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Patented Jan. 25, 1910.

4 SHEETS—SHEET 1.



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MAIL HANDLING APPARATUS.
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947,679.

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4 SHEETS—SHEET 2,

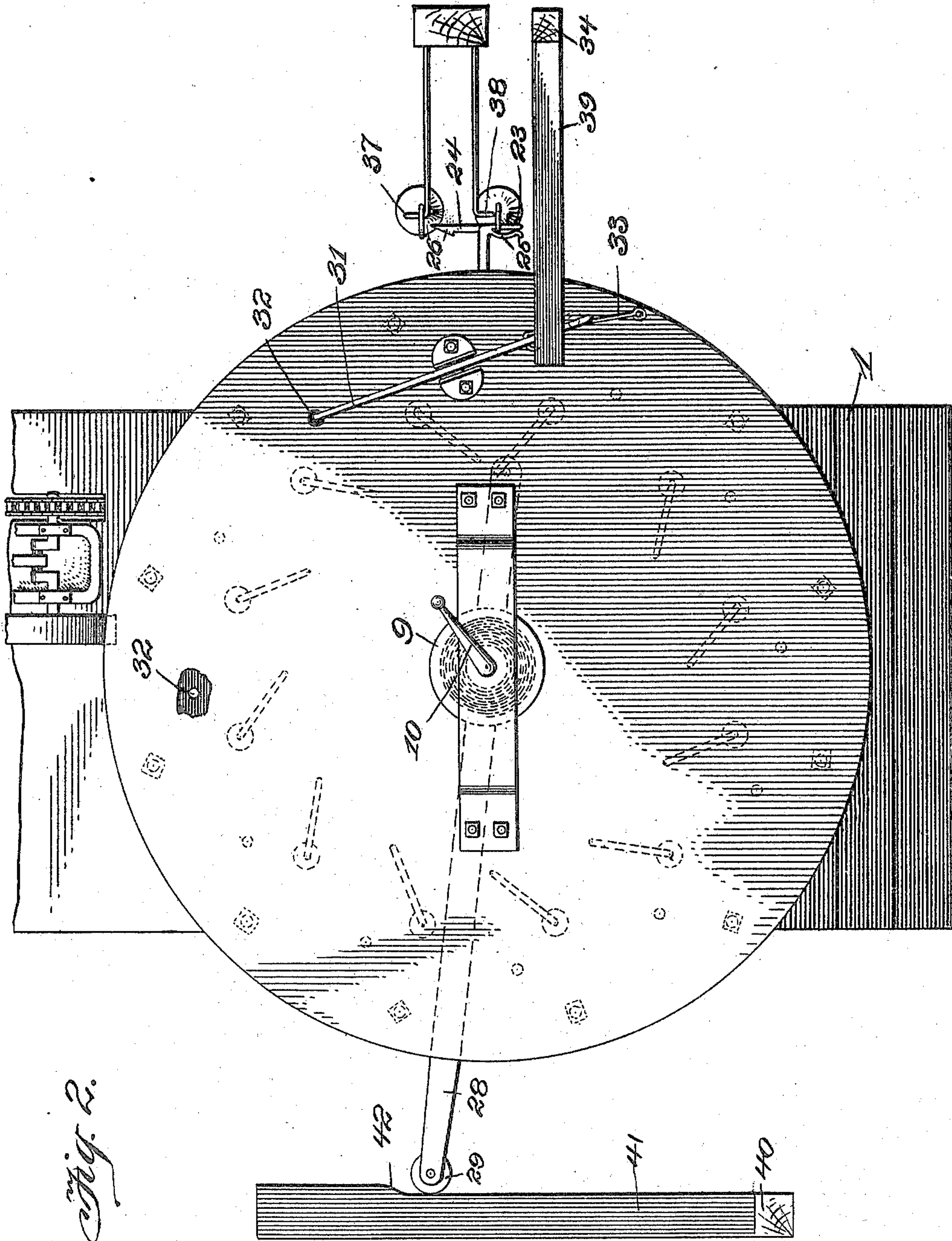


Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 3.

