

No. 765,004.

PATENTED JULY 12, 1904.

J. E. GREENWOOD.
TROLLEY POLE HEAD.

APPLICATION FILED AUG. 29, 1903.

NO MODEL.

Fig. 1.

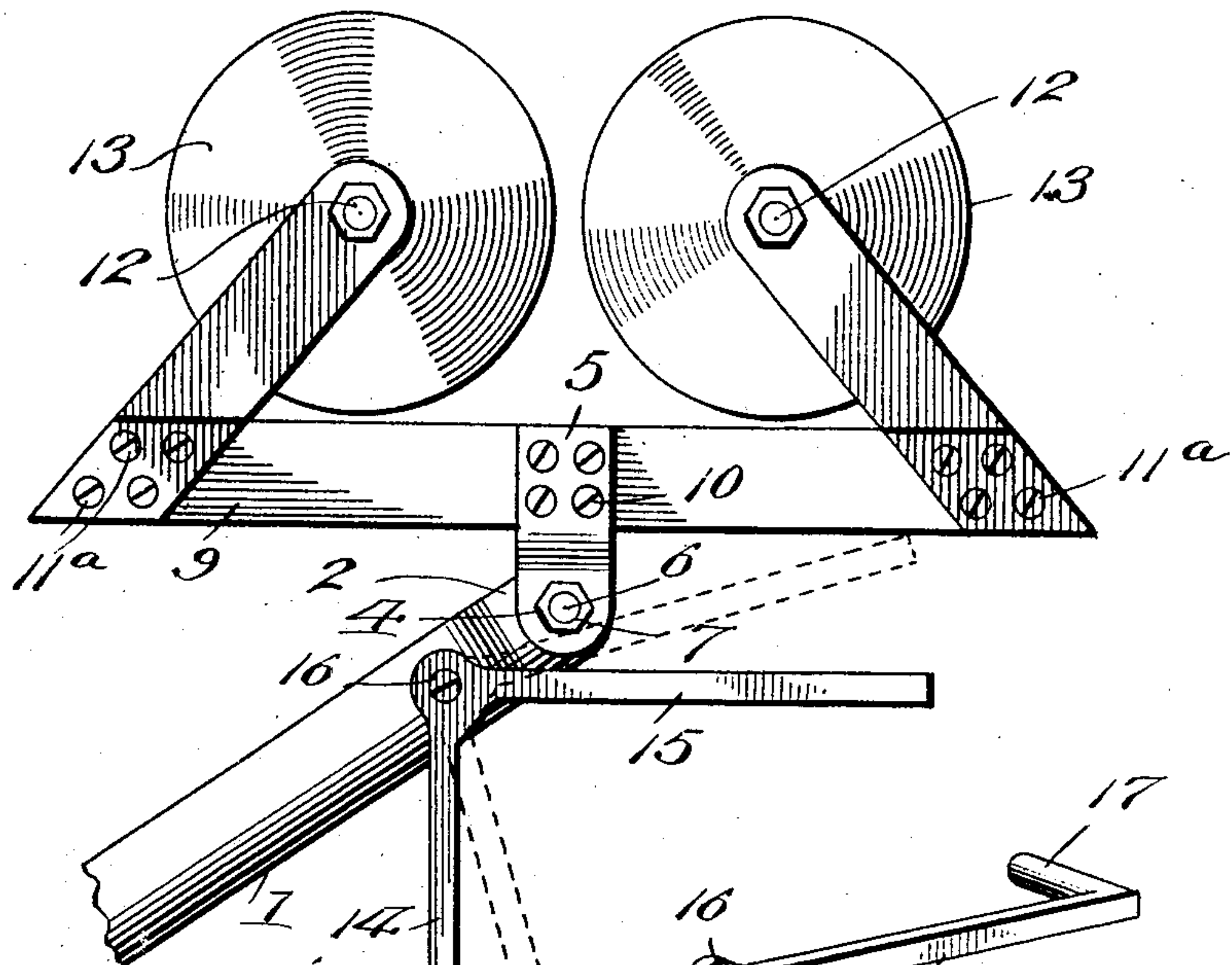


Fig. 2.

