

N. W. CHAMBERLIN & L. V. MOULTON.

TROLLEY RETRIEVER.

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908,547.

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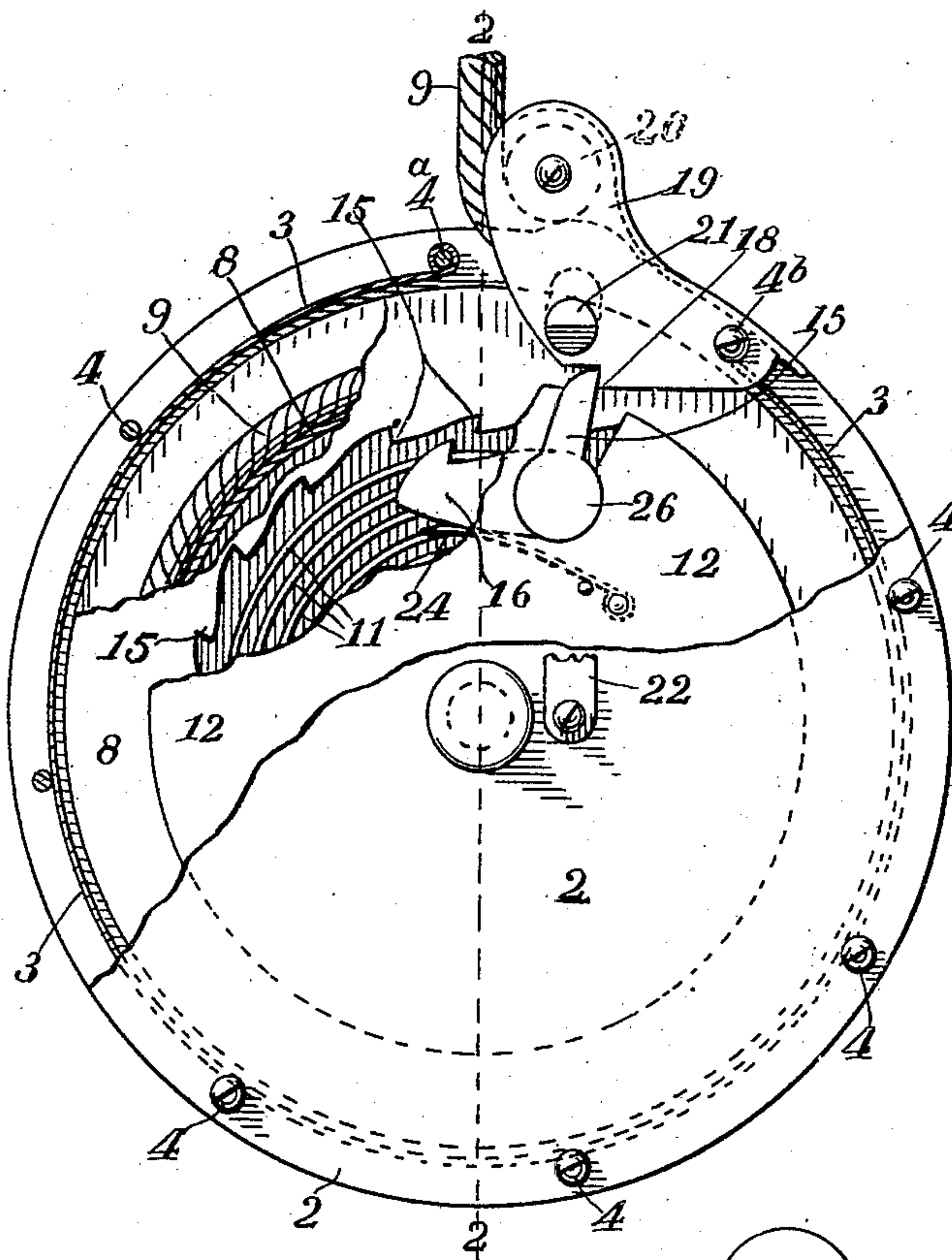


Fig. 1.

