31 to the frame near the roll i^2 , and to the outer ends of said arms a paper-engaging roll, or it may be a cross-bar 32, is supported, which is designed to extend transversely with respect to the web of paper. The pull-off device is so arranged that the roll borne by it engages the web of paper near the paper-carrying roll and thereby caused to rise and fall on its pivot. The pull-off device is made quite heavy and falls by gravity and is raised by the action of the feeding device drawing up the paper. The web of paper from the roll i^2 passes over the pull-off device and thence over an idle roll 33 and thence to the feeding device, and the end thereof is engaged by said feeding device.

While the feeding device is at rest and the end of the web of paper is held by it, the pull-off device falls by gravity into the full-line position (shown in Fig. 1) and draws from the roll i^2 a predetermined length of paper, and thereafter while the paper thus drawn from the roll is held taut or under slight tension by the pull-off device the feeding device operates to feed forward a corresponding length of paper for a wrapper, the pull-off device being lifted meanwhile into the dotted-line position shown in Fig. 1. In order that the pull-off device may be lifted easily and quickly without material effort on the part of the feeding device, a counterbalancing-weight 60 is provided for the pull-off device, said weight being herein shown as arranged on an arm 61, which is pivoted at 62 to the frame near the pivot of the pull-off device, and gear-teeth 63 are formed on or attached to the pivoted end of the arm which engage similar gear-teeth 64, formed on or attached to the pivoted end of the pull-off device. The counterbalancing-weight 60 is thus connected with the pull-off device in such manner that as the pull-off device falls by gravity the weight will be lifted, and vice versa. Hence by providing the weight the pull-off device will be quite easily lifted.

It will be seen that the pull-off device and the feeding device operate alternately, the former acting to draw a predetermined length of paper from the roll while the latter is at rest and then the latter operating to feed forward a corresponding length of paper while the former rises and holds the web of paper taut or under slight tension, giving

up the paper to the feeding device as required.

At one end of the paper-carrying roll i^2 a brake wheel or drum 28 is secured, and a brake-band is provided for said brake-wheel, one end of which is attached to a fixed point on the frame, as at 36, and the other end is attached to the pull-off device, so that the brake for the paper-carrying roll will be operated by the pull-off device and the movement of the roll thereby controlled.

The brake-band is attached to the pull-off device in a yielding manner, and as herein shown a bar 29 extends through a hole in a block 27, which is pivoted to one of the arms 30, being placed in a hole passing transversely through said arm, and said bar 29 is free to slide longitudinally in said pivoted block, and a spring 37 encircles said bar, which bears at one end against the arm 30 and at the other end against a collar 26, which is fixed to the arm, the action of said spring being to thrust the sliding bar in a direction away from the arm, and the free or outer end of the brake-band 35 is attached to the extremity of said sliding bar.

As the pull-off device is raised and lowered the brake-band is gradually unwound from and wound upon the brake wheel or drum, and by thus decreasing and increasing its area of contact with said drum said brake becomes accumulative, and, furthermore, when the pull-off device in falling has wound the brake-band upon the drum it continues to fall and to compress the spring on the sliding bar, and thereby apply a gradually-increasing pressure upon the free end of the brake-band. To prevent rotation of the paper-carrying roll when the pull-off device is raised to its most elevated position and while it is still held up by the web of paper, and also while the paper is being drawn up by the feeding device, a pressure device is provided which is applied to the brake-band, which holds a portion thereof in continuous engagement with the brake wheel or drum.

The pressure device herein shown consists of a wide flat spring 25, attached at one end to the frame, its opposite end being free, and said spring is so held as to exert a constant pressure upon the portion of the brake-band which it engages. An adjusting-screw 24 is provided which operates upon said spring to increase or diminish the pressure which it is desired it shall exert upon the brake-band. The pressure exerted by the pressure device on the brake-band is sufficient to hold the roll i^2 from rotating except when the pull-off device falls by gravity.

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

1. In a wrapping-machine, the combination of a feeding device, means for operating it to feed forward a predetermined length of

paper, a paper-carrying roll having a brake-wheel, a pull-off device for drawing from said roll a predetermined length of paper while the feeding device is at rest, a brake-band adapted to engage said brake-wheel, one end of which is attached to a fixed point and the other end is connected to said pull-off device, and a yielding pressure device bearing upon said brake-band to hold a portion thereof in constant engagement with said brake-wheel, substantially as described.

2. In a wrapping-machine, the combination of a feeding device, means for operating it to feed forward a predetermined length of paper, a paper-carrying roll having a brake-wheel, a pull-off device for drawing from said roll a predetermined length of paper while the feeding device is at rest, a brake-band adapted to engage said brake-wheel, one end of which is attached to a fixed point and the other end is connected to said pull-off device, and a yielding pressure device bearing upon said brake-band, to hold a portion thereof in permanent engagement with said brake-wheel, and means for adjusting said yielding pressure device, substantially as described.

3. In a wrapping-machine, the combination of a feeding device, means for operating it to feed forward a predetermined length of paper, a paper-carrying roll, a pivoted pull-

off device which is operated by gravity to draw from the roll a predetermined length of paper while the feeding device is at rest and which is lifted by the action of said feeding device while the latter operates to feed the paper, means for restraining the gravitating movement of the pull-off device, and a lifting-weight connected with said pull-off device which assists the feeding device in raising said pull-off device, substantially as described.

4. In a wrapping-machine, the combination with a feeding device, a pivoted arm having a paper-engaging roll, a paper-carrying roll having a brake-wheel, a brake-band engaging said brake-wheel, one end of which is attached to a fixed point, a sliding bar to which the other end is attached, a supporting-block for said bar pivotally connected to said arm, and a spring for thrusting said sliding bar in a direction away from the arm, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILTON H. BALLARD.

Witnesses:

B. J. NOYES,
H. B. DAVIS.