

No. 664,692.

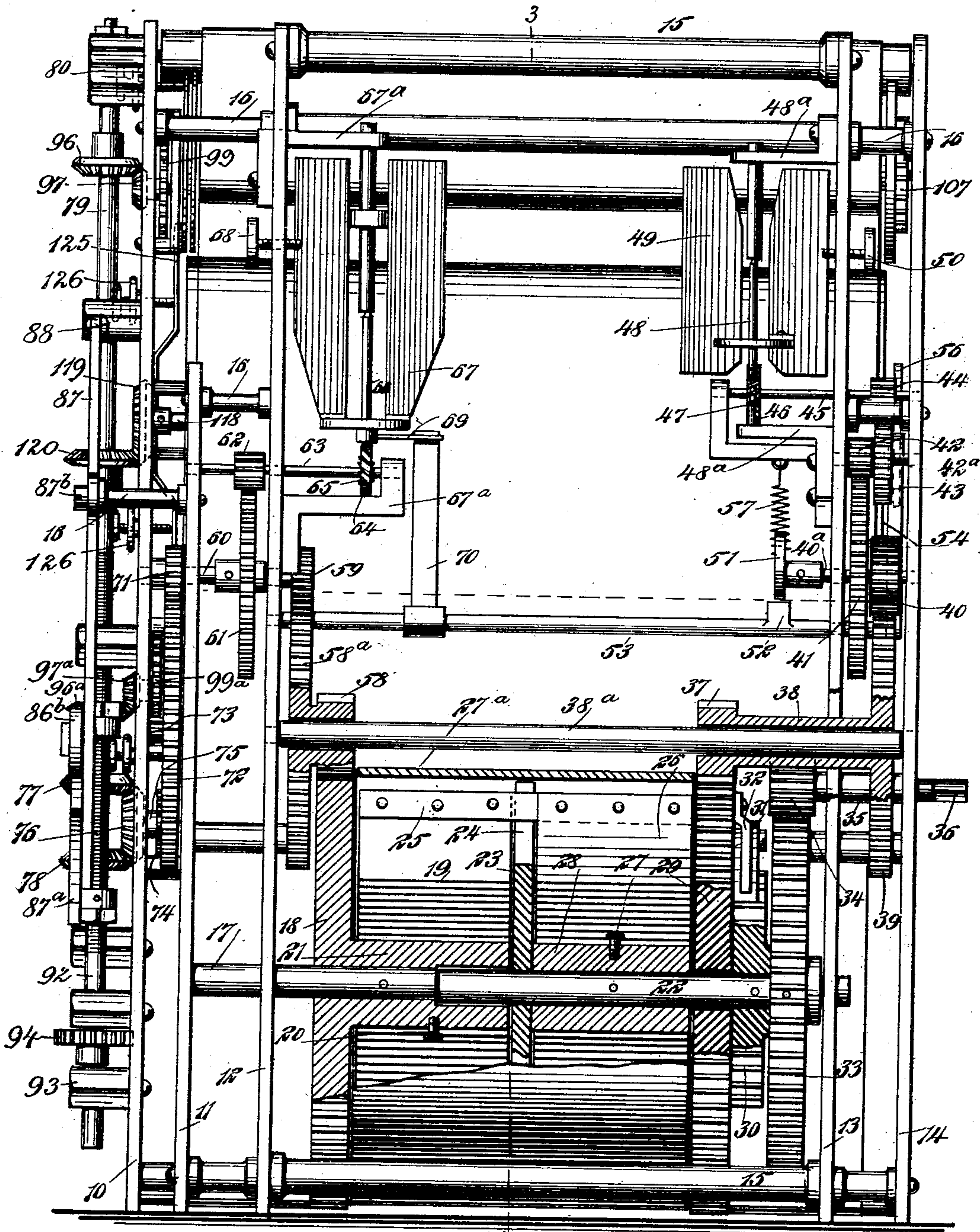
Patented Dec. 25, 1900.

B. TROPP.  
EXHIBITING DEVICE.

(Application filed June 15, 1900.)

(No Model.)

4 Sheets—Sheet 1.



WITNESSES:

*John A. Bingham*  
*John Lotka*

Fig. 1.

