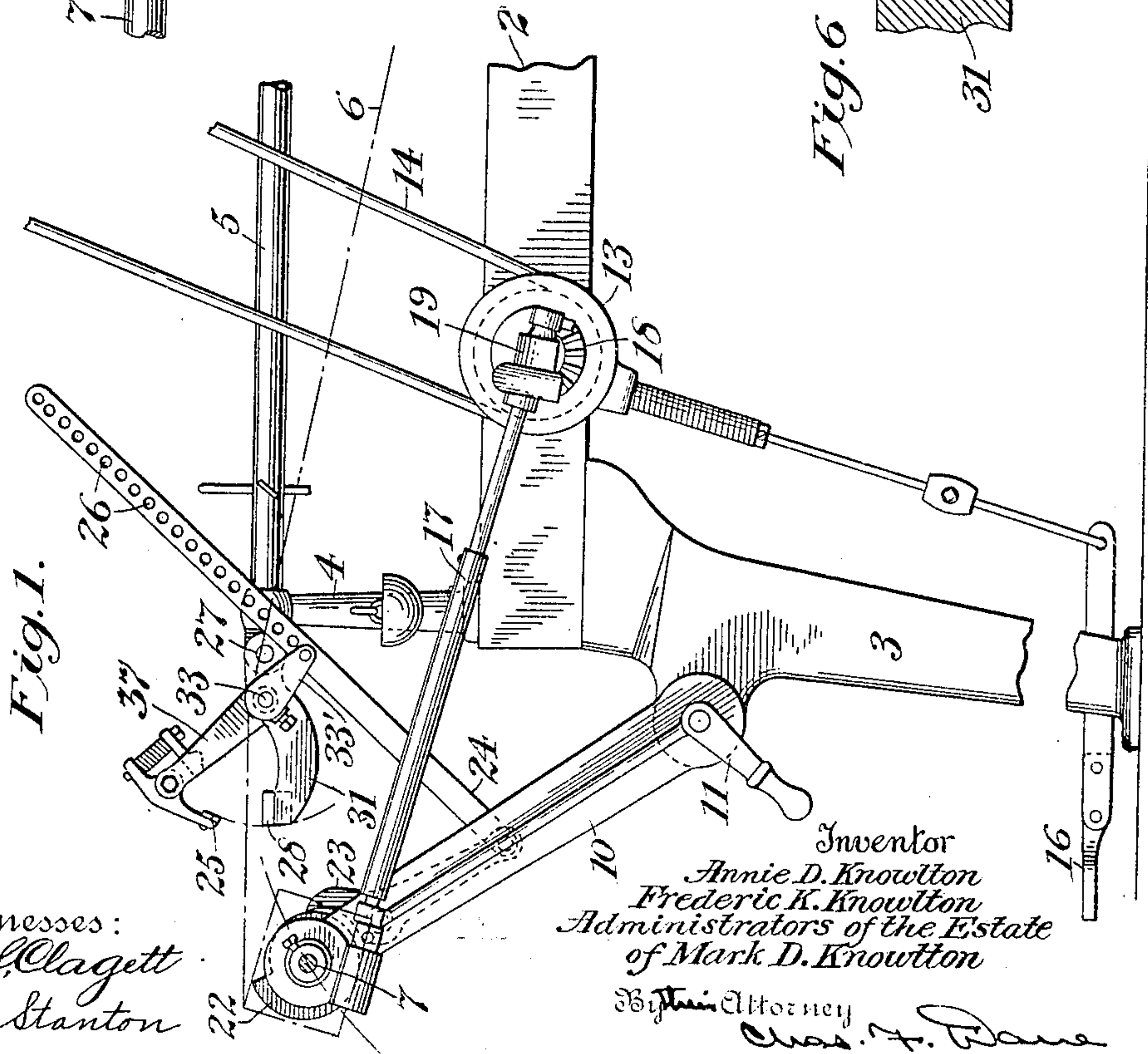
