

No. 798,439.

PATENTED AUG. 29, 1905.

P. McDONALD.
TROLLEY WIRE FINDER.
APPLICATION FILED OCT. 8, 1903.

2 SHEETS—SHEET 1.

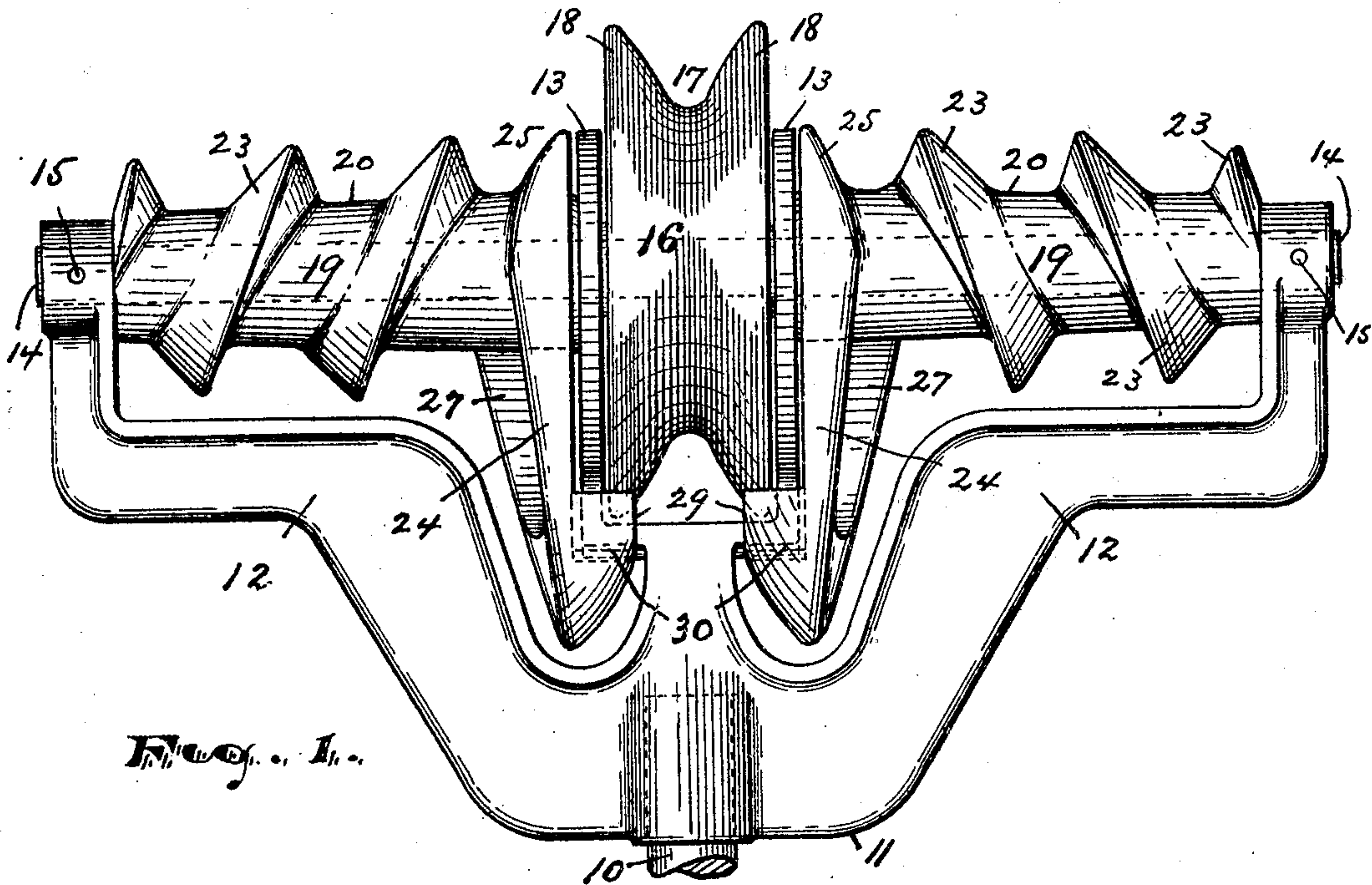


Fig. 1.