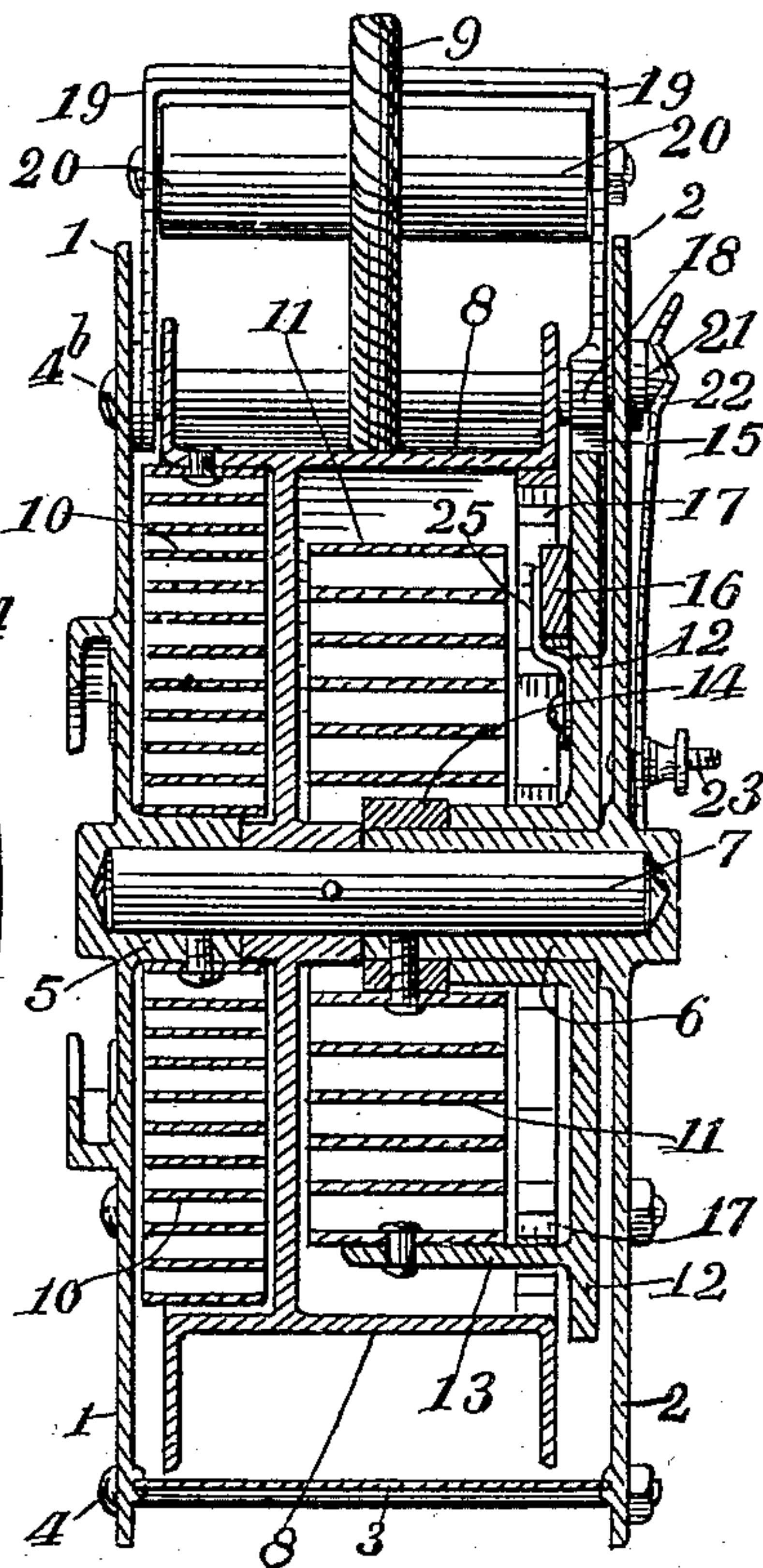


Fig. 2.