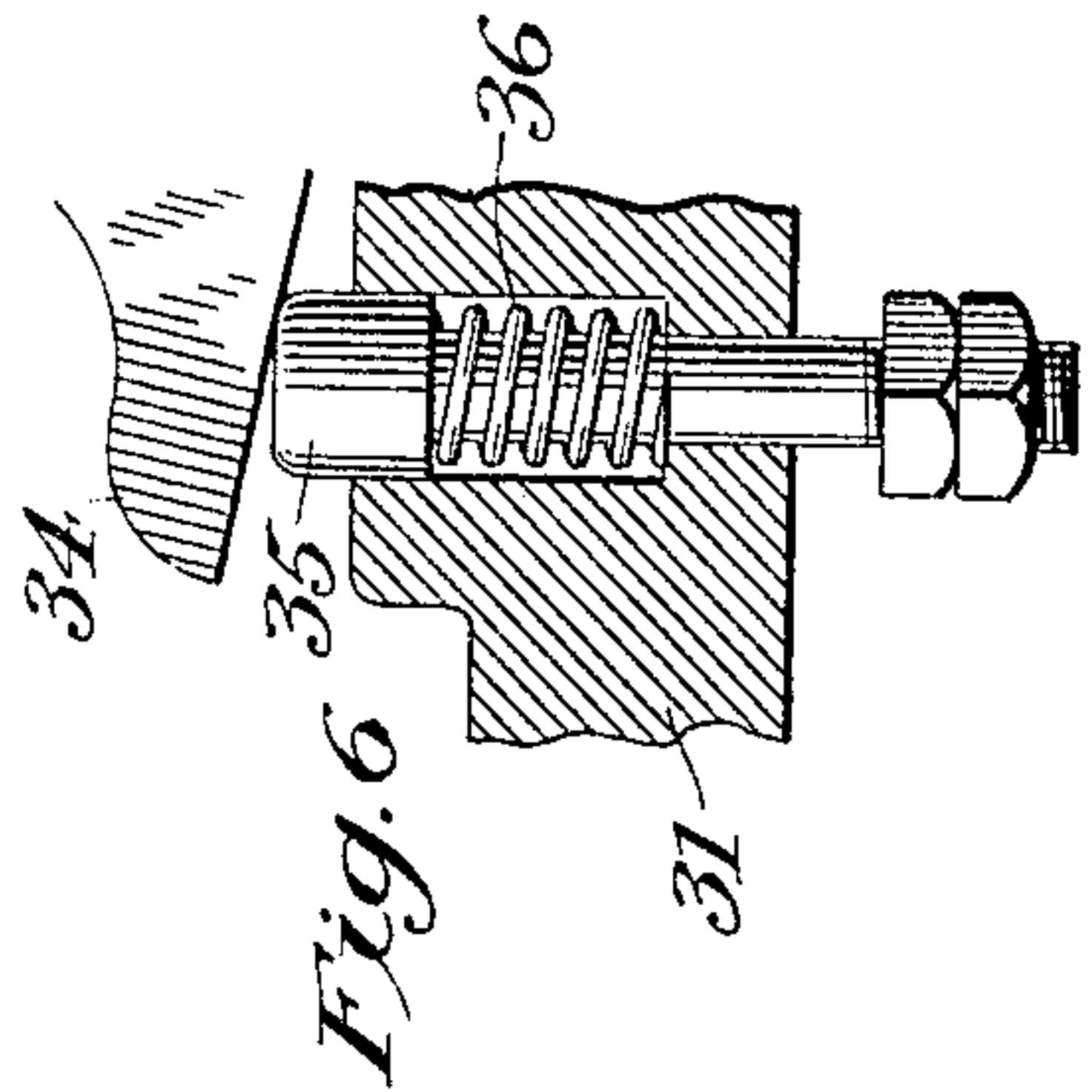