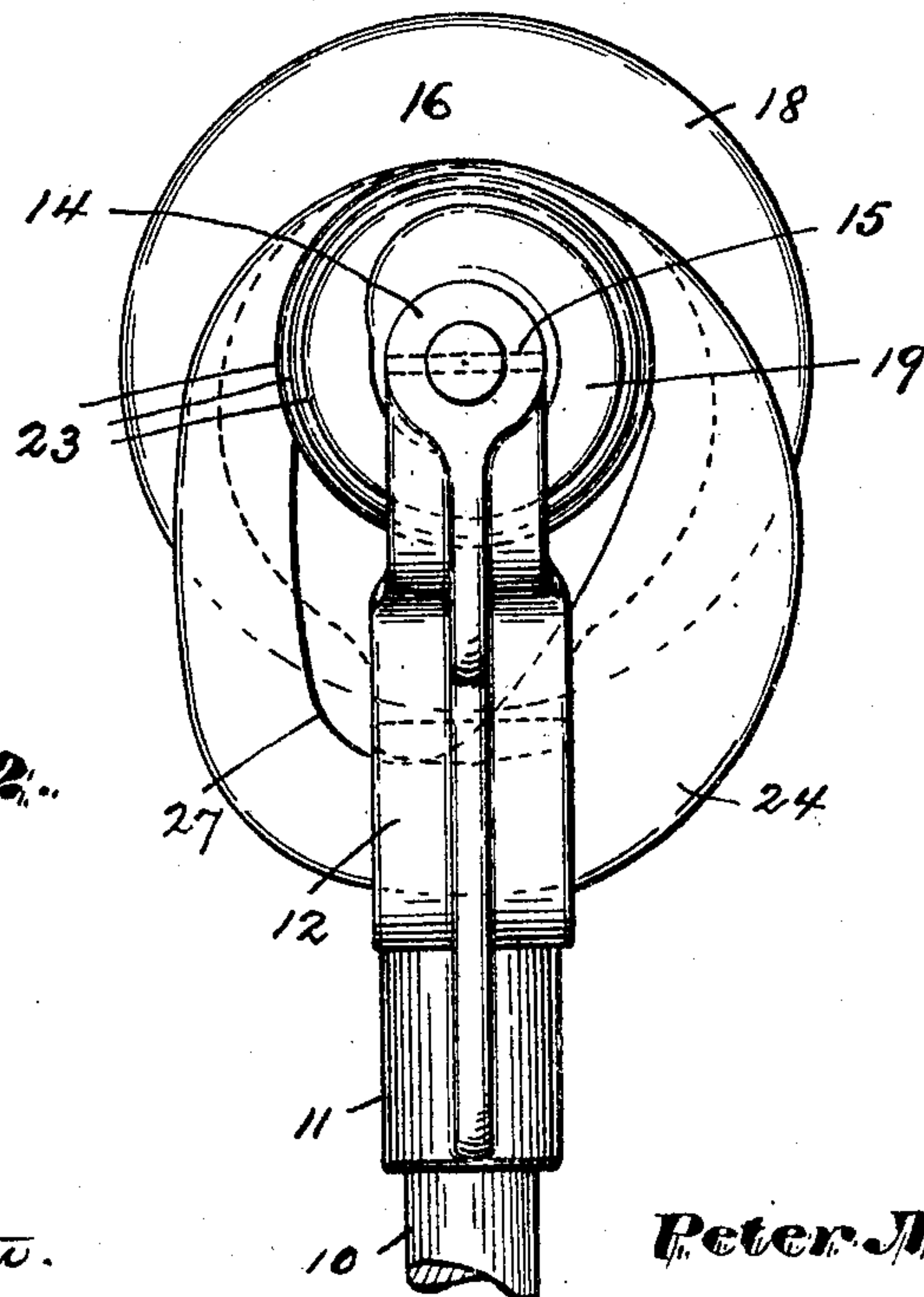


Fig. 2.