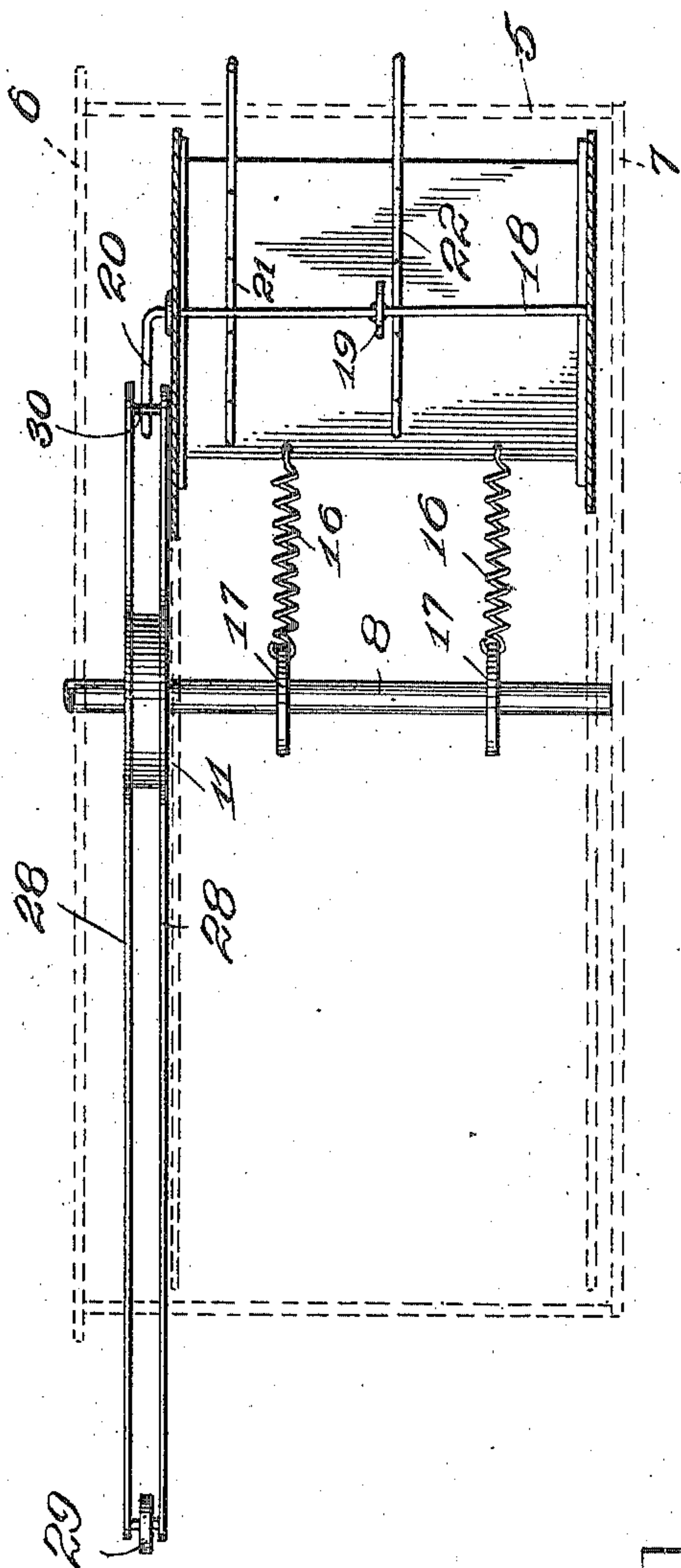
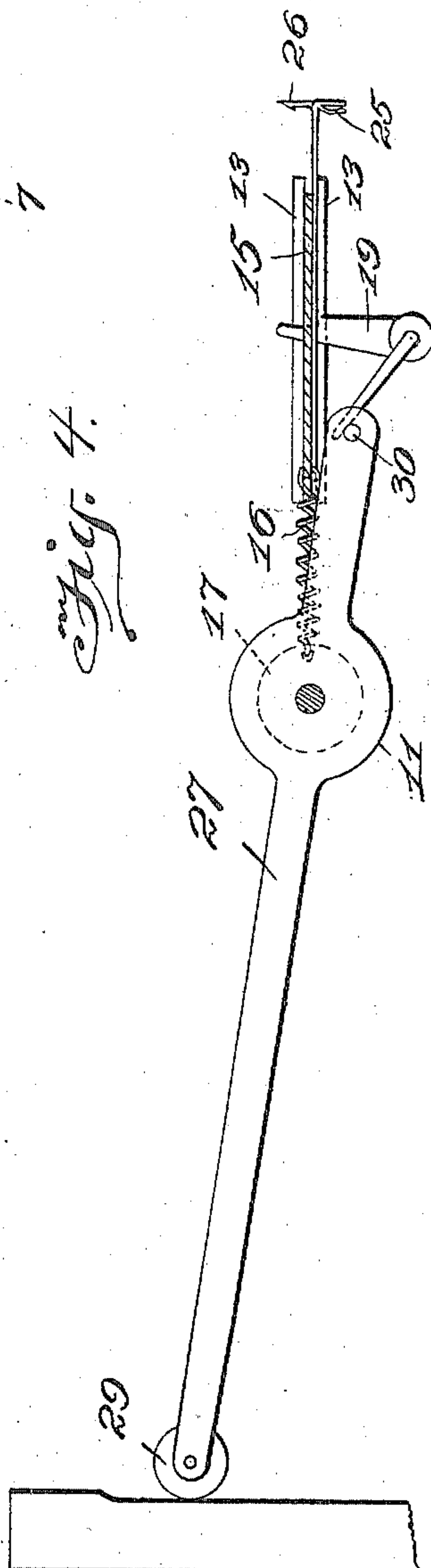