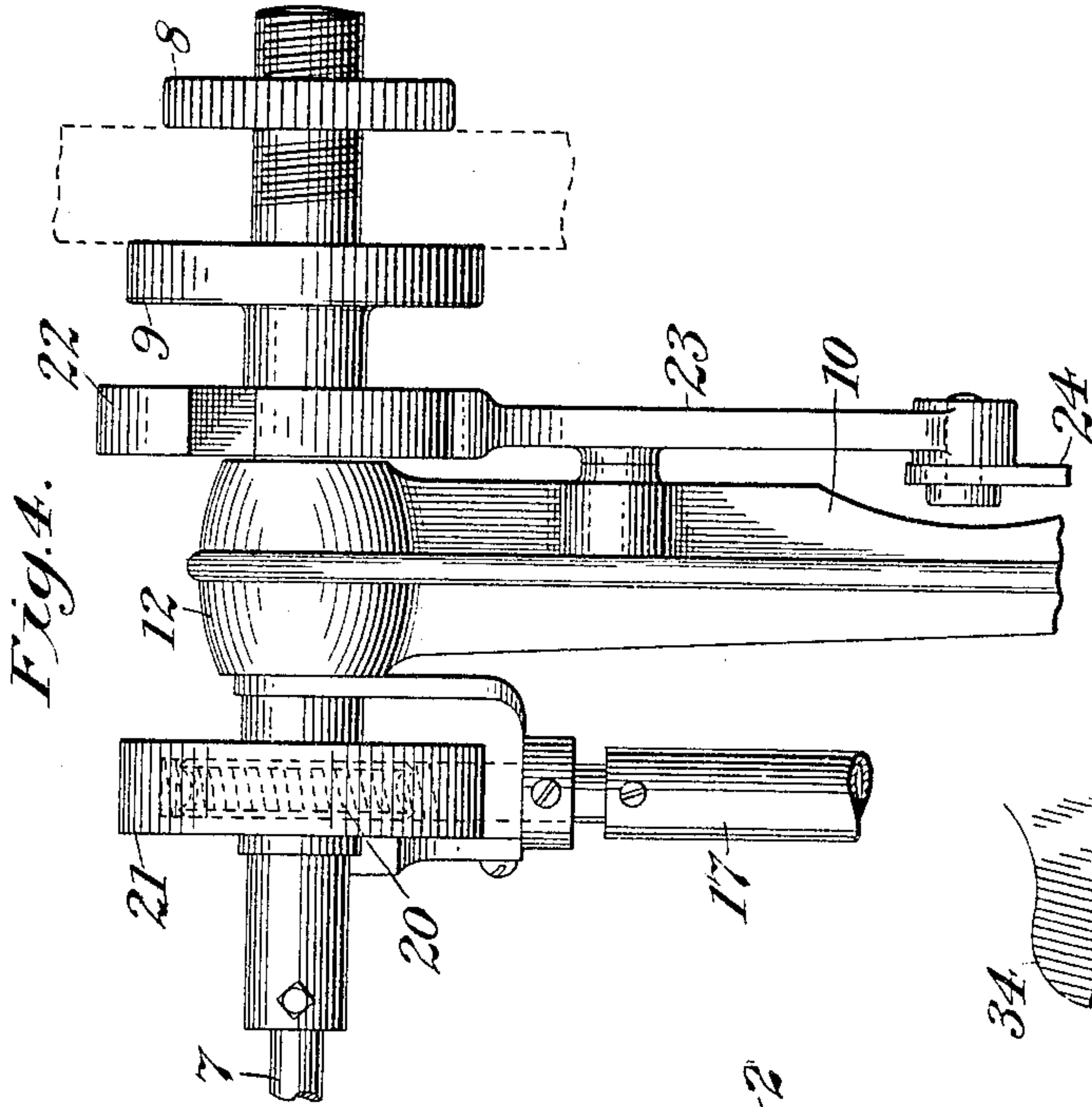