INVENTOR

*Bernhard Tropp.*

BY

*Wm. E. ...*

ATTORNEYS

**No. 664.692.**

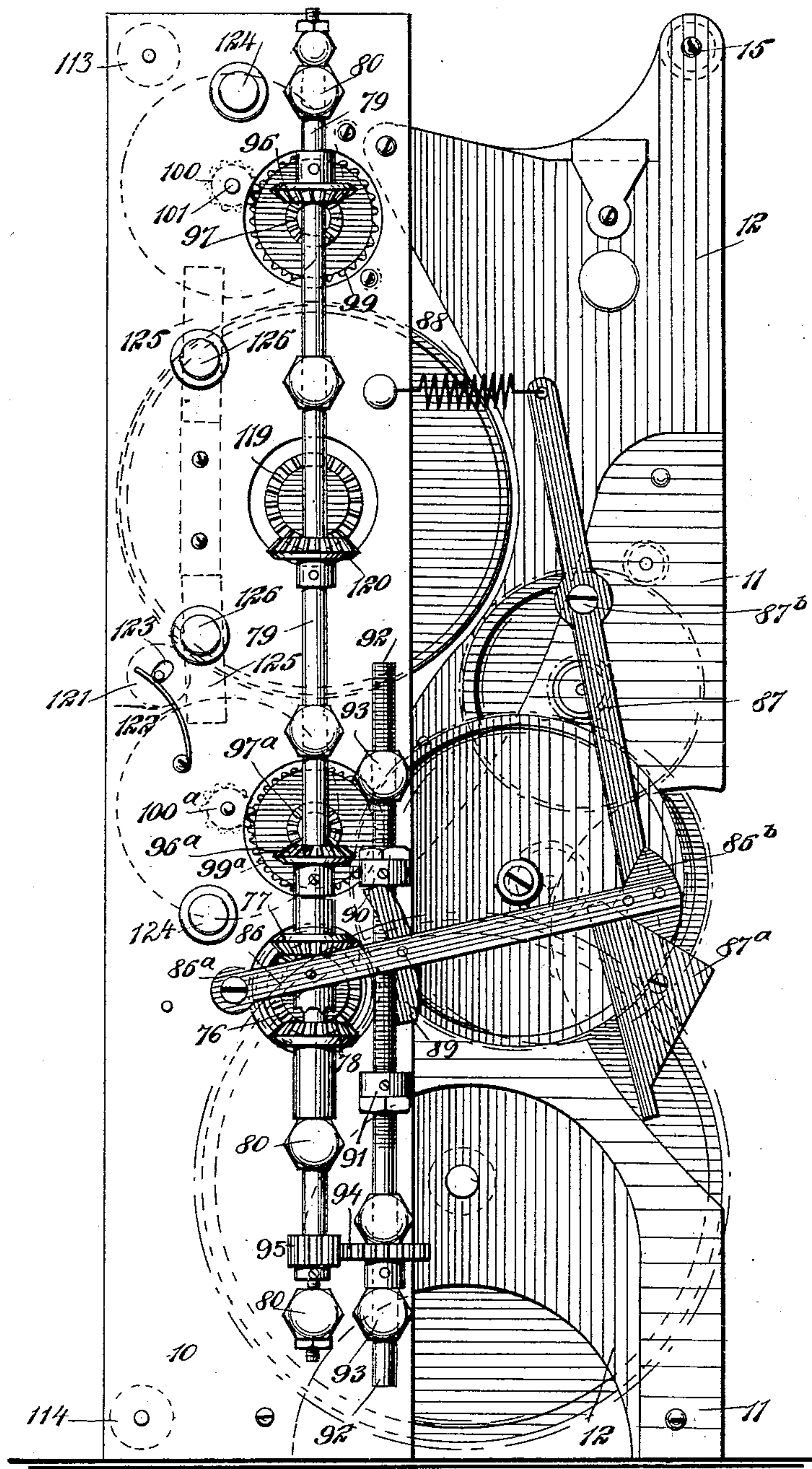
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(Application filed June 15, 1900.)

(No Model.)

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WITNESSES:

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*Fig. 2.*

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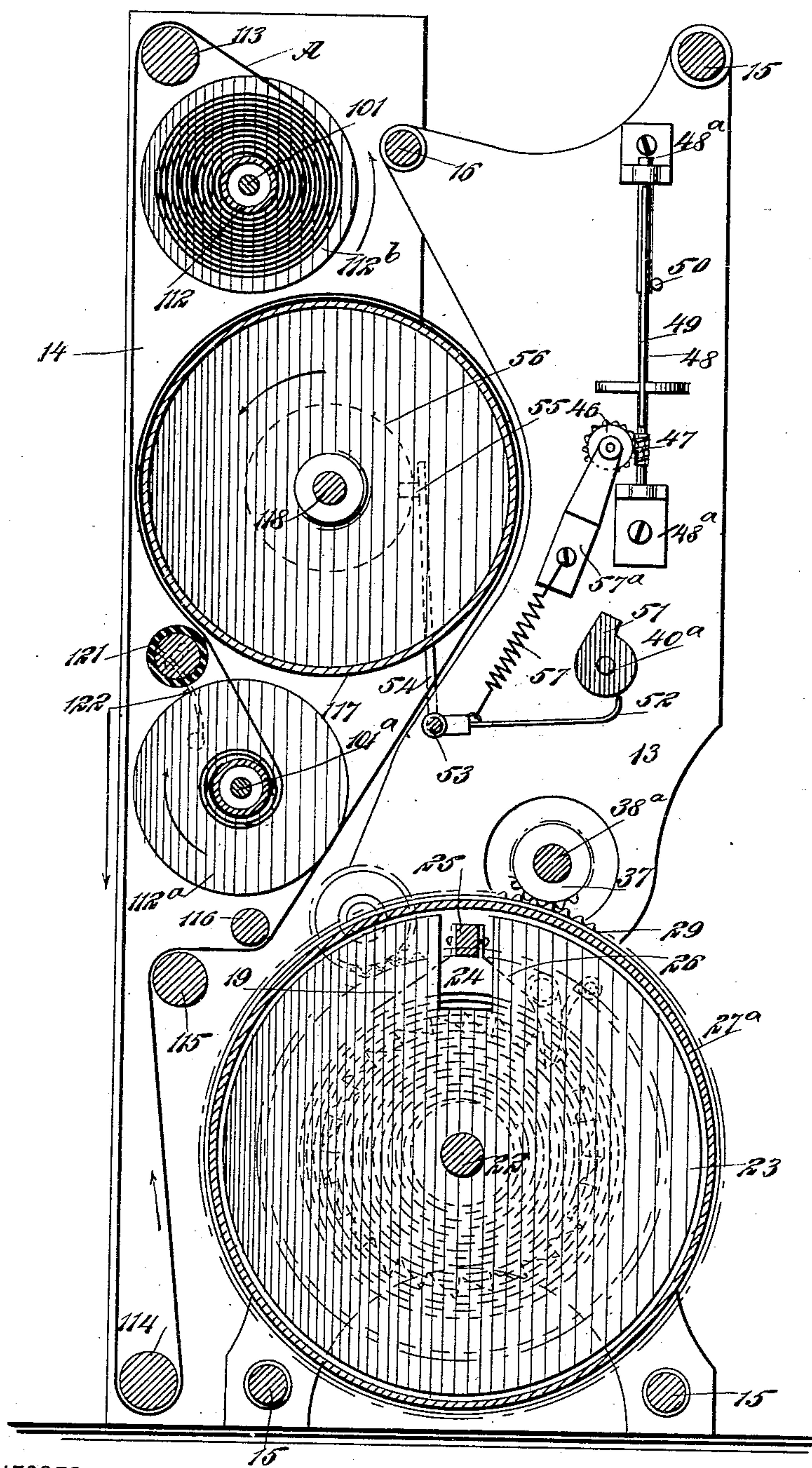
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(Application filed June 15, 1900.)

