

No. 764,688.

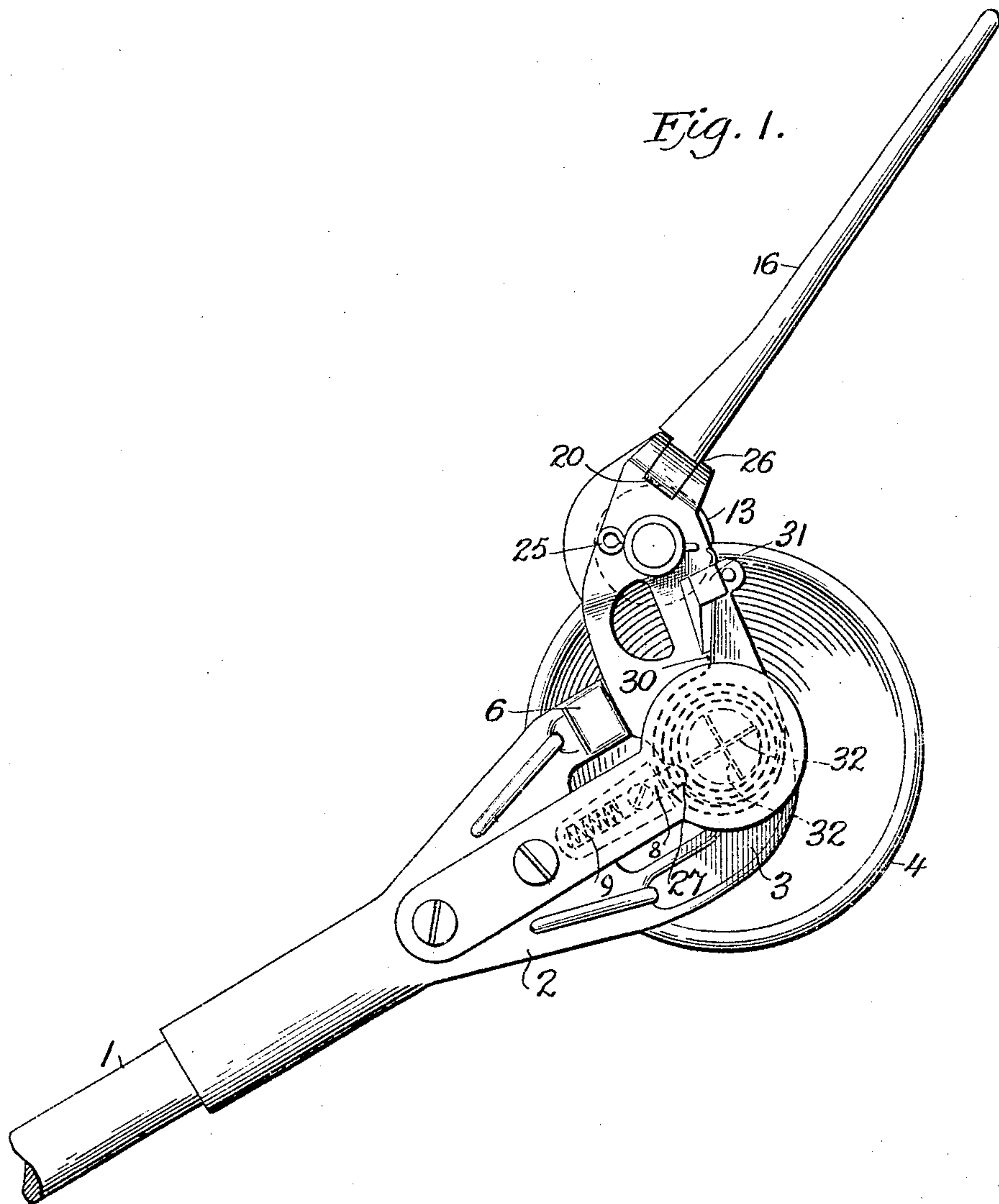
PATENTED JULY 12, 1904.

G. E. SMITH.
TROLLEY.

APPLICATION FILED JUNE 5, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
James F. Duhamel,
A. E. Hamels.