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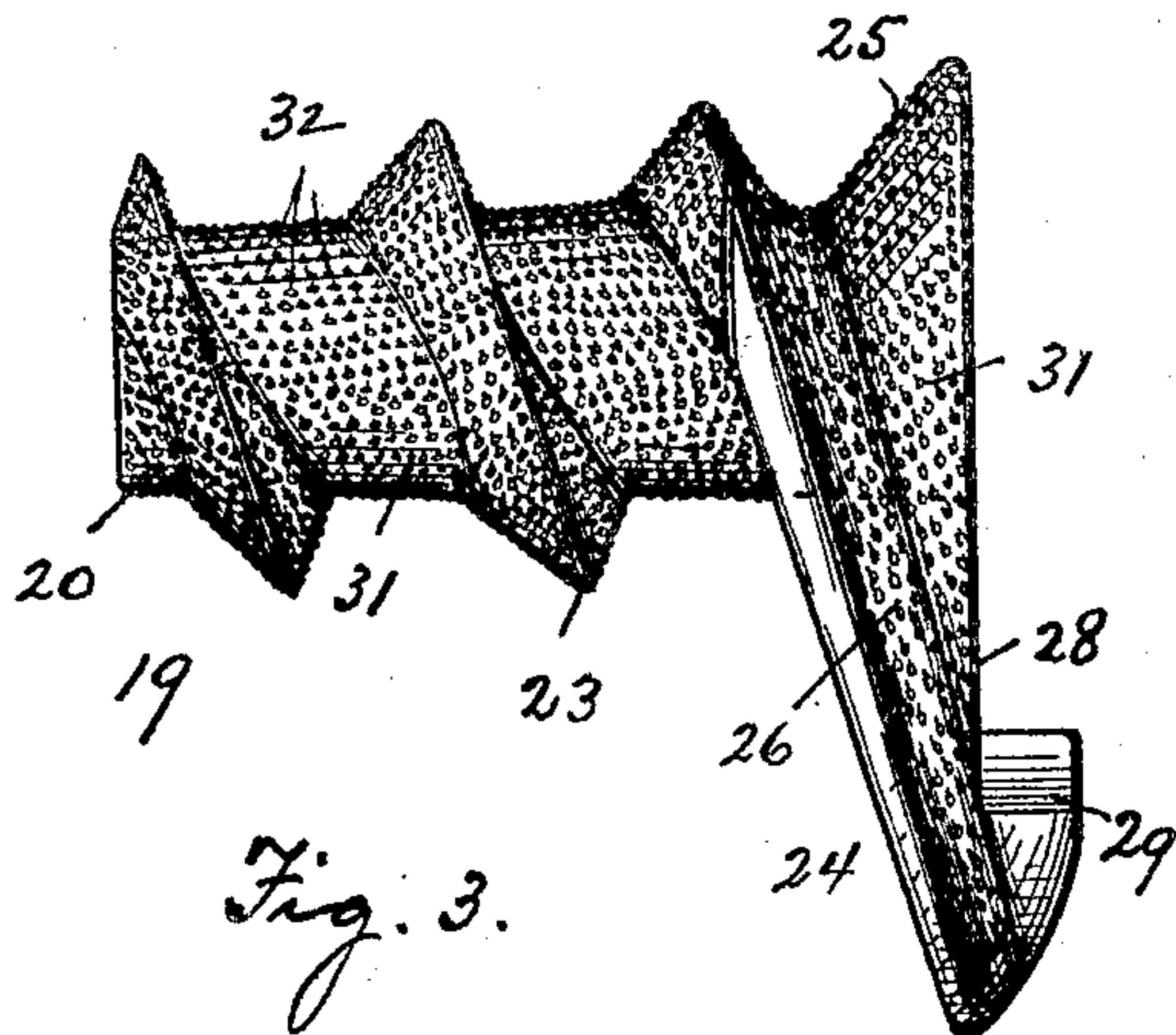


Fig. 3.