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A. D. & F. K. KNOWLTON, ADMINISTRATORS.
BOX COVERING MACHINE.
APPLICATION FILED JUNE 25, 1907.

3 SHEETS—SHEET 1.



Witnesses:
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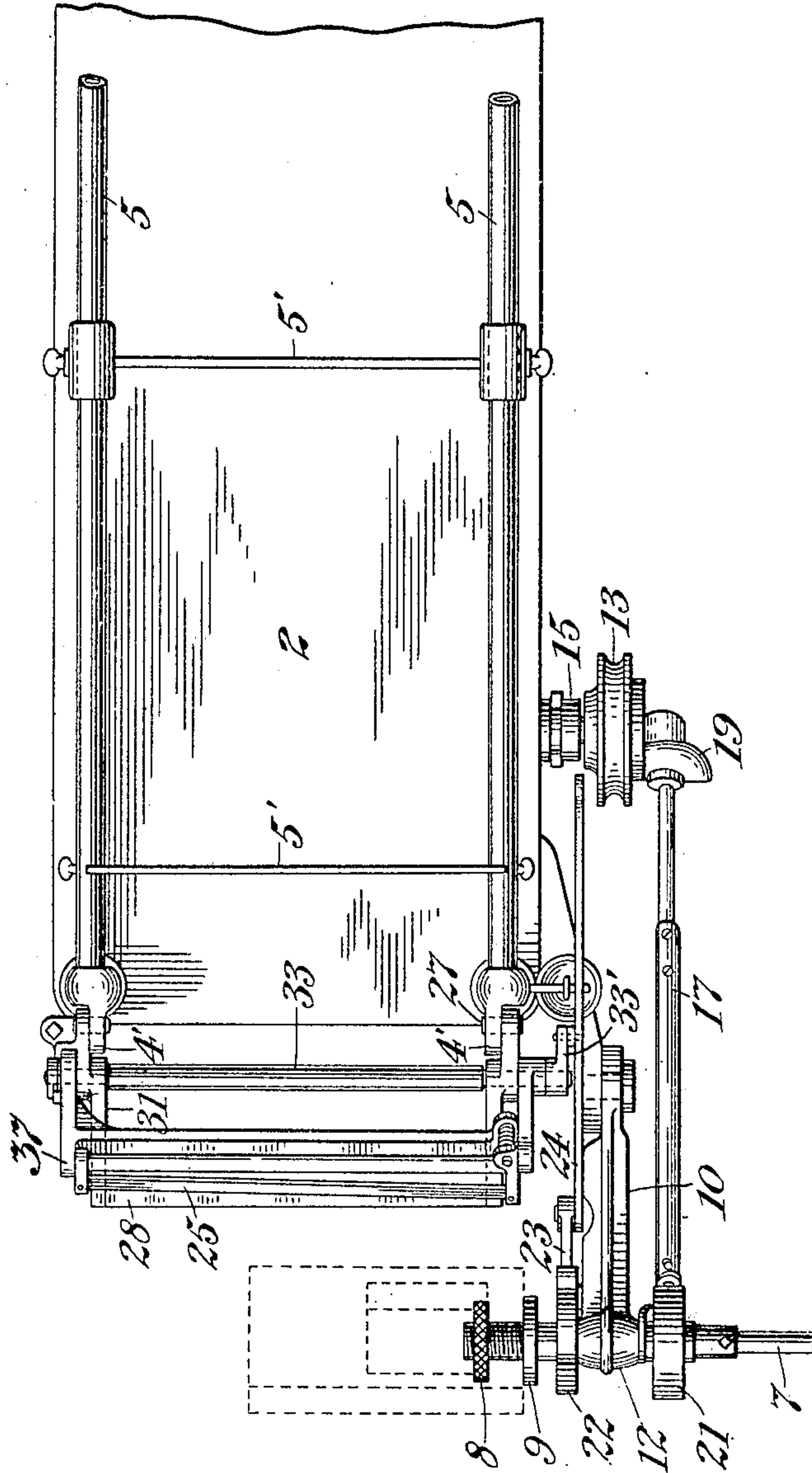
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3 SHEETS—SHEET 2.

Fig. 2.



