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TROLLEY HARP.

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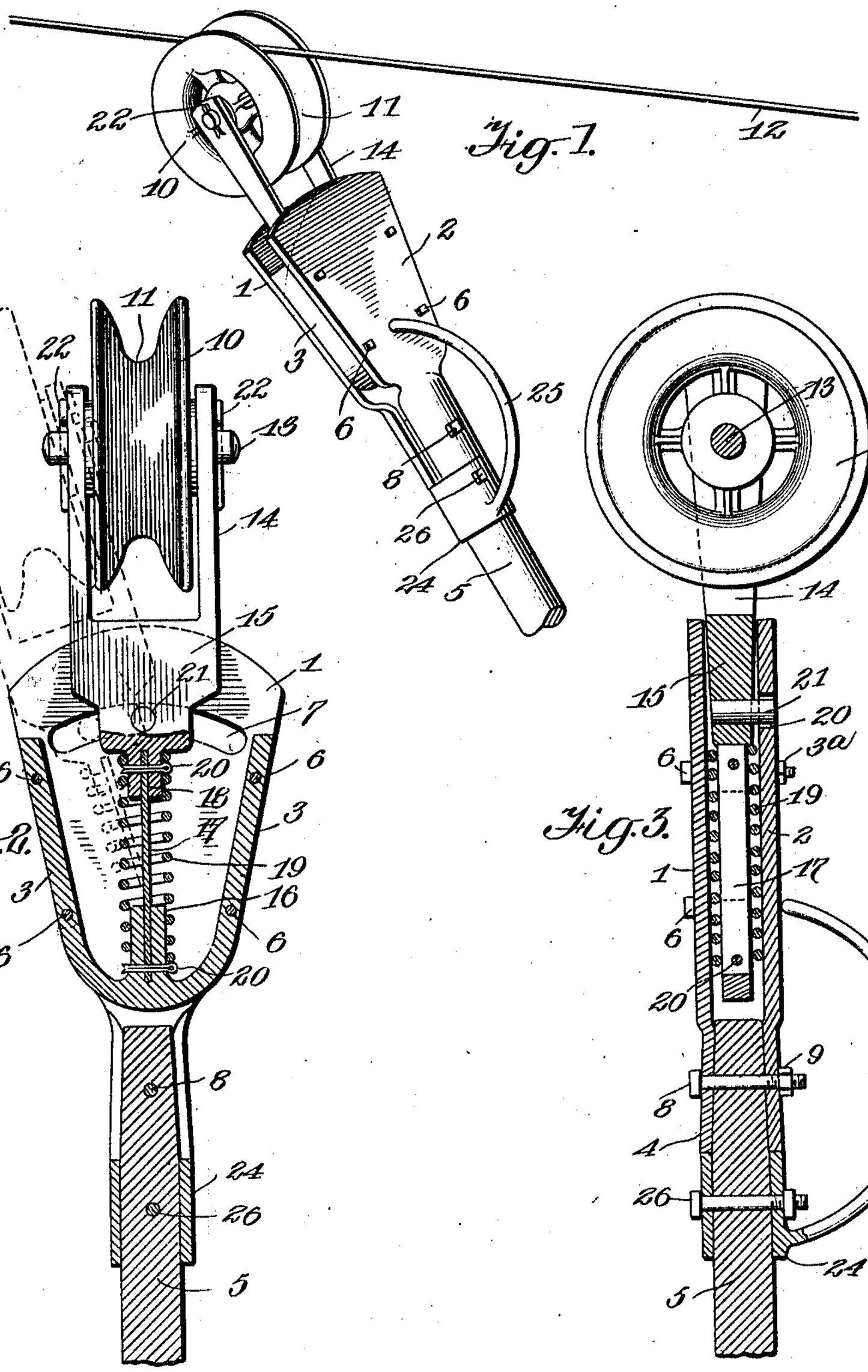


Fig. 1.

Fig. 2.




Fig. 3.

WITNESSES

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## TROLLEY-HARP.

970,981. Specification of Letters Patent. Patented Sept. 20, 1910.

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*To all whom it may concern:*

Be it known that I, ROBERT D. BLACKSTONE, a citizen of the United States, and a resident of Muskogee, in the county of Muskogee, State of Oklahoma, have invented certain new and useful Improvements in Trolley-Harps, of which the following is a specification.