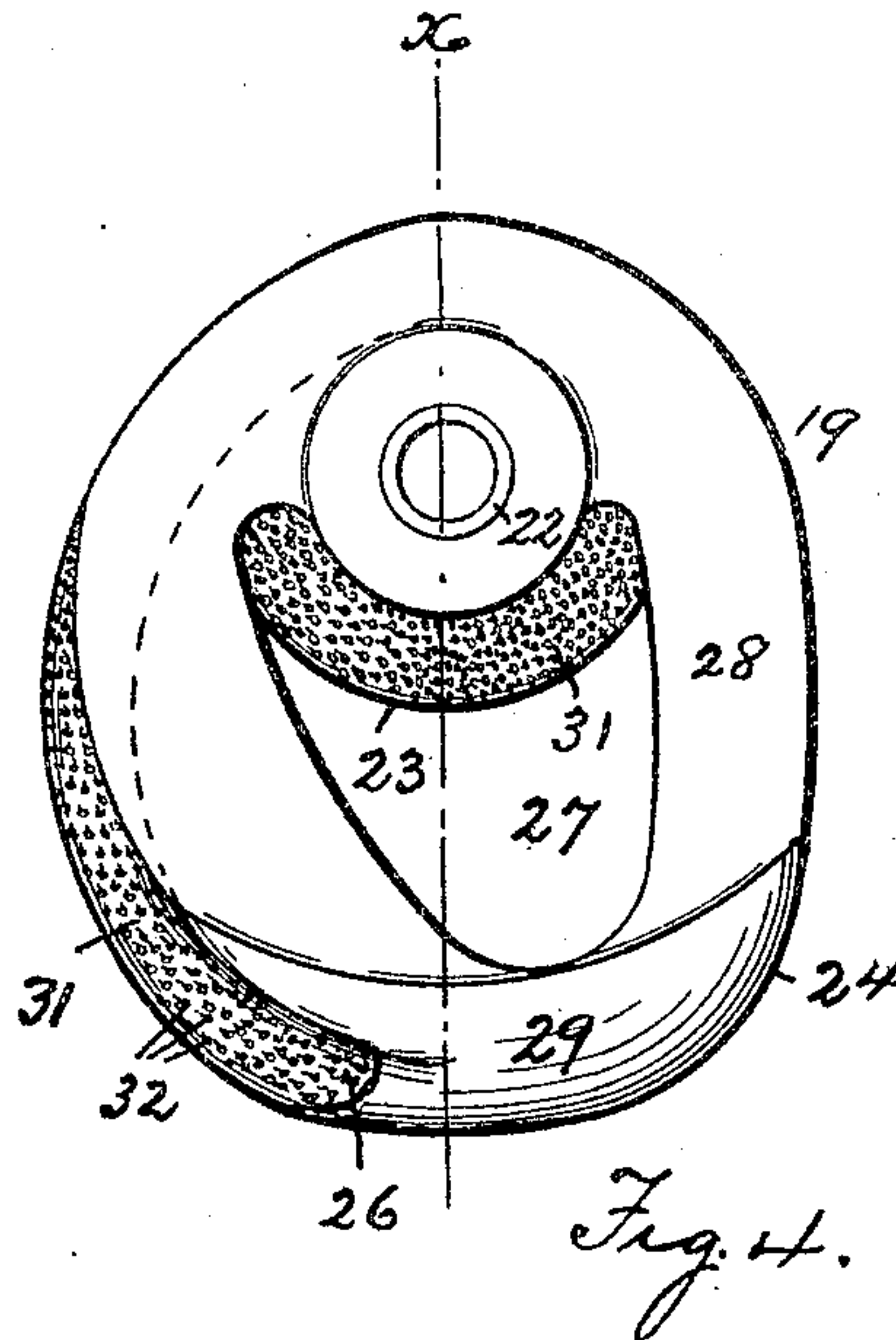


Fig. 4.