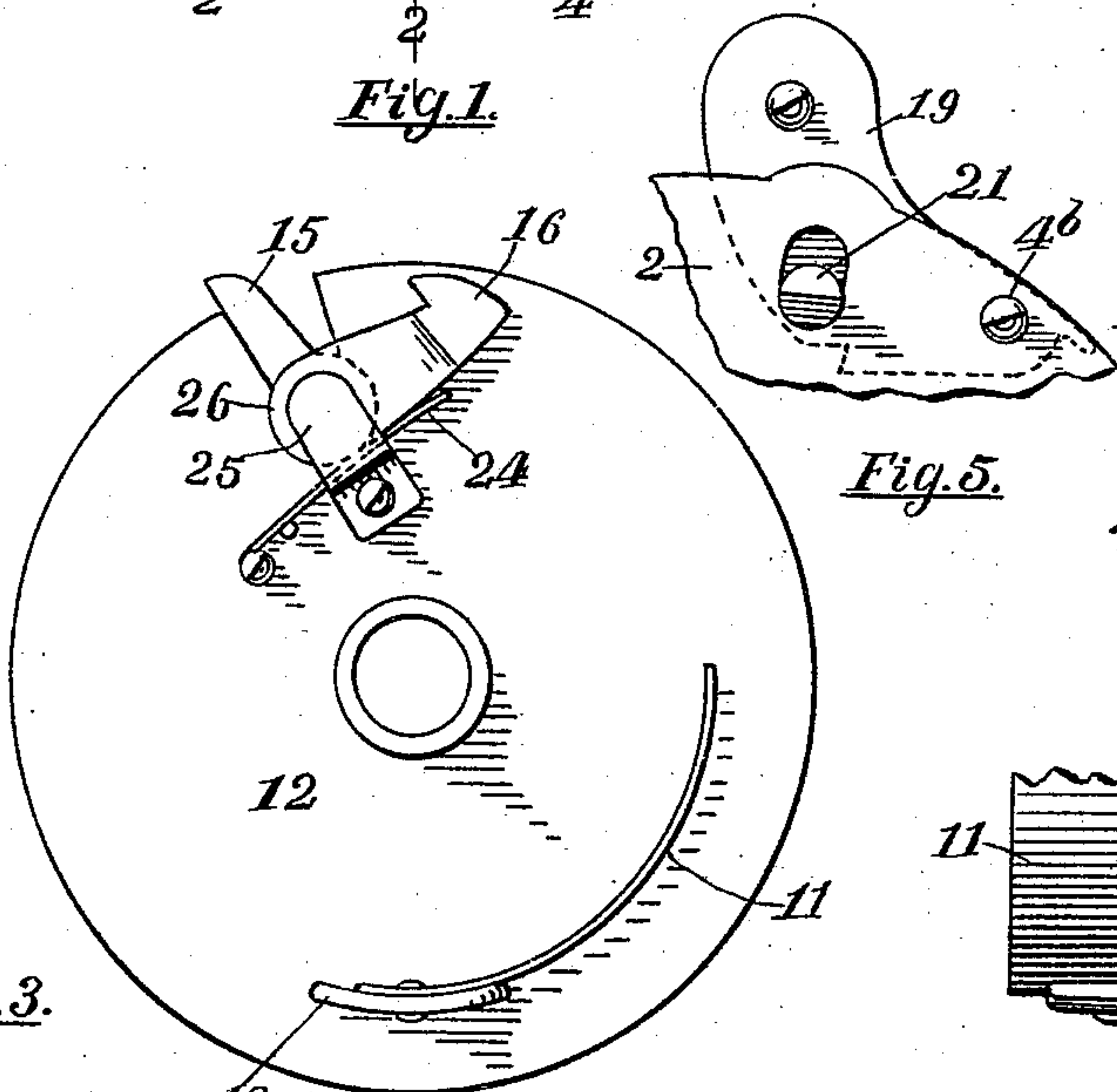


Fig. 3.

Fig. 5.

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

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TROLLEY-RETRIEVER.

No. 908,547.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, NORMAN W. CHAMBERLIN and LUTHER V. MOULTON, citizens of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Trolley-Retrievers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which at appertains to make and use the same.

Our invention relates to trolley pole retrievers, and its object is to provide an improved device for automatically taking up the slack of the cord controlling a trolley pole, and also for promptly drawing the pole down whenever the trolley wheel leaves the line, whereby accidental contact of the pole with the stay wires or other obstructions will be effectually prevented.

Our invention consists essentially of the combination and arrangement of a winding drum, a spring permanently attached to the drum to take up the slack of the cord, a retrieving spring normally held under tension, and means for automatically releasing the retrieving spring and connecting it to the drum to rotate the same, and in various features of combination and arrangement hereinafter more fully described, reference being had to the accompanying drawings, in which:

Figure 1. is an elevation of a device embodying our invention with parts broken away to show the construction; Fig. 2. a vertical section of the same on the line 2—2 of Fig. 1.; Fig. 3. a detail of the rotative member to which the retrieving spring is attached, together with parts attached thereto; Fig. 4. a view of the same at right-angles to Fig. 3.; and, Fig. 5. a detail of the hood and a portion of the case.