4 Sheets—Sheet 3.



WITNESSES:

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Fig. 3.

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No. 664,692.

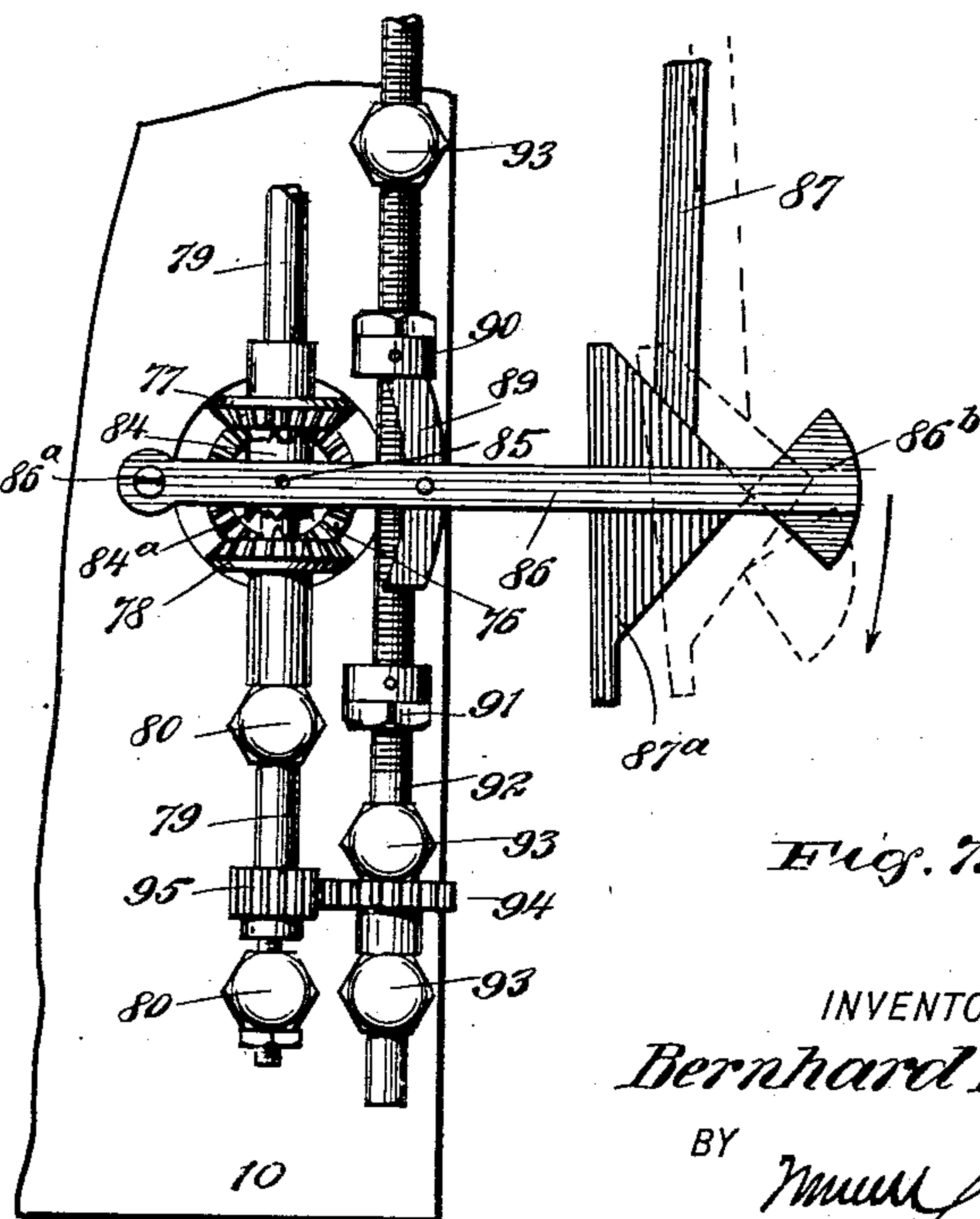
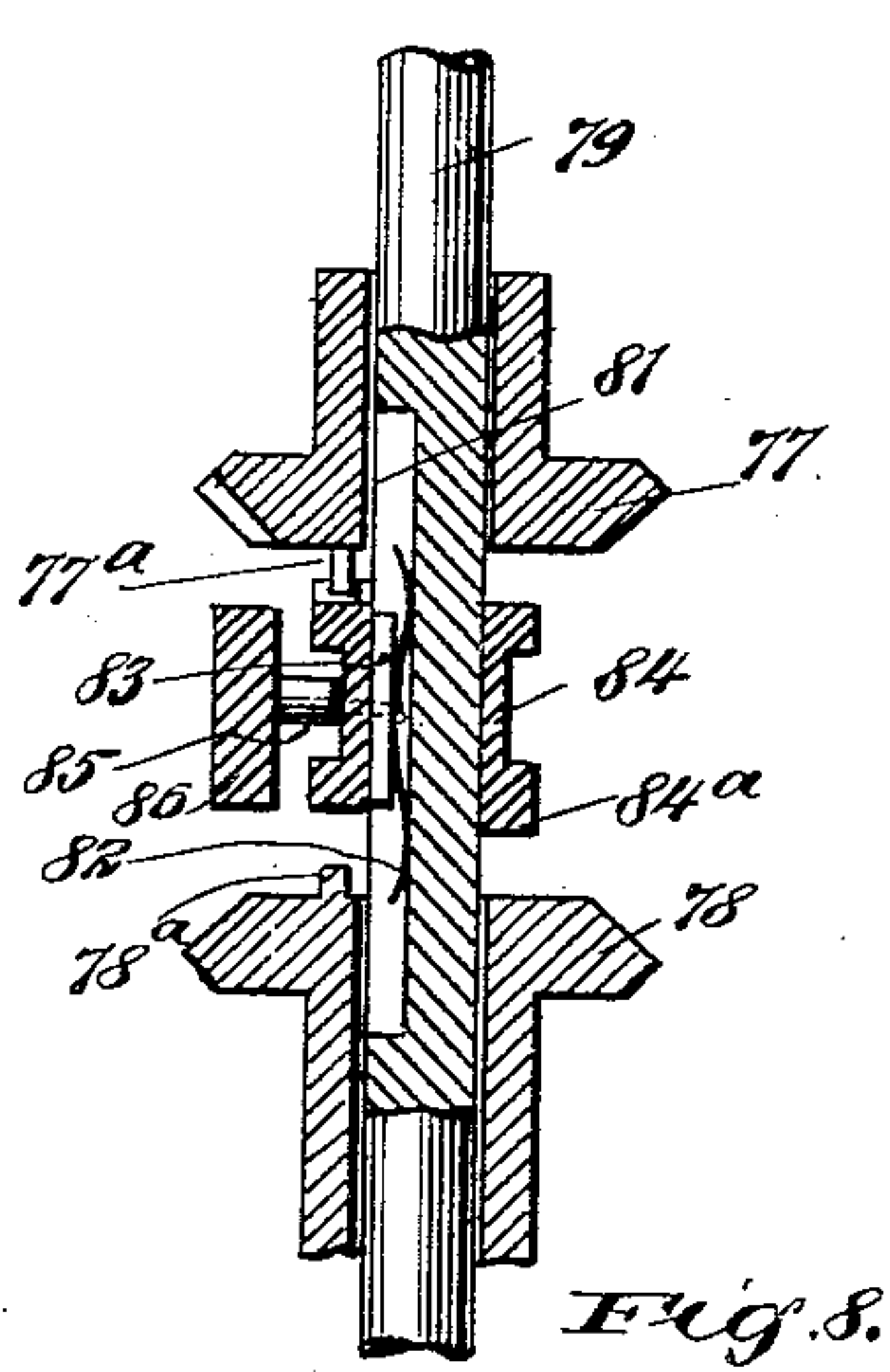
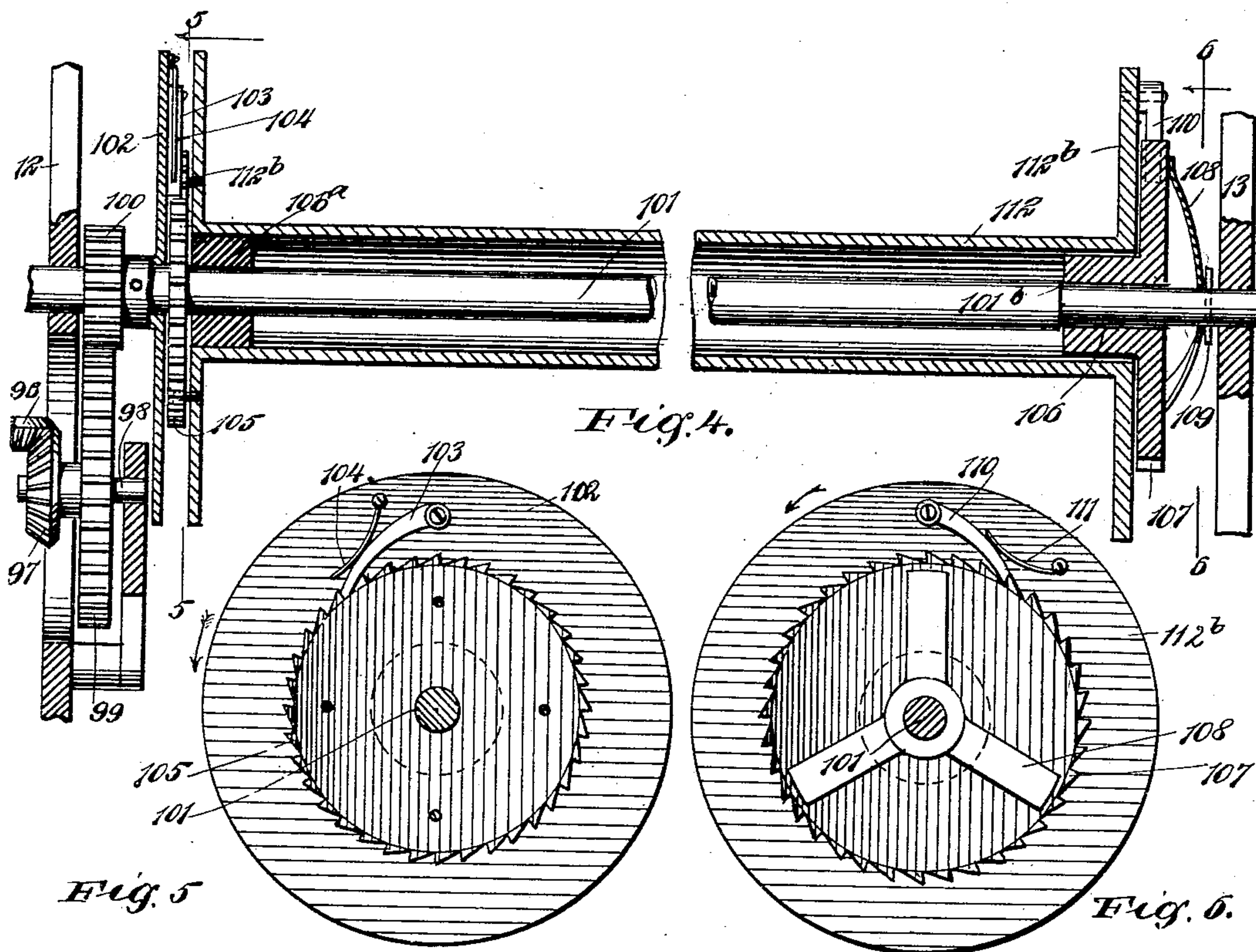
Patented Dec. 25, 1900.