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 6.

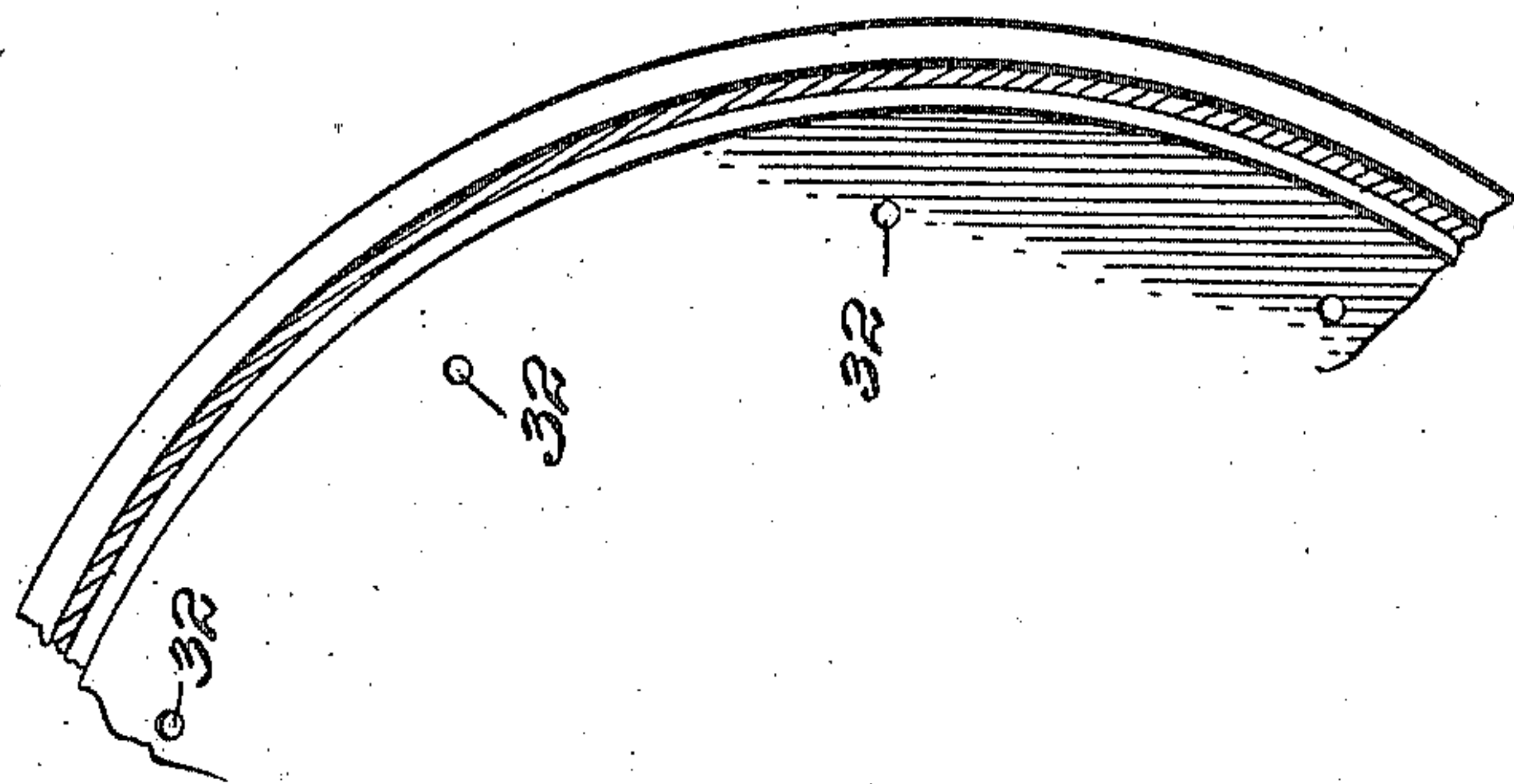
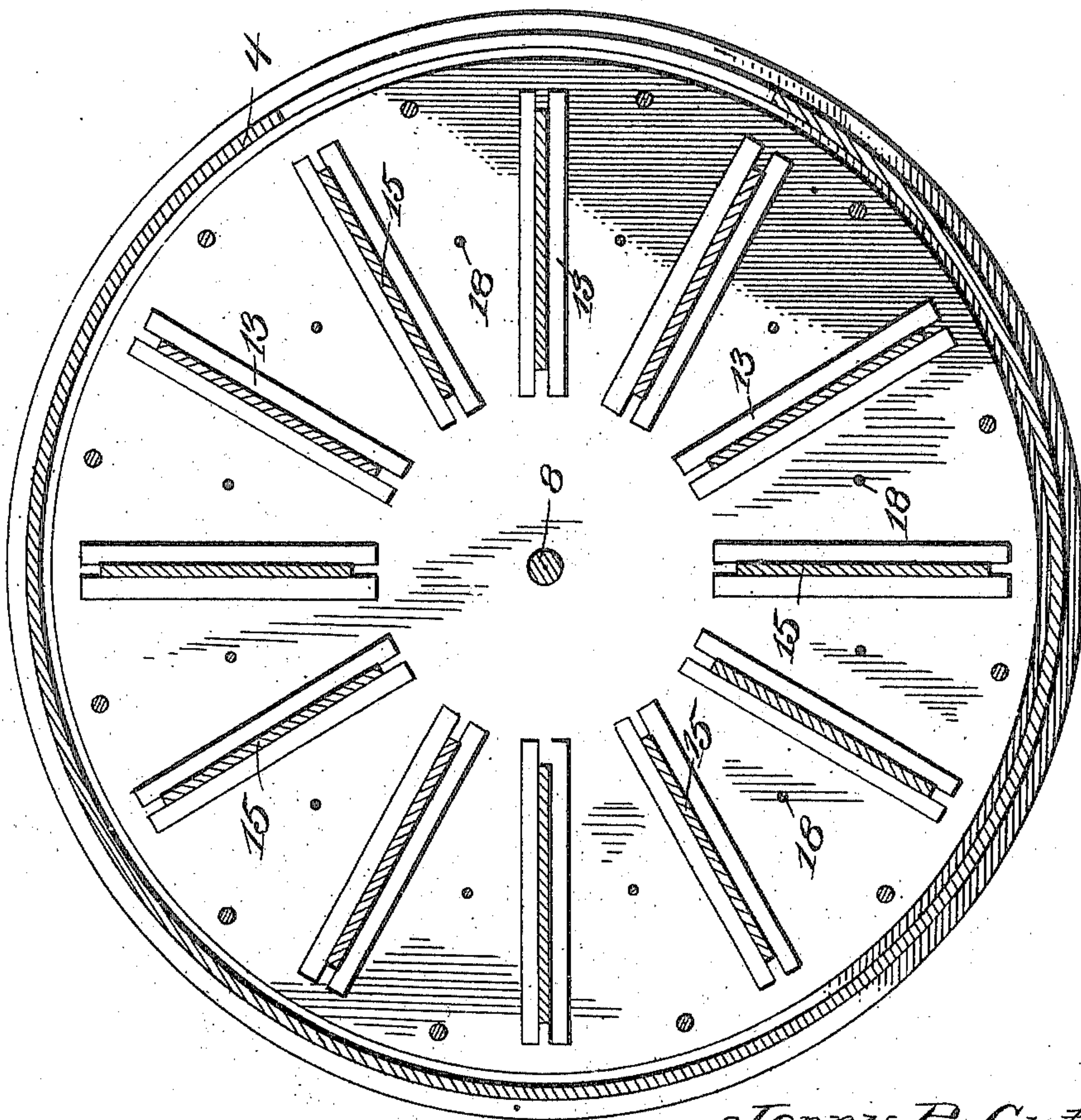