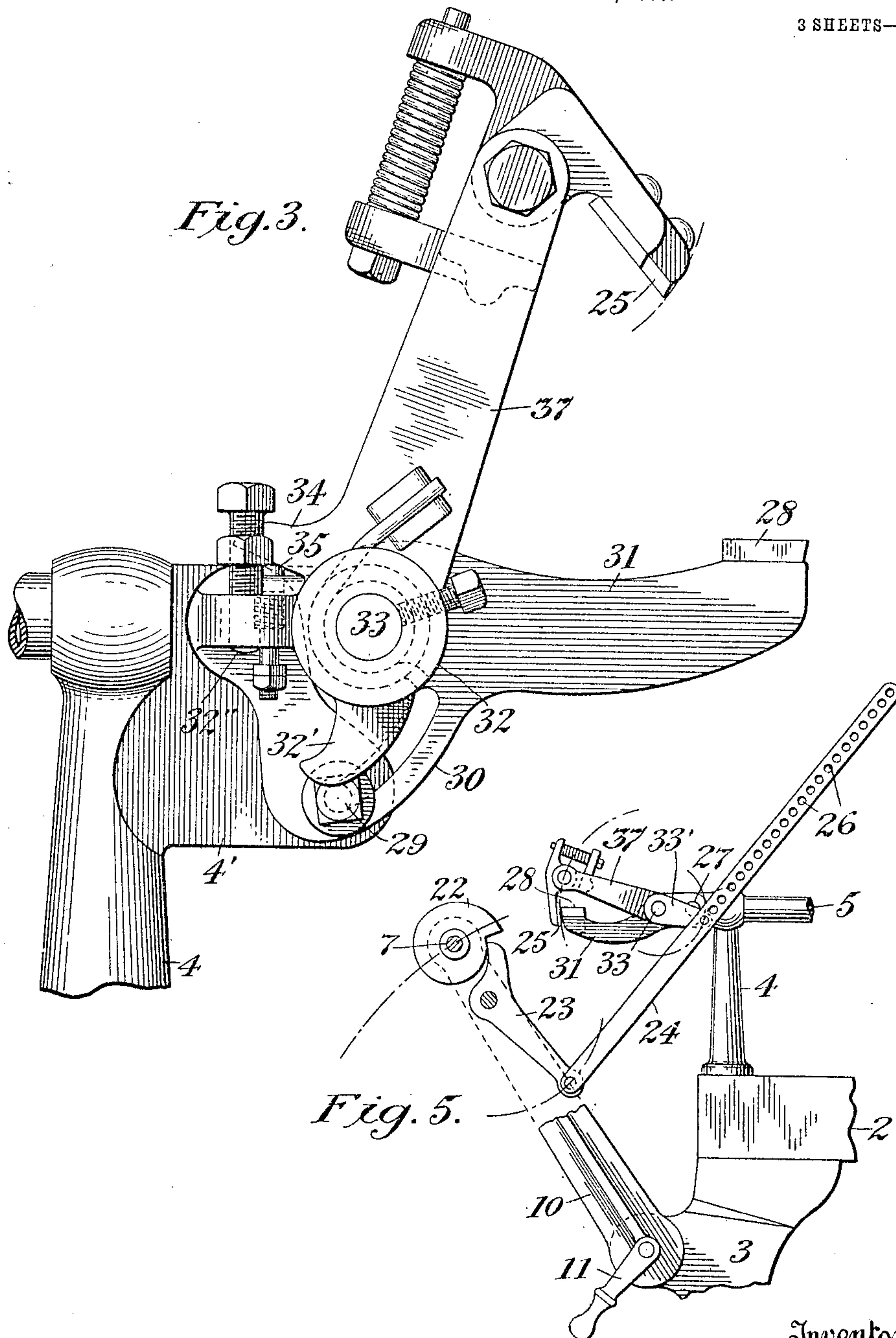
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ANNIE D. KNOWLTON AND FREDERIC K. KNOWLTON, OF ROCHESTER, NEW YORK, ADMINISTRATORS OF MARK D. KNOWLTON, DECEASED.

BOX-COVERING MACHINE.

No. 885,260.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed June 25, 1907. Serial No. 381,497.

To all whom it may concern:

Be it known that MARK D. KNOWLTON, late a citizen of the United States, and resident of Rochester, Monroe county, State of New York, now deceased, invented certain new and useful Improvements in Box-Covering Machines, of which the following is a specification.

This invention relates to that class of machines adapted for applying a covering strip of paper or other material to paper or straw-board boxes, and has for its object to improve generally the construction and operation of such class of machines.