B. TROPP.  
EXHIBITING DEVICE.

(Application filed June 15, 1900.)

(No Model.)

4 Sheets—Sheet 4.



WITNESSES.

*John A. Peterson*  
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INVENTOR

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BY

*Mum*  
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# UNITED STATES PATENT OFFICE.

BERNHARD TROPP, OF NEW YORK, N. Y., ASSIGNOR TO JULES GABRIEL VASSIAS, OF PARIS, FRANCE.

## EXHIBITING DEVICE.

SPECIFICATION forming part of Letters Patent No. 664,692, dated December 25, 1900.

Application filed June 15, 1900. Serial No. 20,436. (No model.)

*To all whom it may concern:*

Be it known that I, BERNHARD TROPP, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented new and useful Improvements in Exhibiting Devices, of which the following is a full, clear, and exact description.

My invention relates to exhibiting devices, such as are used for advertising and other purposes, and has for its object to provide an improved device of the above-indicated class in which a strip of material carrying a series of advertisements or of other matter to be exhibited successively is moved intermittently in one direction and then caused to travel intermittently in the opposite direction, the interruptions or stoppages of the movement being long enough to allow the advertisement to be perused by onlookers.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a rear view of my improved apparatus with parts in section. Fig. 2 is a side elevation thereof. Fig. 3 is a sectional elevation on line 3 3 of Fig. 1. Fig. 4 is a longitudinal section of one of the paper-rollers. Figs. 5 and 6 are cross-sections thereof on lines 5 5 and 6 6, respectively, of Fig. 4; and Figs. 7 and 8 are detail views of the reversing mechanism.