Fig. 5.



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UNITED STATES PATENT OFFICE.

JEREMIAH P. GUTHRIE AND CHARLEY E. GUTHRIE, OF OKEMAH, OKLAHOMA.

MAIL-HANDLING APPARATUS.

947,679.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed June 16, 1909. Serial No. 502,639.

To all whom it may concern:

Be it known that we, JEREMIAH P. GUTHRIE and CHARLEY E. GUTHRIE, citizens of the United States, both residing at Okemah, in the county of Okfuskee and State of Oklahoma, have invented new and useful Improvements in Mail-Handling Apparatus, of which the following is a specification.

The invention relates to a mail handling apparatus designed particularly for the collection of mail from and a delivery of mail to a series of designated points throughout a collection route.

The main object of the present invention is the provision of a mail handling apparatus designed for travel lengthwise of a track and adapted to automatically pick up and deliver mail matter at a series of successive points along the route, the apparatus being designed for automatic operation throughout to distribute the proper mail sack at the particular point and to receive and carry to a terminal point all of the sacks collected during the travel of the device over the route.

The invention in the preferred details of construction will be described in the following specification, reference being had to the accompanying drawings, in which:—

Figure 1 is a view in elevation of the improved apparatus, parts being shown in the position occupied in the act of delivering and receiving mail. Fig. 2 is a top plan of the same. Fig. 3 is a view in elevation illustrating particularly one of the carriers and the means for operating the same, the casing being shown in dotted outline. Fig. 4 is a plan of the same the casing being omitted and the carrier shown in section. Fig. 5 is a horizontal section through the apparatus. Fig. 6 is a broken sectional view taken just below the top plate to illustrate the openings in the upper disk to receive the locking lever.

Referring particularly to the accompanying drawings our improved mail handling apparatus comprises a car 1 or other suitable form of movable support designed for travel over a particular route on a track 2. The track may be supported upon the elevated structure, as 3, and the car may be electrically or otherwise driven so that it may be caused to travel throughout the length of the track at pleasure.

Secured upon the platform of the car or similar structure is a circular casing 4 in-

cluding a cylindrical wall 5 and top and bottom plates 6 and 7. Mounted centrally for independent rotation in a casing is a main shaft 8, which, beyond the top of the casing, is provided with a motor 9, such as a spring motor which through the medium of a handle 10 or the like may be initially wound to maintain the shaft on a tension during travel of an apparatus throughout the route. Arranged within the casing and secured on the shaft 8 are circular plates 11 and 12, the upper one 11 of which is spaced at a considerable distance from the top plate 6 of the casing. The diameter of the plates 11 and 12 is somewhat less than the interior diameter of the casing, it being understood that as the plates are secured to the shaft 8 they will revolve with the latter under the influence of the motor 9.