George E. Smith
Inventor

By *his* Attorney *Frank E. Jackson*

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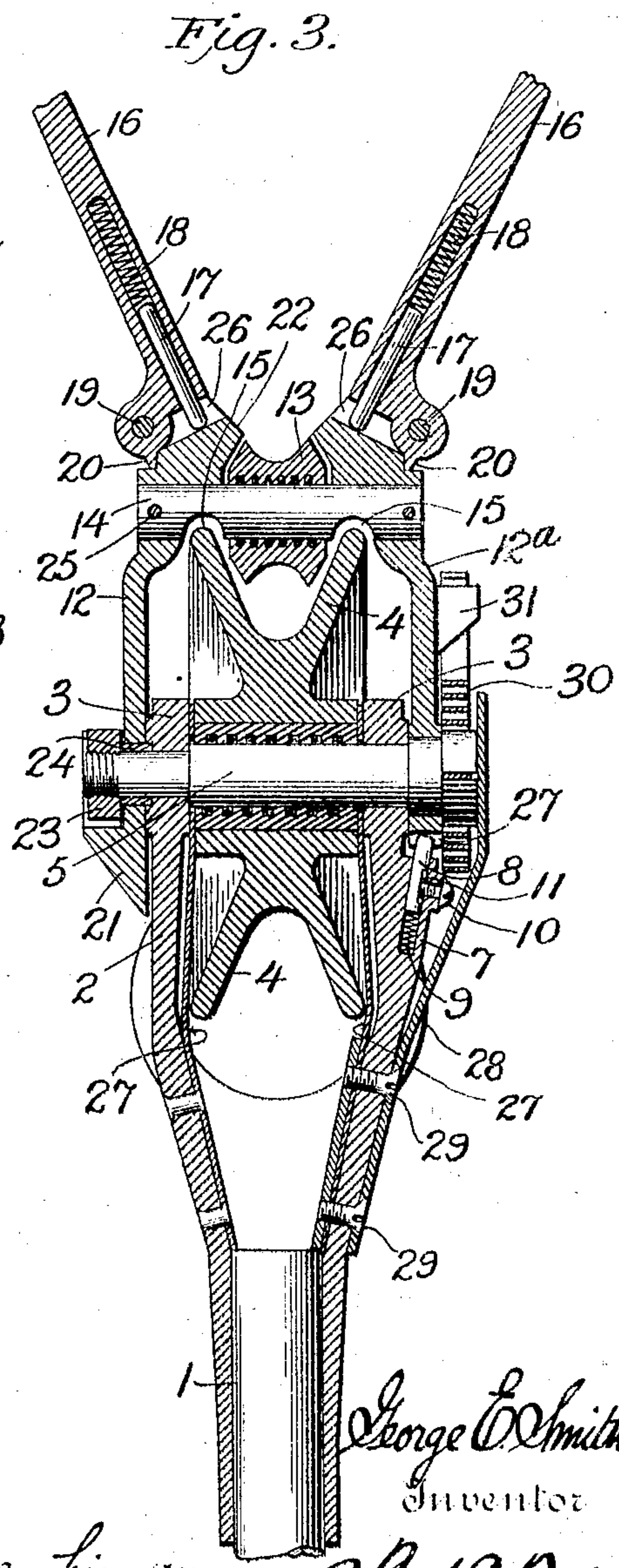
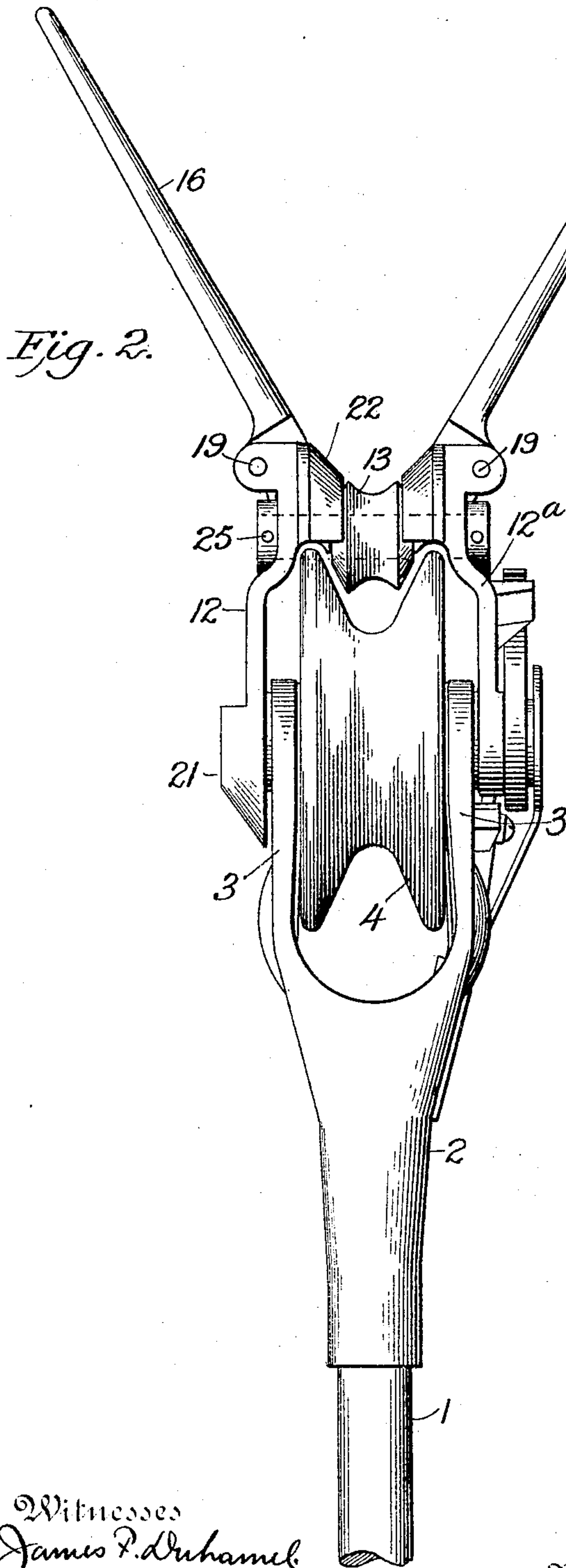
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UNITED STATES PATENT OFFICE.