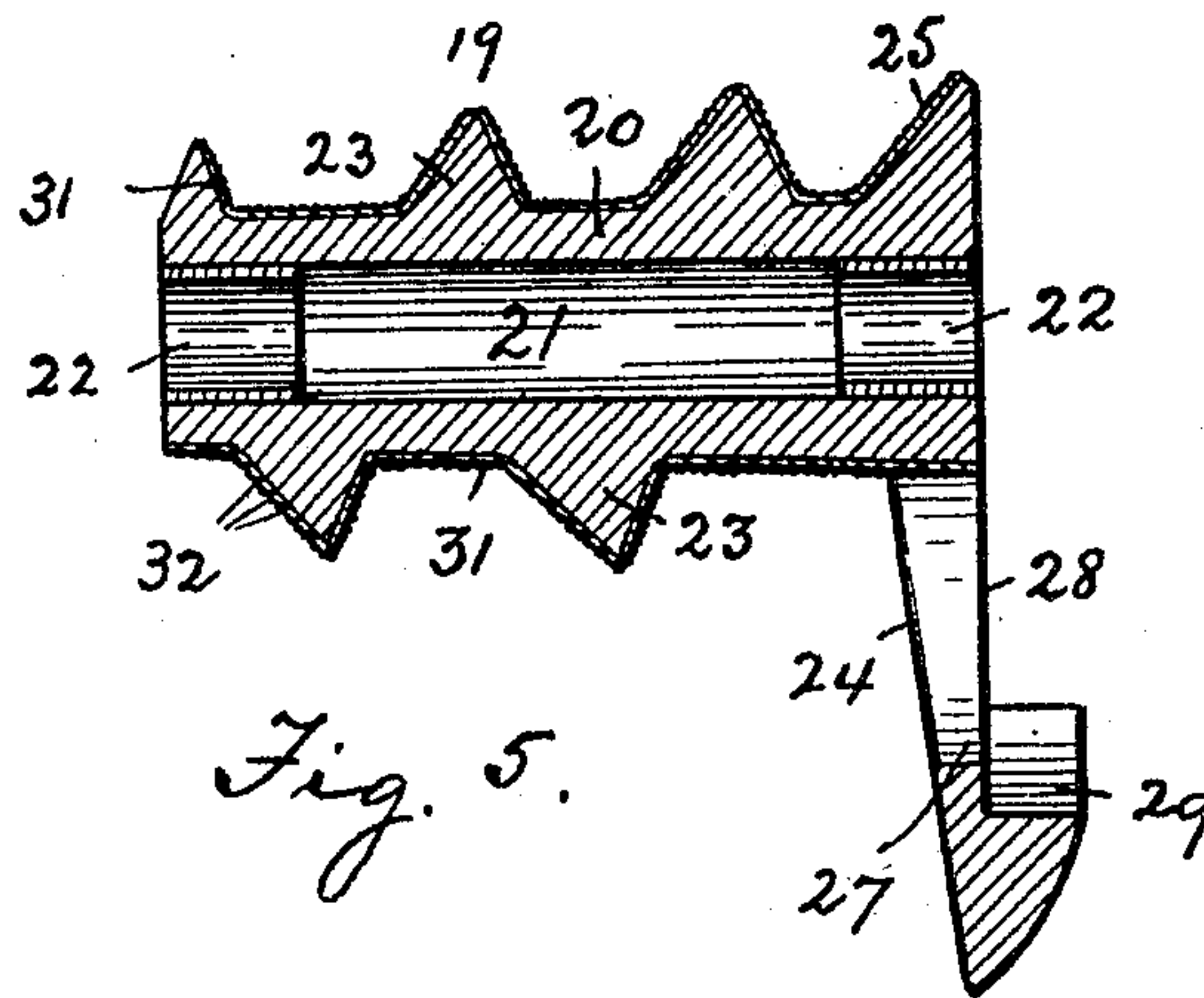


Fig. 5.

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UNITED STATES PATENT OFFICE.

PETER McDONALD, OF HARRISON, NEW JERSEY.

TROLLEY-WIRE FINDER.

No. 798,439.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed October 8, 1903. Serial No. 176,197.

To all whom it may concern:

Be it known that I, PETER McDONALD, a citizen of the United States, residing at Harrison, in the county of Hudson and State of New Jersey, have invented and produced a new and original Improvement in Trolley-Wire Finders; and I 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 it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide an attachment which will serve to return the trolley-wheel to the trolley-wire in case it escapes, to simplify the construction and enable it to be combined with the trolley-wheel in the same fork or mountings, to secure a return of the wire by certain rotary parts which at other times normally lie out of the way of frogs, bridge-pans, &c., to obtain a frictional engagement of said parts with the trolley-wire, and to secure other advantages and results some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved finder for trolley-wheels and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a rear elevation of my improved device, and Fig. 2 is a side elevation. Fig. 3 is a side view of one of the return-spools from the front, its surface being covered with roughened sheet metal. Fig. 4 is a view of said return-spool from its inner end; and Fig. 5 is a longitudinal section as on line *x*, Fig. 4.

In said drawings, 10 indicates a trolley-pole, having at its end a fork 11, with outside arms 12 12 and inner arms 13 13, all in the same plane. Said arms are all perforated in alignment near their extremities to receive a transversely-extending shaft 14, adapted to be held in place therein by pins 15 through the outer arms 12 or other suitable means. Upon the said shaft 14, between the inner arms 13 13, is pivoted the trolley-wheel 16, which is of any ordinary type, with groove 17