Secured upon the approximate surfaces of the plates 11 and 12 and extending radially of each plate are spaced parallel guides 13 forming a guideway or groove 14 between them. The grooves on the respective plates are arranged in coöperating pairs, that is the groove on the lower plate is in vertical alinement with the groove on the upper plate, and slide plates, hereinafter termed carriers, 15 are mounted for movement in each coöperating pair of grooves. The plates are of a length to extend from one plate 11 to the other as 12 and are of a width to slidably fit in the grooves, so that when the carriers are in position the plates 11 are connected by a series of radially arranged slides which are movably mounted with respect to the plates. The relatively inner edges of the carriers are connected by springs 16 to a disk 17 encircling and secured upon the shaft 8, the springs being tensioned to normally maintain the carriers at their inward limit of movement, that is the springs 16 tend to draw the carriers toward the shaft 8.

Mounted in the plates 11 and 12 adjacent each carrier is an operating rod 18 which at a point intermediate its ends is connected through the medium of an arm 19 with the carrier. The rod extends above the upper plate 11 and is bent laterally to provide a trip arm 20 for a purpose which will presently appear. Each carrier therefore has an operating rod with which it is connected so that in the movement of said rod in one direction the carrier may be operated against the tension springs 16.

Secured to the carrier and projecting beyond the relatively forward edge thereof are upper and lower hook bars 21 and 22 hereinafter termed the delivery hook bar and the receiving hook bar. At the outer or free end each bar is formed with a hook, the delivery hook extending rearward relative to the direction of the traveling car, as at 23, while the receiving hook extends forwardly, as at 24, and the delivery hook is provided with a spring catch 25 and the receiving hook with a shoulder projection 26, both operating to retain the bags in position on the hooks against accidental displacement.

Rotatably mounted upon the shaft 8 between the top plate of the casing and the upper plate 11 is an actuating lever 27 preferably made up of spaced plate sections 28, as shown in Fig. 3. The longer or operative end of the lever extends through an opening in the casing wall and is terminally provided with a roller 29, while the inner or shorter end is provided with a trip pin 30 extended between the plates 28 of the lever. The parts are so arranged that the trip arms 20 of the operating arms 18 are arranged in the path of the trip pin 30 so that as the lever is operated the trip arm of the particular carrier in proper position is actuated, as will presently appear.

Mounted upon the top plate of the casing is a locking lever 31, one end of which is extended downwardly through the top plate of the casing and is adapted to take into any one of a series of concentric holes arranged in the upper disk 11. The opposing end of the locking lever is supported by a spring 33 serving to normally hold said lever in position to lock the carrier frame including the plates 11 and 12 against rotation.

Mounted on one side of the track at the delivery and receiving points is an upright 34 which at a height corresponding in height to the respective receiving and delivery hooks is provided with crane arms 35 and 36. Each arm terminates in a hook end, as 37 and 38, and these hooks extend in opposite directions, the hook cooperating with the delivery hook 23 of the carrier projecting in the same direction as said delivery hook, while the hook 37 cooperating with the receiving hook 34 of the carrier projects in the same direction as said receiving hook. The upright also carries an arm 39 which is so arranged as to overlie and cooperate with the locking lever 31, the arm being positioned to engage and depress the spring actuated end of the locking lever to a degree sufficient to release the locking end of said lever from the openings 32 in the upper plate 11 of the carrier frame. On the side of the track opposite the upright 34 is arranged another upright 40, carrying a longitudinally extending arm 41 having its inner end arranged to engage a roller 29 at the outer

end of the actuating lever 27, the operative end of the arm 31 being formed with a trip offset 42 at an appropriate point in its length.

As previously described it will be understood that the various carriers of the apparatus, of which there may be any number, respectively correspond to stations along the route of travel, and that in arranging the apparatus for use the delivery hook 23 of each carrier is provided with a mail bag designed to be delivered at the station corresponding to the particular carrier. The bags may be of any form, though preferably collapsible receptacles having terminal rings to engage the hooks. At each station the mail to be taken up by the apparatus in its travel is hung upon the hook 37 of the crane arm 35.