The invention consists in the novel features of construction and combinations of parts as hereinafter set forth in detail and pointed out in the appended claims.

Referring now to the accompanying drawings forming part of this specification, Figure 1 is a side elevation of the front end of a box-covering machine illustrating the invention. Fig. 2 is a plan of the same. Fig. 3 is an enlarged side elevation of a portion of the same as viewed from the opposite side of the machine to that shown in Fig. 1, and illustrates the parts in a different position. Fig. 4 is an enlarged plan of the extreme forward end of the machine, illustrating the means for rotating the form-block and also showing the let-off devices. Fig. 5 is an elevation similar to Fig. 1, with parts broken away, and illustrates the position of the mechanism at the movement of cut-off of the strip, and Fig. 6 is an enlarged detail showing the auxiliary cutter-actuating device for imparting an initial impulse to the movable cutter.

In the drawings, 2 designates the body portion or bed of a box-covering machine, supported on legs 3, and having uprights or posts 4 carrying side-bars or rails 5, which in turn support the guide-rods 5' by which the paper strip is directed in its travel from the supply-reel (not shown) to the cutters, it being understood that this strip, indicated at 6, will be coated with glue or other adhesive in any well-known manner before it is delivered to the blank carried by the form-block.

The form-block on which the blank is placed preparatory to its being covered is supported in any suitable manner on a rotary carrier, such as the shaft 7, this form-block,

indicated by dotted lines in Fig. 2, being adapted to be held in place on said shaft 55 between a knurled clamp-nut 8 and a flange or collar 9. The shaft 7 is mounted in bearings on a form-block support which is movable with respect to the main frame in order to permit adjustment of the height of the 60 form-block carrier for covering boxes of different sizes, the support shown being a swinging arm 10 pivoted on one of the legs 3 and locked thereto in any desired adjusted position by means of a lever-nut 11. The 65 bearing at the upper end of the support 10 for the shaft 7 is designated at 12. At opposite sides of this bearing are located the driving mechanism for turning the shaft 7 and the driven mechanism or devices for controlling the movements of the swinging cutter to be hereinafter described.

The main driver of the machine, as herein shown, is a grooved pulley 13 which is adapted to be driven from any suitable source of 75 power by a belt 14, as shown in Fig. 1. This pulley is loosely mounted on its shaft and normally turns idly, but may be coupled thereto by any suitable clutch device, such as 15, which in this case is operated by a 80 treadle 16, which permits the operator to stop and start the turning of the form-block instantaneously and as often as may be necessary during the application of the covering-strip to the blank supported on the form- 85 block. From the said main driver 13 power is transmitted to the shaft 7 by means of adjustable driving connections, which in the construction shown consist of an extensible side-shaft 17 driven from the main driver by 90 bevel gearing 18, which is preferably protected by a gear-case 19, while at its forward end the shaft 17 transmits its movement to the shaft 7 through worm-gearing 20 similarly protected by a gear-case 21. 95

At the inner side of the bearing 12 the shaft 7 has a cam 22 with a gradual rise and a quick fall for the purpose of regulating the action of the movable cutter and permitting the same to sever the paper strip 6 at the 100 proper point in the box-covering operation. The let-off connections illustrated herein constitute an important feature of the machine, and are so organized as to permit the movable cutter to sever the covering strip with- 105 out requiring the application of any consid-

erable amount of power to the movable cutter. This result is accomplished by mounting the movable cutter in such a manner that it has a tendency to gravitate toward the fixed cutter immediately on its release by the let-off connections. These connections between the cam 22 and the movable cutter, which are so organized as to multiply the drop of the cam 22 and permit the movable cutter to have a working stroke of considerable length, comprise a let-off lever 23, the short arm of which coöperates with the cam and the long arm of which is connected to a link 24, which in turn is pivoted to a short rock-arm 33' secured to a rock-shaft 33 forming one of the elements of the carrying means for the movable cutter 25. The said let-off lever 23 is pivoted on the form-block support 10 and moves therewith when the position of the support is adjusted. Hence, the position of the long arm of the let-off lever shifts as the adjustment of the support is changed, and for this reason the connections between said lever and the movable cutter should also be adjustable. This adjustment is obtained by pinning the said rock-arm 33' to the link 24 at any desired point, a row of adjusting holes being shown at 26 for this purpose, although it will be evident that other means of adjustment may be used.