The apparatus comprises a frame consisting of parallel plates 10 11 12 on one side and 13 14 on the other side connected by braces 15 16. In the lower portions of the plates 11 12 is journaled a shaft 17, carrying rigidly a gear-wheel 18, one end of a coiled spring 19 being secured, as at 20, to a hub 21, formed integral with the gear-wheel 18. Said hub receives the end of a shaft 22, journaled in the plate 13 in axial alinement with the shaft 17 and carrying loosely a disk 23, provided with a radial slot 24. In this slot is adapted to move a cross-bar 25, to which is secured the outer end of the spring 19 and also the outer end of a similar spring 26, coiled in the op-

posite direction and having its inner end secured, as at 27, to a hub 28, fast upon the shaft 22. A gear-wheel 29 is loosely mounted on the shaft 22. Rigidly secured to the shaft 22 is a ratchet-wheel 30, engaged by a pawl 31, pivoted to the wheel 29 and pressed by a spring 32. Likewise rigid upon the shaft 22 is a gear-wheel 33, meshing with a pinion 34 on a winding-shaft 35, having a squared end 36 for the reception of a suitable key. It will be understood that by turning the shaft 35 in such direction that the pawl 31 will slip on the ratchet-wheel 30 the shaft 22 will be revolved, so as to wind both springs 19 and 26, the inner end of the spring 19 remaining stationary owing to the connection of the gear-wheel 18 with the mechanism to be described hereinafter. To protect the springs 19 26, I prefer to inclose them in a cylindrical casing 27<sup>a</sup>, which surrounds them loosely and rests on the disk 23.

The gear-wheel 29 meshes with a pinion 37 on a sleeve 38, which is shown as loosely mounted on a rod 38<sup>a</sup>. Said sleeve also carries a gear-wheel 39, meshing with a pinion 40 on a shaft 40<sup>a</sup>, which also carries a gear-wheel 41, rotating in unison with the pinion 40. This gear-wheel engages a pinion 42 on a shaft 42<sup>a</sup>, carrying another wheel 43, in engagement with a pinion 44 on a shaft 45. This shaft, by means of a worm-wheel 46 and a worm 47, drives the shaft 48 of a fan or regulator 49, said shaft being journaled in brackets 48<sup>a</sup>. A screw 50, projecting through the plate 13, may be projected into the path of the fan-blades 49, so as to arrest them and to provide the necessary resistance in winding the spring 26, as described.

On the shaft 40<sup>a</sup> is mounted a cam 51, adapted to engage an arm 52 upon a shaft 53, said shaft also carrying another arm 54, having at its end a pin 55, Fig. 3, adapted to lock a disk 56 upon the shaft 118 of a roller 117, to be described hereinafter. A spring 57, secured to a bracket 57<sup>a</sup>, keeps the arm 52 in contact with the cam 51. It will be understood that the pin 55 will alternately lock and release the disk 56 when the cam 51 is revolved by the spring 26 by means of the train of gearing hereinbefore described.

The gear-wheel 18, driven by the spring 19,



meshes with a pinion 58, loosely mounted on the rod 38<sup>a</sup> and rigidly connected with a gear-wheel 58<sup>a</sup>, engaging a pinion 59 on a shaft 60. I have shown both of the pinions 37 and 58 loose upon the rod 38<sup>a</sup>; but it will be obvious that one of them might be rigidly connected with the rod, which in that case would be a shaft. The only requirement is that the pinions 37 and 58 should be capable of independent rotation. On the shaft 60 is mounted a gear-wheel 61, meshing with a pinion 62 on a shaft 63, which also carries a worm-wheel 64, engaging a worm 65 on a shaft 66. This shaft carries fan-blades 67, constituting a governor, and is journaled in brackets 67<sup>a</sup>. A screw 68, passing through the plate 12, is adapted to be projected into the path of the blades 67 to stop the operation of the apparatus, as when it is desired to wind the springs, although I wish it to be understood that the springs 19 and 26 may be wound without using the stop-screw 68, since the shaft 22 will turn more rapidly than the wheel 18. The shaft 66 is also provided with an arm 69, adapted to be stopped and released by an arm 70 on the shaft 53 at the same time the disk 56 is stopped and released, respectively, by the pin 55.

On the shaft 60 is mounted a pinion 71, meshing with a gear-wheel 72 on a shaft 73. The gear-wheel 72 engages a pinion 74 on a shaft 75, which also carries a bevel-wheel 76. The latter engages permanently bevel-pinions 77 and 78, located above and below the center of the wheel 76, and therefore rotating continuously in opposite directions while the shaft 75 revolves. These pinions 77 and 78 are loosely mounted upon a shaft 79, journaled in bearing-brackets 80, projected from the side plate 10. This shaft (see Fig. 8) has a groove 81, into which fits a spring 82, and a tongue 83, secured to the clutch-collar 84, which has teeth 84<sup>a</sup> at both ends to engage corresponding teeth 77<sup>a</sup> 78<sup>a</sup> on the pinions 77 78, respectively. A pin 85 projects into an annular groove in the clutch-collar, said pin being secured to a rock-arm 86, fulcrumed at 86<sup>a</sup> and provided at its free end with a projection 86<sup>b</sup>, having inclined surfaces adapted to engage similar surfaces on a projection 87<sup>a</sup>, secured to the free end of a lever 87, fulcrumed at 87<sup>b</sup> and pressed outward (at its lower end) by a spring 88. This lever serves to accomplish a quick rocking of the arm 86 into an upper or a lower position when the projection 86<sup>b</sup> passes the point of the projection 87<sup>a</sup>. (See Fig. 7.)