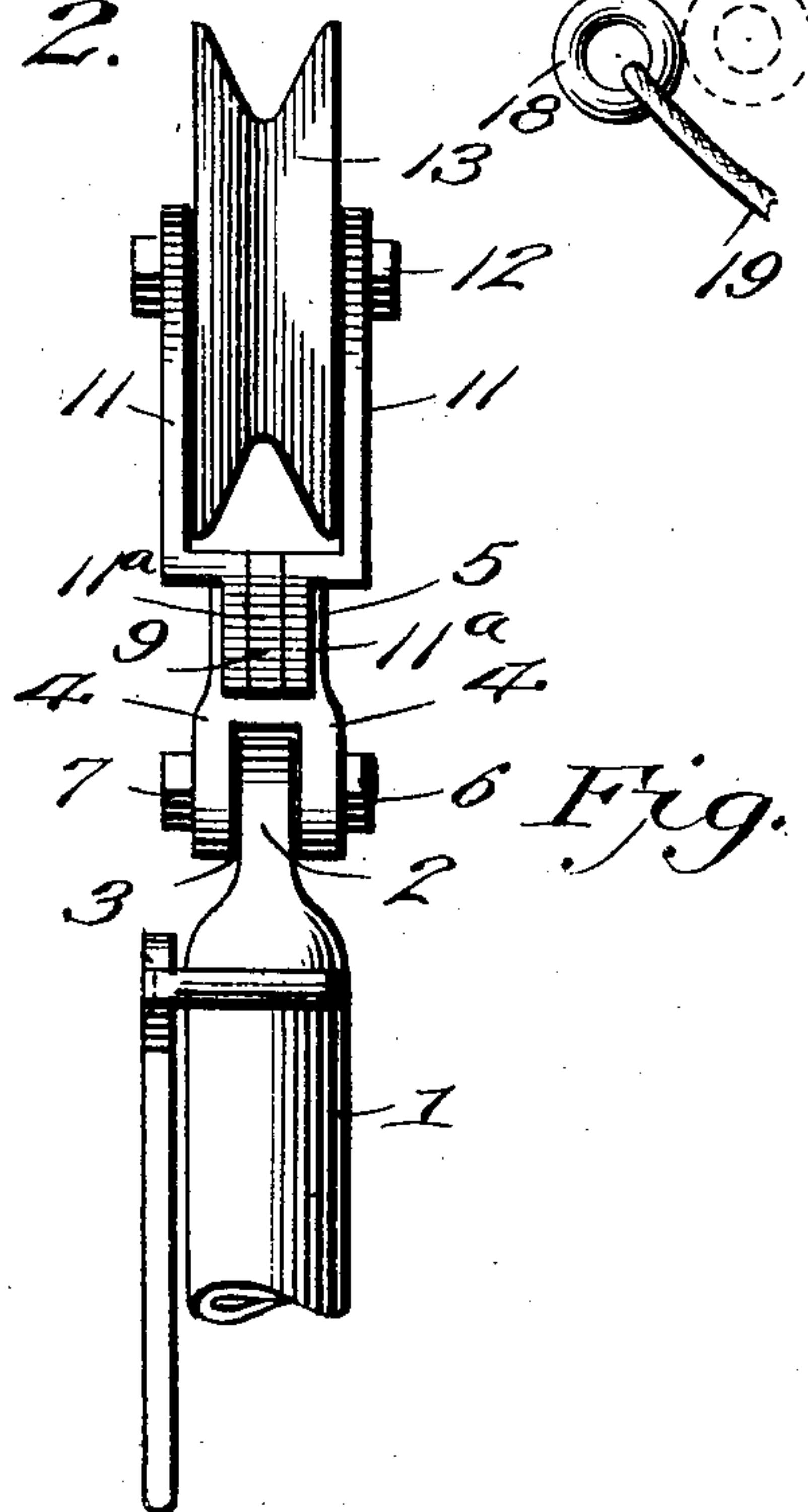


Fig. 4.