Assuming the apparatus to be approaching its station and with the particular carrier therefor and also the crane at the station carrying mail sacks to be interchanged the operation is as follows. At a previous station the arm 39 of the upright 24 has tripped the locking and permitted the carrier frame, under the influence of the motor 9 to move so as to arrange a carrier corresponding to the next station in operative relation to an opening formed in the casing wall. As the apparatus approaches the particular station the operating lever 27 engages the arm 41 locking said lever and causing the pin 30 thereon to engage the trip arm 20 of the particular carrier with the effect to force the carrier outward. The carrier is held at its limit of outward movement owing to the formation of the edge of the arm 41, and in this position the receiving and delivering hooks of the carrier will cooperate with the crane hooks and deliver and pick up the mail sacks in an obvious manner. Immediately subsequent to this operation the offset 42 further trips the operating lever forcing the pin 30 by the free end of the arm 20, releasing the carrier and permitting the springs 16 to return the same to the normal condition within the casing. Immediately succeeding or simultaneously with this operation the locking lever is again tripped to permit the carrier frame to revolve a predetermined distance turning the carrier just operated out of operative position and arranging the next succeeding carrier in such position for actuation at the next station.

The parts are designed to be constructed in a substantial manner of such material and in such size as will be best adapted for the particular work to be performed, and in this connection it is to be understood that while preferring the details of construction herein described and shown, we do not limit ourselves thereto but contemplate as within the spirit of the present invention all such

changes and variations as may fall within the scope of the appended claims.

Having thus described the invention what is claimed as new, is:—

- 5 1. A mail handling apparatus comprising a carriage, and carriers mounted for radial movement in the carriage, said carriers being adapted to support mail to be delivered and received.
- 10 2. A mail handling apparatus including a carriage, spaced plates mounted for rotation within the carriage, vertically disposed carriers mounted for radial movement in and between the plates, and mail supporting
- 15 hooks secured to the carriers.
3. A mail handling apparatus including a carriage, spaced plates mounted for rotation within the carriage, a mail carrier radially movable between the plates and carried
- 20 thereby, an operating rod mounted adjacent the carrier, a lever for engaging and operating said rod, and connections between the rod and carrier, whereby in the movement of the rod the carrier is moved radially.
- 25 4. A mail handling apparatus including a casing formed with an opening, spaced plates mounted for rotation within the casing, a series of carriers supported by the plates and movable radially therebetween, and means
- 30 for operating the plates to successively dispose the carriers for coöperation with the opening in the casing.
5. A mail handling apparatus including a casing formed with an opening, spaced
- 35 plates mounted for rotation within the casing, a series of carriers supported by the plates and movable radially therebetween, means for operating the plates to successively dispose the carriers for coöperation
- 40 with the opening in the casing, and means carried by the casing for inducing radial movement of the particularly arranged carrier.
6. A mail handling apparatus including

a casing formed with an opening, spaced 45 plates mounted for rotation within the casing, a series of carriers supported by the plates and movable radially therebetween, means for operating the plates to successively dispose the carriers for coöperation 50 with the opening in the casing, means carried by the casing for inducing radial movement of the particularly arranged carrier, and means for returning said carrier to normal position when released from said oper- 55 ating means.

7. A mail handling apparatus including a casing formed with an opening, spaced plates mounted for rotation within the casing, a series of carriers supported by the 60 plates and movable radially therebetween, means for operating the plates to successively dispose the carriers for coöperation with the opening in the casing, and a lever carried on the casing to induce radial move- 65 ment of the particularly arranged carrier.

8. A mail handling apparatus including a casing formed with an opening, spaced plates mounted for rotation within the casing, a series of carriers supported by the 70 plates and movable radially therebetween, means for operating the plates to successively dispose the carriers for coöperation with the opening in the casing, an operating rod mounted in the plates and connected to 75 each carrier, and a lever carried by the casing to engage and operate the rod of the particularly arranged carrier.

In testimony whereof we affix our signatures in presence of two witnesses.

JERRY P. GUTHRIE.

CHARLEY E. GUTHRIE.

Witnesses to Jerry P. Guthrie's signature:

A. C. TITUS,

A. A. LEER.

Witnesses as to C. E. Guthrie:

GUS G. LE COMPTE,

M. C. JONES.