Like numbers refer to like parts in all of the figures.

1 and 2 are discous heads to the case, spaced apart by a cylindrical shell 3, the heads being preferably cast metal and the shell 3 of sheet metal. These heads are connected and secured to each other by a series of bolts 4 in their periphery, between which heads, the shell 3 is securely clamped by the bolts.

At the top of the case is an opening between the bolts 4^a and 4^b around which bolts the shell is turned and terminates. This

opening is covered by a hood 19 pivoted on the bolt 4^b and extending above the opening and thence upward, within the upper and movable part of which hood is journaled a roller 20 to engage the cord 9. This cord extends from the roller upward and is attached to the trolley pole. Passing beneath the roller and hood and within the case, the cord is wound upon the drum 8 on a shaft 7, which shaft rotates therewith in journals formed by inwardly projecting bosses 5 and 6 on the respective heads of the case.

Attached to the boss 5 is an involute spring 10, the outer end of which spring is attached to the drum 8 and rotates the drum with sufficient force to properly take up the slack of the cord 9 and pay out the same, as the trolley pole rises and falls in traversing the trolley wheel on the line wire. A retrieving spring 11 of considerably greater power is also provided having its inner end secured to the inner end of the boss 6 and its outer end secured to a lug 13 on a disk 12 journaled on the boss 6 between the head 2 and a collar 14 on the end of the said boss, the function of the collar being to space outward the inner end of the spring 11 and prevent it from binding on the hub of the disk. This disk is freely rotative on the boss and is turned with considerable force in the same direction that the spring 10 turns the winding drum by means of the spring 11.

To hold the spring 11 under tension and to connect the disk with the winding drum as hereafter described, a radially projecting dog 15 has a cylindrical head 26 journaled in an opening in the disk, and has a limited movement in a radial opening in the edge of the disk. This dog is engaged by a shoulder 18 in the lower side of the flange of the hood 19 and the disk thus held from rotating with the spring under tension. This hood is limited in movement about the axis of the bolt 4^b by means of a lug 21 extending through a slot in the head 2 of the case. When the lug is in the lower end of the slot, the shoulder will engage the dog 15. The outer end of this lug 21 is oppositely inclined and engaged by a spring 22 having corresponding oppositely inclined surfaces provided with a tensioning screw to adjust the tension of the spring against the lug. The hood is thus held with the shoulder 18 in engagement with the dog 15 until a sudden upward pull on the cord 9 overcomes the

spring and raises the hood with the lug in the upper end of the slot, where it is stopped and held by the spring until manually depressed. Fixed on the head 26 of the dog 5 15 is a hook 16 so positioned as to engage and disengage a series of ratchet teeth 15 inwardly projecting from the winding drum 8, as the dog 15 oscillates in the radial opening. When the latter is engaged by the 10 shoulder 18, the hook 16 will be disengaged from the ratchet teeth and a spring 24 is provided which engages the hook 16 and throws the same outward into engagement with the ratchet when the dog is released. 15 This spring may be omitted and the hook thrown out by centrifugal force, if preferred. The device is first assembled with the cord 9 wound upon the drum, the hood being raised and the hook 16 engaged with the 20 ratchet teeth 15. By pulling out and unwinding the cord, the springs will both be wound up and put under tension. By moving the hood 19 downward to the position shown in the drawings, the shoulder 18 will 25 engage the dog 15, releasing the hook 16 from the ratchet teeth and holding the spring 11 under tension. The drum will now run freely in either direction except as yieldingly turned by the spring 10 and thus automatically take up the slack of the cord 9 when the 30 trolley is running on the line. If the trolley runs off the line, the sudden upward movement of the pole will immediately raise the hood 19, release the dog 15 and engage the 35 hook 16 with the ratchet 15, thus applying the power of both springs to wind the cord on the drum, which combined power is sufficient to overcome the upward tension of the pole and draw the same down below the 40 line wire and any other overhead obstruction.