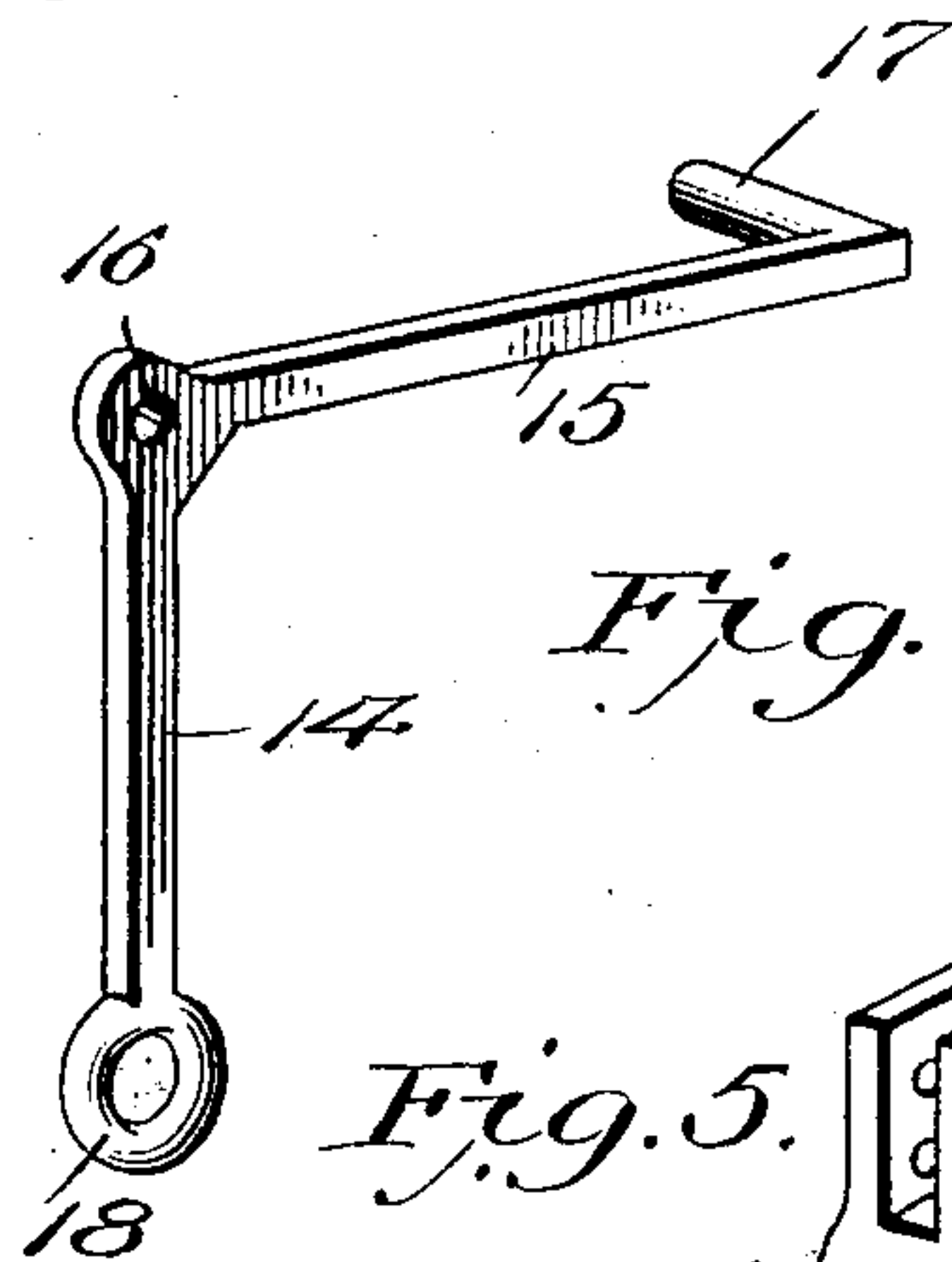


Fig. 5.