GEORGE E. SMITH, OF EXETER, NEW HAMPSHIRE.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 764,688, dated July 12, 1904.

Application filed June 5, 1903. Serial No. 160,149. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. SMITH, a citizen of the United States of America, and a resident of Exeter, in the county of Rockingham, State of New Hampshire, have invented certain new and useful Improvements in Trolleys, of which the following is a specification.

This invention refers to an electric trolley.

The object thereof is to simplify and improve the construction of a device of this character, and more especially to enable it to hold the wire firmly without losing its grip thereon.

The invention therefore consists, essentially, in the construction and combination of parts, substantially as will be hereinafter described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of my improved trolley. Fig. 2 is a front edge view. Fig. 3 is a vertical section.

Like numerals of reference denote like parts in all the figures.

1 designates the trolley-pole. To the upper end of this is fastened in the usual manner the yoke or harp 2, having the parallel forks 3 3, in the upper ends of which is supported the truck journal or shaft 5, carrying the main truck 4, which revolves between the forks 3 3. On one side of one of the forks 3 of the trolley-harp 2 is an ear or lug 6, which is adapted to be struck by the upper frame carrying the small or auxiliary truck or wheel, so that the latter will not throw over too far when the main truck is off the conductor. The other side 3 of the harp 2 is provided with a lateral protuberance 7, having a passage therein containing a locking-pin 8, acted on by a spring 9, the pin 8 having the function of engaging the upper frame for a purpose to be presently explained. In the protuberance 7 is a set-screw 10, the inner end of which engages a notch 11 in the pin 8, so as to keep the pin in place even though the frame against which it bears is temporarily removed for any purpose.

The upper frame that carries the small auxiliary truck or wheel 13 consists of the two parallel vertical sides 12 12^a, the lower ends of which are supported on the projecting ends of the journal or shaft 5, which carries main

wheel 4. Said journal 5 preferably varies in diameter at certain points in order to adapt it more thoroughly for its purpose. The left side 12 of the upper frame has its lower end 21 shaped like the segment of a cone, so that it cannot become entangled with the wires and also for the purpose of protecting the nut 23 on the adjoining end of journal 5 and preventing it from catching upon the overhead work, it being noted that there is a small bushing 24 in the lower end of side 12 and around end of journal 5, against which bushing the nut 23 is tightened up firmly, so as to bind the journal 5, harp 2, bushing 24, and nut 23 securely together, while allowing the upper frame to swing freely. The upper end of side 12 of this upper frame also has an inner projection shaped like the segment of a cone, as 22, to furnish a surface corresponding to the groove in the small truck or wheel 13. The upper end of the other side 12^a of the upper frame also has a similar conical projection 22.