What we claim is:

1. A trolley retriever comprising a rotative drum having a ratchet, a cord wound on the drum, a rotative disk, a take-up spring at- 45 tached to the drum, a retrieving spring attached to the disk, a dog having a limited movement on the disk, means for holding and releasing the dog operated by the cord, and a movable member on the disk to en- 50 gage the ratchet when the dog is released and controlled by the dog.

2. A trolley retriever comprising a rotative drum having a ratchet, a cord wound on the drum, a rotative disk, a take-up spring at- 55 tached to the drum, a retrieving spring attached to the disk, a pivoted dog on the disk, means for holding the dog operated by the cord to release the same, a hook rigidly at- 60 tached to the dog to engage the ratchet when the dog is released, and a spring to move the hook.

3. In a trolley retriever, a winding drum, a cord wound on the drum, a take-up spring in the drum and attached thereto to take up 65 the slack of the cord, a retrieving spring

within the drum, a rotative member to which the retrieving spring is attached, a dog projecting from the rotative member, a pivoted hood engaging and holding the dog and moved by the cord to release the dog, a 70 ratchet on the drum and a pivoted hook on the rotative member to engage the ratchet when the dog is released.

4. In a trolley retriever, the combination of a case having heads each provided with an 75 inwardly projecting boss, a shaft journaled in the bosses, a winding drum mounted on the shaft, a take-up spring attached to one of the bosses at one end and to the drum at the other end, a retrieving spring attached to the 80 other boss at one end, a disk journaled on the last named boss and having a lug to which the other end of the retrieving spring is attached, an inwardly projecting ratchet on the drum, a pivoted hook on the disk adapt- 85 ed to engage the ratchet, a dog projecting from the disk, a cord wound on the drum, and a hood engaged and moved by the cord and having a shoulder engaging the dog.

5. In a trolley retriever, the combination 90 of a cord, a drum on which the cord is wound, a take-up spring attached to the drum, a rotative disk, a retrieving spring attached to the disk to rotate the same, a dog having a head pivoted in an opening in the disk and 95 having a limited movement in a radial slot in the disk, a pivoted hood having a shoulder to engage the dog and provided with a roller engaged by the cord to release the dog, an inwardly projecting ratchet on the drum and 100 a hook rigidly attached to the dog and adapted to engage the ratchet when the dog is released.

6. In a trolley retriever, a winding drum, a take-up spring attached to the drum, a rota- 105 tive member near the drum, a pivoted hood engaging and holding a dog on the rotative member, a lug on the hood and a spring having an oppositely inclined portion engaging the lug to hold the hood in two alternative 110 positions, and a cord wound on the drum and engaging the hood to shift the hood from one position to the other position.

7. In a trolley retriever, the combination of cast heads connected with bolts near the 115 periphery, a sheet metal shell between said heads and turned about two adjacent bolts leaving an opening therebetween, a hood pivoted on one of said bolts and extending above said opening, a roller in the upper part 120 of the hood, a winding drum in the case and having a take-up spring attached thereto, a rotative member in the case held by said hood and having a retrieving spring attached thereto, a lug on the hood and extending 125 through a slotted opening in the case to limit the movement of the hood, and a spring having opposed inclined surfaces engaging the lug.

8. In a trolley retriever, the combination 130

of a case, having cast heads with inwardly projecting bosses, a sheet metal shell between the heads, bolts connecting the heads, a hood pivoted in the upper part of the case and having a lug projecting through a slotted opening in the case, a roller in the upper part of the hood, a winding drum in the case and mounted on a shaft journaled in the bosses, a take-up spring attached to one boss and to the drum, a disk rotative on the other boss and having a lug, a retrieving spring attached to the second named boss and to the lug, a dog having a limited pivoted movement in the disk and projecting therefrom and also engaged by a shoulder on the hood, a hook fixed on the dog and adjusted thereby, a spring engaging the hook to move the same outward, and a ratchet on the drum engaged by the hook when the dog is released.

9. A trolley retriever comprising a drum 20 having a ratchet, a rotative disk, a dog having a limited pivotal movement in the disk, a hood having a shoulder to engage the dog, a hook pivoted on the disk and adapted to engage the ratchet, and also held out of engagement therewith by the dog, a spring to move 25 the hook into engagement with the ratchet, and a cord wound on the drum and engaging the hood to move the same and release the dog. 30

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

NORMAN W. CHAMBERLIN.
LUTHER V. MOULTON.

Witnesses:

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EMILY M. CHAMBERLIN.