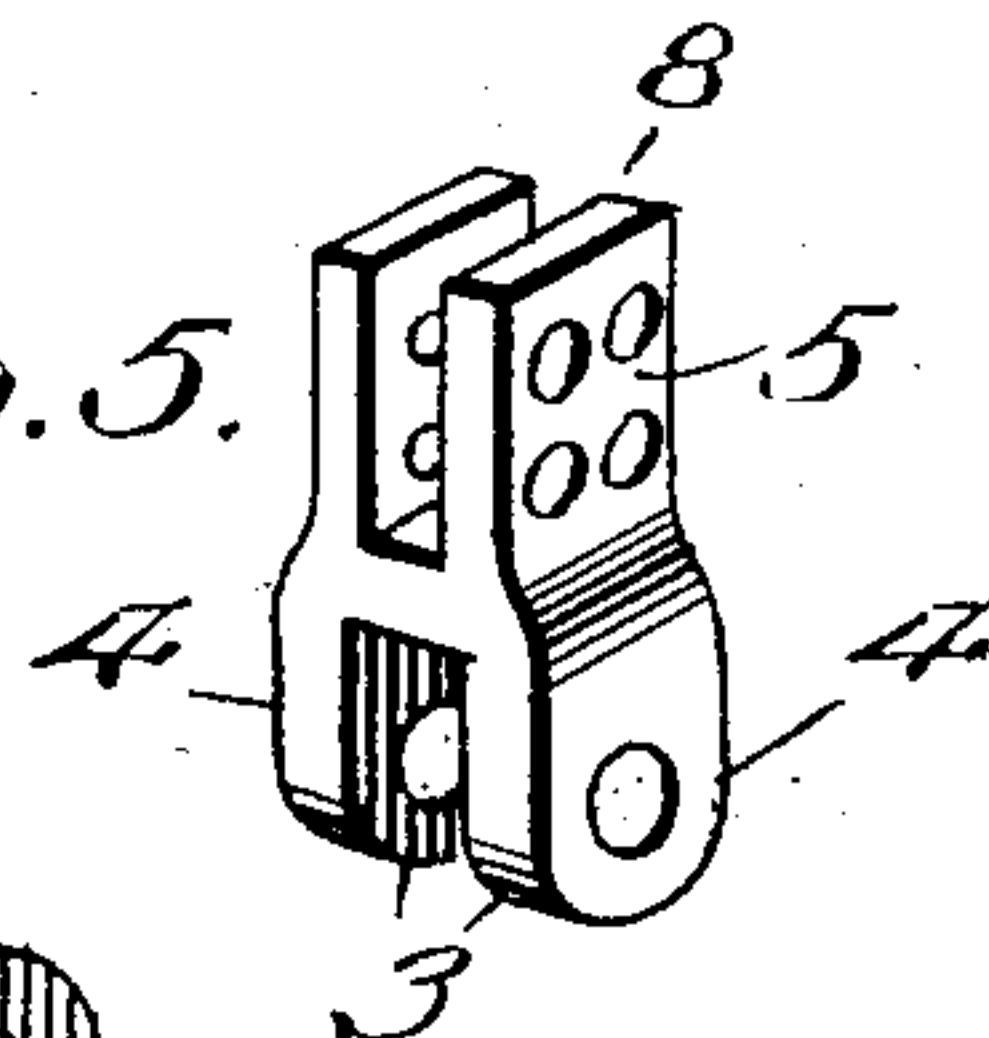
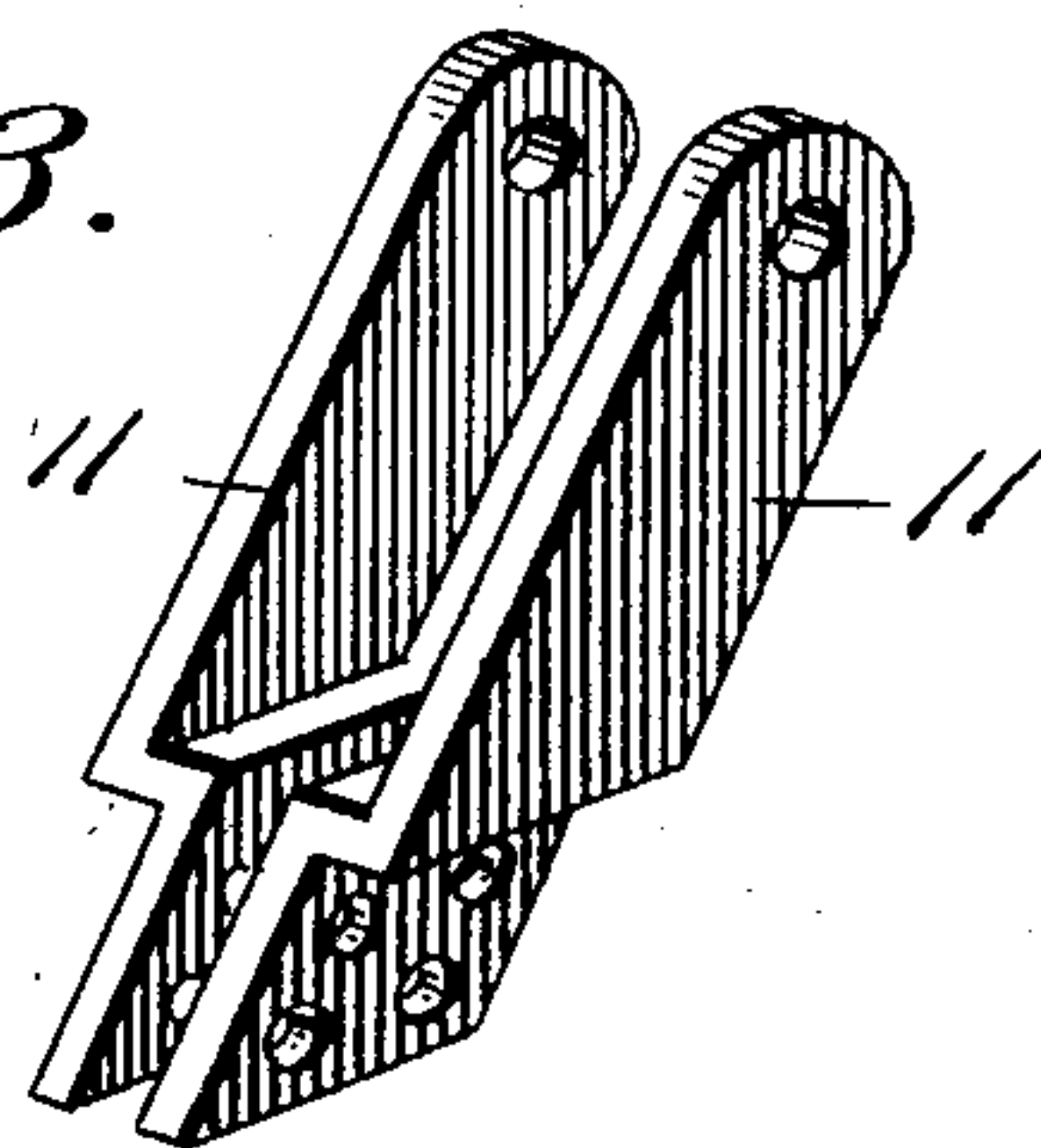