The rock-arm 86, which is a shifting-arm for the clutch-collar 84, carries a cross-bar 89, adapted to engage one or the other of two stops 90 91, secured upon a screw-shaft 92, journaled in bearing-brackets 93 and rotated from the shaft 79 by means of pinions 94 95. It will be obvious that the stops may be readily adjusted by screwing them up or down on the shaft 92. At least one of the bearing-brackets 93, through which the shaft 92 passes, is screw-threaded, so that as the shaft re-

volves it will also work up or down. The pinion 94 has of course a sliding connection with the shaft 92, so that the pinions 94 95 may remain in mesh notwithstanding the longitudinal movement of the shaft.

The shaft 79 has rigidly secured to it adjacent to its upper end a bevel-wheel 96 and also immediately above the bevel-pinion 77 a similar bevel-wheel 96<sup>a</sup>. These bevel-wheels 96 and 96<sup>a</sup> actuate paper-rollers of identically the same construction, and it will therefore be sufficient to describe the parts connected with the upper bevel-wheel 96, those actuated by the lower wheel bearing the same reference-letters with the index "a." As the two paper-rollers driven by said wheels are to rotate in opposite directions the bevel-wheel 96 engages the upper portion of the bevel-wheel 97, while the bevel-wheel 96<sup>a</sup> engages the lower portion of the bevel-wheel 97<sup>a</sup>.

The wheel 97 (see Fig. 4) is secured upon a shaft 98, carrying a gear-wheel 99, meshing with a pinion 100, rigidly mounted upon a shaft 101. On the latter is loosely mounted a disk 102, carrying a pawl 103, pressed by a spring 104 and engaging a ratchet-wheel 105, loosely mounted on the shaft 101. A hub 106 is also loosely mounted on the said shaft and carries a ratchet-wheel 107, the teeth of which face in the opposite direction to those of the wheel 105, and a spring 108, bearing against a pin 109, presses the hub 106 inward into frictional engagement with a shoulder 101<sup>b</sup> on the shaft 101, so that the hub 106 will rotate with the shaft in either direction, but will be capable of slipping thereon. With the ratchet-wheel 107 is engaged a pawl 110, pressed by a spring 111 and carried by one of the heads or flanges 112<sup>b</sup> of the paper spool or roller 112. The latter has a hub 106<sup>a</sup> in loose engagement with the shaft 101, and the ratchet-wheel 105 is rigidly secured to the adjacent head or flange 112<sup>b</sup>.

When the shaft 101 rotates in the direction indicated by the arrow in Figs. 5 and 6, the ratchet-wheel 107 is driven, owing to the frictional contact of the hub 106 with the shoulder 101<sup>b</sup>, and by means of the pawl 110 causes the spool 112 to turn in the same direction, allowing, however, the spool to slip when required, so as to avoid putting an excessive strain on the paper or other material which, as will be described presently, winds on and off said spool. The spool 112 while rotating in this direction does not actually feed the paper, but merely keeps it taut by taking up any slack and winding the paper upon the spool. The ratchet-wheel 105 rotates with the spool, and the pawl 103, with the disk 102, remains stationary, the pawl slipping over the rotating ratchet-wheel, any accidental taking along of the pawl and disk being opposed by a friction-screw 124 and a friction-strip 125, to be referred to hereinafter.

When the shaft 101 rotates in the opposite direction, (the paper unwinding from the spool at that time,) the pawl 110 will slip over



the ratchet-wheel 107 as long as the angular velocity of the shaft is greater than that the spool receives through the medium of the paper exerting a pull thereon. When, owing to the reduction in the diameter of the paper, the angular velocity of the spool becomes greater than that of the shaft, the pawl 110 will turn the ratchet 107, the hub 106 slipping on the shoulder 101<sup>b</sup>. The ratchet-wheel 105 and disk 102 will rotate with the spool, and the brake-screw 124 and strip 125 will oppose the necessary resistance.

The course of the paper or other material carrying the matter to be exhibited is shown in Fig. 3. The strip A has one end secured to the upper roller 112 and the other to the lower roller 112<sup>a</sup> in such a manner that when the strip winds off one roller it is wound on the other, and vice versa. From the upper roller 112 the strip passes over the guide-rolls 113 114, between which is stretched the exposed portion of the strip exhibiting an advertisement or other matter. The strip A is then guided over guide-rolls 115 116 to the feed-drum 117, mounted on a shaft 118, which is driven from the shaft 79 by means of bevel-gearing 119 120. (See Figs. 1 and 2.) The strip is pressed against the drum 117 by a friction-roller 121, pressed by a spring 122 and having its trunnions movable in slots 123. The strip then passes to the lower roller 112<sup>a</sup>.

To give the strip A proper tension, friction-screws 124, Fig. 2, may be provided, as described, to engage the disks 102 of the rollers 112 112<sup>a</sup>. Similarly I may provide an elastic friction-strip 125, actuated by screws 126.