My invention is an improvement in trolley harps, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

The object of the invention is to provide a device of the character specified that will closely follow the curves and inequalities of the feed wire and will offer a greater amount of resistance to dislodgment than the usual form, and which may be cheaply constructed, easily assembled and disassembled, and easily operated.

Referring to the drawings forming a part hereof: Figure 1 is a perspective view of the improvement; Fig. 2 is a longitudinal sec tion transverse to the wheel; and Fig. 3 is a similar section at right angles to Fig. 2.

The embodiment of the invention shown in the drawings comprises a pair of substantially triangular plates 1 and 2 which are spaced apart in parallel relation by a spacing strip 3, which is substantially U-shaped and is arranged between the apices of the plates, the ends of the strip stopping short of base, as shown in Fig. 2. Each of the plates is provided with a section 4 of a socket, and the end of the pole 5 is received between the sections. The plates are secured together by bolts 6, which traverse registering openings in the plates and in the spacing strip 3, and nuts $3^a$ engaging the bolts. The base of the plates is formed on the arc of a circle, and at the ends of the strip 3 the plate 1 is provided with an arcuate slot 7 substantially parallel with the base. The harp is secured to the pole by means of bolts 8 which pass through registering openings in the plates and pole and are engaged by nuts 9.

The trolley wheel 10 is provided with the usual groove 11 for engaging the feed wire 12, and is journaled on a pin 13, whose ends are received in bearings in the arms 14 of a yoke, whose body portion 15 is received between the plates.

A lug 16 extends upwardly from the center of the spacing strip and is provided in its end with a transverse slot, in which is received the one end of a resilient tongue 17, the other end being received in a similar slot in a lug 18 extending downward from the body of the yoke. The lugs 16 and 18 are rounded, and a spiral spring encircles the tongue, the ends thereof engaging the lugs, and cotter pins 20 pass through registering openings in the lugs and tongue for retaining the parts in place. The body portion of the yoke is also provided with a pin 21 which plays in the slot 7 in the plate 1.

The pin 13 is provided in each end with an opening, through which pass cotter pins 22, and a washer 23 encircles the pin on each side of the wheel between the same and the arms. A trip device comprising a collar 24 and a guard finger 25 are provided, the collar encircling the pole below the socket, and being secured in place by a bolt 26. The finger 25 is approximately a half circle and is on the upper side of the harp, the free end of the finger extending upwardly to approximately the center of the plate, as shown in Fig. 3. The said finger is designed to assist the harp in passing under switch and guy wires.

It will be observed that the yoke carrying the trolley wheel may move laterally between the plates against the resistance of the tongue, which is supplemented by the spiral spring, and the movement is limited by the ends of the spacing strip 3. It will be evident from the description that the yoke may be moved laterally with respect to the pole as shown by dotted lines in Fig. 2, within limits prescribed by the ends of the slot 7, but is normally retained in the central position shown in the same figure by the tongue 17. Should the trolley wheel become disengaged from the wire, the guard finger by its engagement with switches, cross or span wires, will lift the same, preventing the said wires from catching with the bolt heads and other projecting parts of the harp. The wheel is difficult to dislodge accidentally on account of the free lateral movement permitted by the pin and slot and the resilient tongue.

It will be observed that the frame composed of the plates 1 and 2 and the spacing strip 3 is substantially fan-shaped, and that the yoke is practically hinged to the apex of the frame, and has a guided lateral movement on the hinged connection transversely

of the frame. The yoke is normally retained in central position by the resilient means, consisting of the springs 17 and 19.

I claim:

1. A trolley harp comprising a substantially fan-shaped frame having a socket for receiving the pole and composed of superposed plates spaced apart from each other, a yoke comprising a body portion received between the plates, and spaced arms, a trolley wheel journaled between the arms, the frame having a rounded lug at its apex, and the yoke body a similar lug, said lugs being slotted, a resilient tongue having its ends received in the slots and secured to the lugs, a spiral spring encircling the tongue, the ends thereof engaging the lugs, one of the plates having an arc-shaped slot, and the yoke a pin playing in the slot.

2. A trolley harp comprising a frame, composed of superposed spaced plates connected at one end and provided at the said end with a socket and with a rounded lug between the plates, a yoke comprising a body portion received between the plates and spaced arms projecting beyond the plates and having a rounded lug at the opposite end of the arms, a resilient tongue having its ends secured to the lugs, a spiral spring encircling the tongue, the ends thereof engaging the lugs, one of said plates having an arc shaped slot, and the yoke a pin moving in the slot.

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