Fig. 3.



Witnesses

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JOHN E. GREENWOOD, OF UTICA, NEW YORK.

TROLLEY-POLE HEAD.

SPECIFICATION forming part of Letters Patent No. 765,004, dated July 12, 1904.

Application filed August 29, 1903. Serial No. 171,269. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. GREENWOOD, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented new and useful Improvements in Trolley-Pole Heads, of which the following is a specification.

My invention has relation to new and useful improvements in trolley-pole heads for overhead electric railways, and more particularly to heads of that class wherein the wheels or collectors are arranged on the head in tandem.

One of the objects of the invention is to provide a head of the character or type mentioned which is extremely simple in construction and in which the number of parts embodying the structure are reduced to a minimum without sacrificing the strength or efficiency of the device.

A further object is to provide a trolley-pole head having a plurality of collectors arranged in tandem which will so adapt itself to the curves, inequalities, and obstructions in the line-wire that an operative contact will always be maintained between said head and the wire upon which it travels.

The invention consists in the improved and simplified structure to be fully described hereinafter and the novelty of which will be particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings, forming a part of this specification, and wherein—

Figure 1 is a view in side elevation of a trolley-pole head embodying my invention. Fig. 2 is a view in rear elevation. Fig. 3 is a detailed perspective of the members constituting the wheel-harp. Fig. 4 is a detailed perspective of the lifting device detached from the pole and which is employed to lift the head into position to engage the wire, and Fig. 5 is a perspective view of the cap-piece by means of which the head is secured upon the pole.

Referring to the drawings, 1 designates the upper portion or terminal of a trolley-pole, which is of the usual construction and which is shown in the position it assumes when in operative contact with the wire during the

progress of the car to which it is attached. At its extreme free or upper end this pole is provided with a flattened extension 2, adapted to be arranged within a space 3, formed between depending lugs or arms 4 on a cap-piece 5, a pivoted connection being provided between said cap-piece 5 and the pole by means of a transverse bolt 6, which is projected through the arms 4 and the extension 2 and is secured in position by means of a nut 7, the cap-piece being adapted to swing freely on the end of the pole. The upper portion of this cap-piece 5 is formed with a slot 8, which extends in alinement with the longitudinal axis of the pole and in which is rigidly secured at a point intermediate its ends a flat leaf-spring 9, which, as shown in the drawings, is arranged on its edge and has its ends free to move laterally with relation to the cap-piece 5. Suitable fastenings, such as screws 10, are employed to removably hold the spring in position in order that it may readily be replaced should it become broken or for other reasons a new one be required.