and sides or edges 18. Coming now more particularly to my invention, upon said shaft 14, on both sides of the trolley-wheel 16, are mounted spools 19 19, each lying between an outer arm 12 and inner arm 13. Said spools are alike with the exception of one being a right and the other a left, and therefore a description of one will suffice for both. Each spool therefore comprises a substantially cylindrical body portion 20, bored longitudinally, as at 21, to receive the axial shaft 14, and preferably having bushings 22 in the opposite ends of said bore to afford bearings for said shafts. Upon the exterior surface of each spool is a spiral rib or flange 23, trending forwardly toward the trolley-wheel, so that if the trolley-wire is thrown off the wheel and falls upon the said body portion 20 of the finder between any two turns of the rib or flange forward movement of the finder will rotate said finder backwardly and feed the wire with a screw action toward the trolley-wheel, as will be understood. The radial projection of said rib or flange 23 is kept restricted or considerably less than the radius of the trolley-wheel until its last half-turn or so is reached, during which distance the radial projection increases gradually to project beyond the said wheel. Preferably this portion of the flange is supported upon an eccentric plate or enlargement 24 at the inner end of the body portion 20, and which provides at one of its longer edges a wall 25, beveled oppositely with respect to the flange and forming therewith a groove 26. This groove of increasing pitch runs off the side of the eccentric plate at or near its peripheral portion farthest from the center of rotation, which point is even with or outward beyond the edges 18 of the trolley-wheel. The said plate 24 is preferably apertured for the sake of lightness and economy of material, as at 27, and presents a plane face 28 to the trolley-wheel, while at its edge farthest from the center of rotation a segmental extension 29 projects from said face over the edge of the trolley-wheel. It is upon this projecting portion 29 that the groove 26 terminates or runs off, as shown in Figs. 3 and 4 more particularly. Said overhanging portions 29 of the spools are necessarily separated from the edges of the trolley-wheel by a space sufficient to contain the inner arms 13 of the fork, these arms being bent at right angles toward each other beneath the trolley-wheel, as at 30, to accommodate the said extension.

By the construction thus described the ec-

centric portions 24, which are the only parts that can ever project out beyond the periphery of the trolley-wheel, normally hang by their own weight beneath the axis 14, so that engagement of the upper portion of the trolley-wheel with the trolley-wire is unimpeded, as in the ordinary construction where no finding-spools are employed—that is to say, the edge and both sides of the top part of the trolley-wheel are free and exposed, so that it not only engages the overhead wire just like any wheel, but will also pass switches, frogs, and guards without impediment. At the same time if the trolley-wire escapes from the grooved wheel 16 onto one of the spools 19 the latter will be operated by the friction of the wire to return said wire to the trolley-wheel, after which the spool will drop into normal idle position.

In the practical manufacture of my invention it is thought desirable to cast each finding-spool in a single piece and to make it of aluminium on account of that metal's lightness. Owing, however, to the readiness with which aluminium polishes or becomes smooth it may be necessary to supply the spool or its spiral groove with a harder and roughened covering. This I have shown in Figs. 3, 4, and 5 as consisting of a sheet-metal wrapping 31, following and conforming to the groove of the spool, the outer surface of said sheet-metal cover presenting small teeth 32 struck up as on a rasp or formed in any other suitable manner.

Having thus described the invention, what I claim as new is—

1. The combination of a fork having an outer pair of arms and an inner pair, all in alinement, a transverse shaft extending through said arms, a trolley-wheel arranged upon said shaft between the inner arms, and finding-spools arranged upon said shaft between said inner arms and outer arms.

2. The combination with a trolley-wheel, of a spirally-grooved finder arranged adjacent to said wheel in axial alinement therewith and having at its end next said wheel a lateral en-

largement which projects beyond the edge of the wheel and is thickened at its outer end to overhang the periphery of the wheel, said lateral enlargement occupying only a portion of the circumference of said end of the finder, the remaining portion being of less radius than the trolley-wheel, and said enlargement being adapted to overbalance the rest of the finder and thus normally lie at the bottom of the trolley-wheel whereby the top of said wheel is exposed both at its edge and sides, the said finder having its spiral groove terminating at the said outer end of said lateral enlargement.

3. The combination of a fork having bent arms, a transverse shaft having bearings in said arms, a trolley-wheel journaled upon said shaft between said arms, and spirally-grooved finders upon said shaft outside said arms, each being for the greater part of its circumference smaller than the trolley-wheel and having a lateral extension at its end next the trolley-wheel which extension overlaps at its outer end the periphery of the trolley-wheel and lies at a sufficient distance therefrom to admit the adjacent arm of the fork between, substantially as set forth.

4. The combination with a trolley-finder, of a roughened covering adapted to increase friction upon engagement with the trolley-wire.

5. The combination with a spirally-grooved trolley-finder, of a sheet-metal covering having its outer surface roughened to frictionally engage the trolley-wire.

6. The combination with a spirally-grooved trolley-finder having an eccentric lateral enlargement at its end, and on which the said spiral groove terminates, of a roughened covering upon the surface of said groove in the eccentric enlargement.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of September, 1903.

PETER McDONALD.

Witnesses:

CHARLES H. PELL,
RUSSELL M. EVERETT.