14 denotes the journal, stud, or shaft which carries wheel 13 and also unites the sides of the upper frame. It is fastened in the upper ends of the sides 12 and 12^a by any suitable means—as, for instance, the cotter-pins 25. The conical lugs 22 on the sides 12 and 12^a allow the small wheel 13 to be dropped low enough to enter the groove of the main wheel 4, bringing it much closer than usual to the center of the latter wheel. Also said conical lugs prevent the wire or conductor from sliding over the side of the small trolley-wheel 13, and thus loosening the wire before it gets down into the groove of the large wheel 4 at the time when the small wheel is closing down. Further, the stud 14 is notched at 15 15 to receive the edges of the wheel 4, and thus enable the wheel 13 to be brought closer to center of wheel 4. The extreme upper ends of the frame sides 12 and 12^a are slotted at 26 to receive the lower ends of the flaring fingers 16, which are pivoted within the slots 26 by means of pivot-pins 19 19, said pivoted ends of the fingers 16 being provided with stop-lugs 20, adapted to bear against shoulders on the frame to prevent the fingers 16 from opening too widely. Thus the fingers 16 may close and open, as required.

The lower end of frame 12^a is provided with a notch or groove 27, that receives the point of the spring-pressed locking-pin 8, the object of this engagement being to prevent the upper frame and its small truck or wheel from closing down too easily.

In the lower ends of the fingers 16 are recesses containing springs 18 and pins 17, against which the springs bear, the ends of the pins projecting from the lower ends of the fingers 16 into the slots 26 and against the upper swinging frame, the object thereof being to keep the fingers 16 normally wide open or far apart to afford abundant room between them to catch the wire or conductor and surely and accurately guide it to the upper truck, notwithstanding wide deflections and oscillations in the movement of the pole. These yielding pins with which the fingers 16 are provided act normally to hold the fingers upon, and they permit the fingers to close at certain times, as required.

As already stated, the journal 5 of the main wheel or truck serves also to connect the sides of the upper or swinging frame to the trolley-harp and to allow the sides of said swinging frame to easily execute their swinging movement when the large wheel begins to leave the wire or conductor. Said journal is provided, as shown, with a shoulder or shoulders to prevent the sides of the trolley-harp from spreading out and binding the sides of the swinging frame. On the larger end of journal 5 there are two cross-slots 32 cut therein, so that the spring 30 may be taken up to its proper tension to enable it to lift the auxiliary wheel up in season to catch the wire when the main wheel or truck starts to leave the wire, said spring 30 engaging one or other of said slots 32. The upper end of the spring 30 passes under the lug or ear 31 on the side of frame 12^a, and this end of the spring is bent over, so that it cannot slip out from the slot in the ear when the cotter-pin is in the hole under the ear. 27^a 27^a denote antirattling springs made fast to the inside of harp by means of rivets. To the outside of

the trolley-harp a guide 28 is securely fastened by means of screws 29, said guide having the function of protecting the spring 30, journal 5, and contiguous and coöperating parts, so that they will not become entangled with the overhead work.

Many changes may be made in the exact construction and arrangement of the various parts.

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

1. In a trolley, the combination with the trolley-harp, having a main truck therein, and a journal for said truck, of a swinging frame hung on the journal of the main truck, an auxiliary truck in said swinging frame, and elastic spreading fingers movably connected to the swinging frame.

2. In a trolley, the combination of the trolley-harp, having a main truck therein, a swinging frame supported on the harp and carrying an auxiliary truck, and a pair of flaring fingers movably connected to the swinging frame.

3. In a trolley, the combination with the main truck and its supporting-harp, of the auxiliary truck and its swinging frame, and movable fingers pivoted to said latter frame and provided with spring-pressed pins that normally keep the fingers wide apart.

4. In a trolley, the combination of the harp, the main truck therein, a journal for said truck, a swinging frame that swings on the ends of said main-truck journal, an auxiliary truck in the swinging frame set to enter the groove of the main truck, a spring for lifting the swinging frame, a protecting-guide for said spring, and yielding fingers pivoted to the swing-frame.

Signed at Exeter, New Hampshire, this 2d day of June, 1903.

GEORGE E. SMITH.

Witnesses:

GERTRUDE L. FOGG,
JOHN A. BROWN.