At the opposite end portions of the spring 9 are disposed and rigidly mounted wheel-harps in which the wheels are journaled. These harps each comprise arms 11, secured at their lower ends to the opposite sides of the spring 9, as at 11^a, and inclined inwardly at their upper ends toward the center of the spring, the arms being spaced apart and formed at their upper ends to receive a bearing-pin 12, upon which the trolley-wheels 13 are journaled.

In order to limit the rearward movement of the head and to lift it to be placed into operative contact with the wire, I provide a lifting device consisting of an angular lever formed with arms 14 15, which lever is fulcrumed to the side of the trolley-pole at the point at which the arms meet, as at 16. The upper of these arms 15 is provided at its end with a laterally-projecting arm 17, which extends beneath the spring 9. At its free end the arm 14 is provided with an eye 18, in which the trolley-rope 19 is secured. It will be seen that should the head fall rearwardly when the rope is manipulated to direct the head into contact with the wire the arm 15 will be thrown upwardly, with the arm 17 in engagement with

the spring 9, which will raise the head into horizontal position to contact the wire, where it will be held in proper position by the upward tendency of the pole.

5 It will be perceived that inasmuch as the member carrying the harps is a leaf-spring it will have free movement laterally both in front and rear of the cap-piece 5 to permit it to conform to the curve of the wire or conductor upon which the wheels travel, so that
10 the wheels at all times travel straight upon the wire. When striking obstructions, such as crossovers and supports, the head will be tilted or oscillated on its pivot and permitted
15 to ride under the obstruction without being subjected to the detrimental effects of the full force of the blow, which would be the case were the head rigidly mounted on the pole. It will also be seen that in passing obstructions one
20 of the wheels will always be in contact with the wire—that is, when the obstruction is met by the advance wheel said wheel will be depressed, owing to the pivotal connection of the head to the pole; but the rear one will remain upon the wire, and the obstruction hav-
25 ing been passed by the advance wheel it will assume the position on the wire while the rear one is passing over the obstruction, the upward tendency of the pole serving to keep the
30 wheels in engagement with the wire.

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

1. The combination with a trolley-pole, of a cap-piece pivotally mounted thereon, a leaf-spring supported on edge on the cap-piece and
35 collectors arranged in tandem on the spring.

2. The combination with a trolley-pole, of a cap-piece pivotally mounted thereon a leaf-spring supported on edge on the cap-piece at
40 a point intermediate its ends and collectors mounted on the ends of the leaf-spring.

3. The combination with a trolley-pole, of a cap-piece pivotally mounted thereon and formed with a slot, a leaf-spring secured in

said slot, at a point intermediate its ends and
45 collectors mounted on the spring in tandem.

4. The combination with a trolley-pole, of a cap-piece pivotally mounted thereon, a leaf-spring supported on edge on the cap-piece, collectors on the spring and means operable
50 by the trolley-rope to lift the head into engagement with the trolley-wire.

5. The combination with a trolley-pole, of a head pivotally mounted thereon, and means operable by the trolley-rope to lift the head
55 into engagement with the wire.

6. The combination with a trolley-pole, of a head pivotally mounted thereon a lever on the pole and a trolley-rope to throw the lever into engagement with the head to lift it into
60 contact with the wire.

7. The combination with a trolley-pole, of a head pivotally mounted thereon, a lever on the pole, an arm on the lever adapted to engage the head and a trolley-rope to actuate
65 the lever to lift the head into contact with the wire.

8. The combination with a trolley-pole, having a flattened terminal, of a cap-piece provided with arms between which the said ter-
70 minal is arranged, a pivot-pin connecting the pole and cap-piece, a slot in the cap-piece, a leaf-spring secured on edge in the slot and having its ends free, and collectors mounted on the said ends.
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9. The combination with a trolley-pole, of a leaf-spring supported on edge thereon, and collectors arranged in tandem on the spring.

10. The combination with a trolley-pole, of a leaf-spring supported on edge on the pole
80 at a point intermediate its ends and collectors on the ends of the spring.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. GREENWOOD.

Witnesses:

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B. V. BUTTS.