The springs 19 26 having been wound and the machine released, (by withdrawing the screws 50 68 from the path of the blades 49 67,) the spring 26 will rotate the shaft 40<sup>a</sup> continuously in one direction, and the spring 19 will rotate the shaft 75 intermittently, but always in the same direction—that is, as often as the cam 51 of the shaft 40<sup>a</sup> swings the arm 70 out of the path of the arm 69. When this occurs, the shaft 75 will rotate (until the arm 69 is stopped again) and will in the position shown in the drawings turn the shaft 79 in the same direction as the bevel-pinion 77. The rotation of the shaft 79 will turn the feed-drum 117, and as the period of rotation is of the same length at each repetition (being governed by the cam 51) the drum 117 will feed a definite length of the strip A, the spools or rollers 112 112<sup>a</sup> rotating meanwhile in the corresponding directions. The particular construction of the spools allows them to rotate slower or faster than their shafts, according to the increasing or decreasing diameter of the material on the spools. The rotation of the shaft 79 also turns the shaft 92 and with the parts as shown feeds said shaft 92 downward. This will cause the stop 90 to push the bar 89 and the rock-arm 86 downward until the points of the projections 86<sup>b</sup> and 87<sup>a</sup> register, as shown in Fig. 7. Up to that time the clutch-collar 84, although it has moved

downward, remains in engagement with the pinion 77. As soon, however, as the point of the projection 86<sup>b</sup> passes below the point of the projection 87<sup>a</sup> the latter, impelled by the spring 88, swings outward and, owing to the opposing inclined surfaces of the said projections, swings the arm 86 into the lower position, in which the bar 89 engages the lower stop 91 and in which the clutch 84 is engaged with the lower pinion 78. The shaft 79 and the parts connected therewith will therefore then rotate in the opposite direction. The visible operation will therefore be as follows: The strip of advertisements will be fed forward a distance corresponding to the length of an advertisement. Then the strip will stop. Then it will again move forward, as before, and stop again. When the last advertisement has been displayed, the strip will be fed intermittently in the opposite direction.

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

1. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, and means for rotating said feed-drum intermittently.

2. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum intermittently in one direction, and a reversing mechanism for thereupon rotating the feed-drum intermittently in the opposite direction.

3. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating the feed-drum intermittently in one direction, and a reversing mechanism, controlled by said means, for periodically changing the direction in which the drum rotates.

4. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum intermittently, and a separate driving device for each of the rollers, each driving device comprising a friction-clutch to allow the roller to yield or slip.

5. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum, a locking device for arresting the rotation of the feed-drum, mechanism for releasing said locking device periodically, and a continuously-rotating motor for operating the releasing mechanism.

6. The combination of the two driving-



springs coiled in opposite directions, independent gear-wheels with which the respective inner ends of the springs are connected, the radially-movable cross-bar to which the  
 5 outer ends of the springs are fastened, winding mechanism connected with the inner end of one of the springs, and rollers adapted for connection with a strip of material and having their motion controlled by the said gear-  
 10 wheels.

7. An exhibiting device comprising rollers adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely  
 15 mounted on said shaft, a motor permanently connected with both wheels to rotate them in opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, and a clutch-shifting mechanism  
 20 driven by said shaft.

8. An exhibiting device comprising rollers adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely  
 25 mounted on said shaft, a motor permanently connected with both wheels to rotate them in opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, a rocking arm connected with  
 30 the clutch, and a screw-shaft driven from said roller-operating shaft and carrying projections for shifting the rocking arm and the clutch.

9. An exhibiting device comprising rollers  
 35 adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely mounted on said shaft, a motor permanently connected with both wheels to rotate them in  
 40 opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, a rocking arm connected with the clutch and provided with a projection having conveying beveled surfaces, a spring-  
 45 pressed lever provided with a wedge-shaped projection the point of which faces and en-

gages the beveled surfaces of the projection on the rocking arm, and mechanism, driven by said shaft, for shifting the rocking arm and the clutch.

10. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its  
 55 passage from one roller to the other, means for rotating the feed-drum intermittently, and a spring-pressed friction-roller for pressing the strip against the feed-drum.

11. The combination of the two driving-springs coiled in opposite directions, independent gear-wheels with which the respective inner ends of the springs are connected, the radially-movable cross-bar to which the  
 60 outer ends of the springs are fastened, the disk having a guide for said cross-bar, winding mechanism connected with the inner end of one of the springs, rollers adapted for connection with the ends of a strip of material, a feed-drum arranged to engage the said strip  
 65 on its passage from one roller to the other, mechanism operatively connected with one of said gear-wheels, for driving the feed-drum, separate devices connected with the same gear-wheel for driving the rollers, each of said  
 70 driving devices comprising a friction-clutch to allow the roller to yield or slip, a reversing mechanism operatively connected with the driving devices of the rollers and of the feed-drum, to change the direction in which said  
 75 parts rotate, a locking device for arresting the rotation of said parts, mechanism for releasing said locking device periodically, and an operative connection from the releasing mechanism to the other gear-wheel.

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

BERNHARD TROPP.

Witnesses:

JOHN LOTKA,

EVERARD BOLTON MARSHALL.