The support or carrier for the fixed cutter 28, as herein shown, is in the form of an adjustable frame 31 pivoted at 27 directly to a pair of bracket-arms 4', 4', extending from the uprights 4. This fixed-cutter carrier may be adjusted to bring the fixed-cutter to any desired vertical position relative to the path of the covering-strip being fed to the box upon the form-block, and is adapted to be secured in a desired adjusted position by means of an adjusting clamp-nut 29 coöperating with a slotted extension 30 of the carrier, as clearly shown in Fig. 3.

The movable cutter 25 is pivotally supported at the upper forward end of the machine in a manner to properly coöperate with the said fixed-cutter 28. This movable cutter is not supported, however, directly on the main frame, but instead is pivoted on the fixed-cutter carrier 31 so as to be capable of a working oscillating movement relatively thereto and also be movable with said fixed-cutter carrier when its position is adjusted. The means for so supporting the movable-cutter 25 comprises a cutter frame 37 to the free end of which the cutter 25 is connected, and the rock-shaft 33 hereinbefore referred to, these parts, which constitute the principal elements of the movable-cutter carrying means, being connected so as to normally move together and the rock-shaft being mounted to turn in bearings on the fixed-cutter carrier 31.

When the movable-cutter is released by the let-off mechanism hereinbefore described

and gravitates toward the fixed-cutter to coöperate therewith, its movement at the beginning of its stroke is somewhat slow and consequently limits the speed of the machine accordingly. To overcome this objection and cause a quick movement of the cutter throughout its working stroke, there is provided an auxiliary cutter-actuating device which, in the present case and as most clearly shown in Figs. 3 and 6, is in the form of a spring-bolt 35 seated in the fixed-cutter carrier 31 in a position to coöperate with a part or nose 34 of the movable-cutter frame 37, in a manner as follows: During the last portion of the upward or return stroke of the movable-cutter to its starting position, the nose 34 of the cutter-frame engages with the said bolt 35 and puts its actuating spring 36 under compression. When so compressed, the spring 36 has sufficient power to exert an initial impulse to the cutter when said cutter is released by the let-off mechanism hereinbefore described. The initial impulse thus imparted to the cutter serves to quicken its movement from the starting position, and the momentum resulting from this initial impulse and from the initial portion of its fall is sufficient to swing the cutter quickly through the arc of its working stroke.

What is claimed is:

1. In a box-covering machine, the combination with an adjustable form-block support, of a rotary form-block carrier mounted on said support and having a let-off cam, a let-off lever pivoted on said support and in engagement with said cam, a fixed cutter, a swinging cutter, and an adjustable link connecting said let-off lever and the swinging cutter.

2. In a box-covering machine, the combination with an adjustable form-block support, of a rotary form-block carrier mounted on said support and having a let-off cam, a let-off lever pivoted on said support and in engagement with said cam, a fixed cutter, a gravitating swinging cutter having a downward working stroke, and an adjustable link connecting said let-off lever and the swinging cutter.

3. In a box-covering machine, the combination with an adjustable form-block support, of a rotary form-block carrier mounted on said support and having a let-off cam, a let-off lever pivoted on said support and in engagement with said cam, a fixed cutter, a swinging cutter, and an adjustable link connecting said let-off lever and the swinging cutter at such points as to multiply the movement of said cutter.

4. In a box-covering machine, the combination with an adjustable form-block support, of a rotary form-block carrier mounted on said support and having a let-off cam, a fixed cutter, a movable cutter controlled by said let-off cam, a main driver on the frame

of the machine, and adjustable driving connections between said driver and the rotary form-block carrier.

5 In a box-covering machine, the combination with a fixed cutter, of a movable gravitating cutter having a downward working stroke, a power-operated let-off mechanism for regulating the action of the movable cutter, and an auxiliary cutter-actuating device

for imparting an initial impulse to the downward working stroke of the movable cutter. 10

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