No. 745,486. PATENTED DEC. 1, 1903.

L. FERREIRA.

AERIAL TRAMWAY FOR CONVEYING CROPS OR MERCHANDISE.

APPLICATION FILED MAR. 7, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

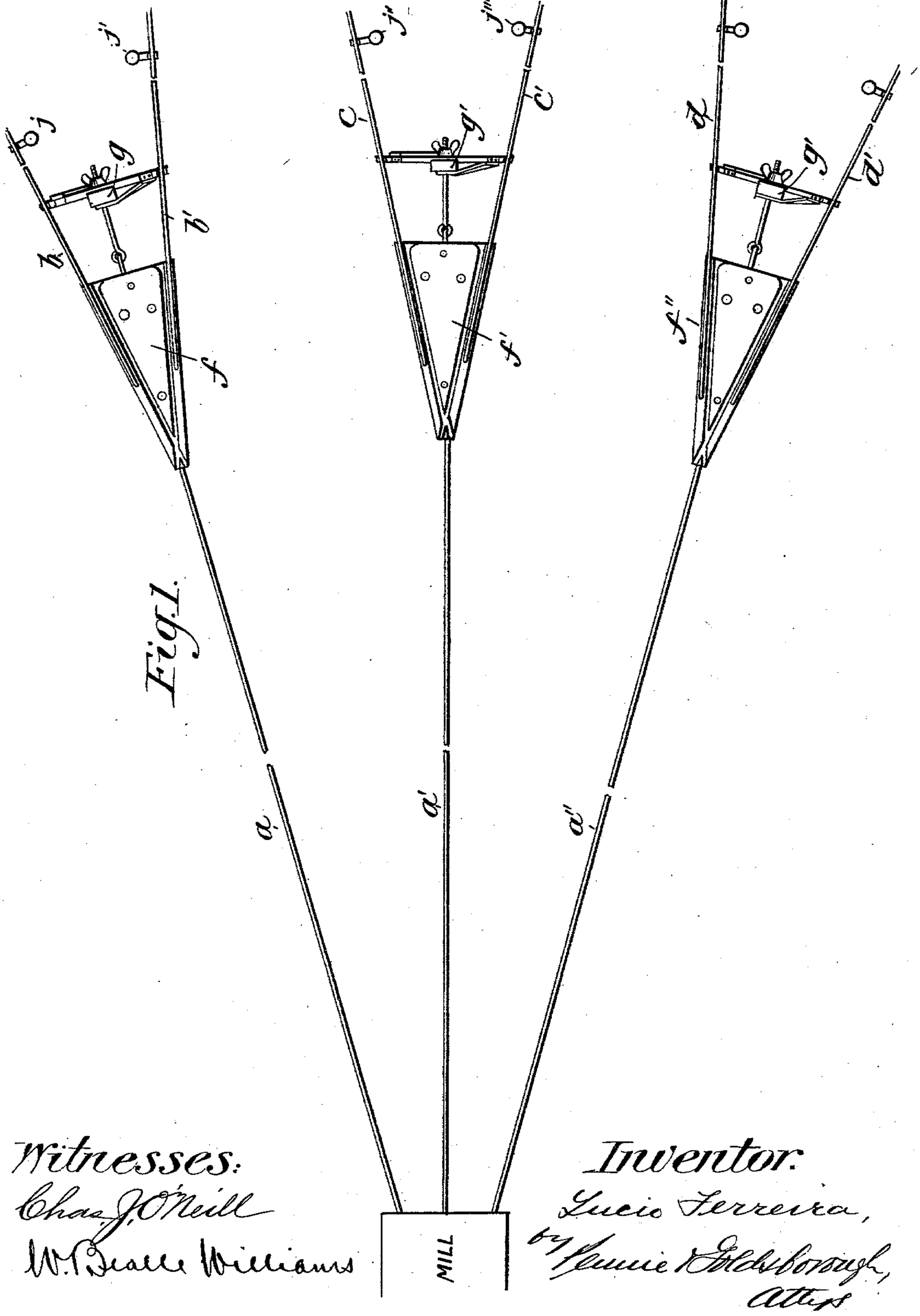

Fig. 1.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

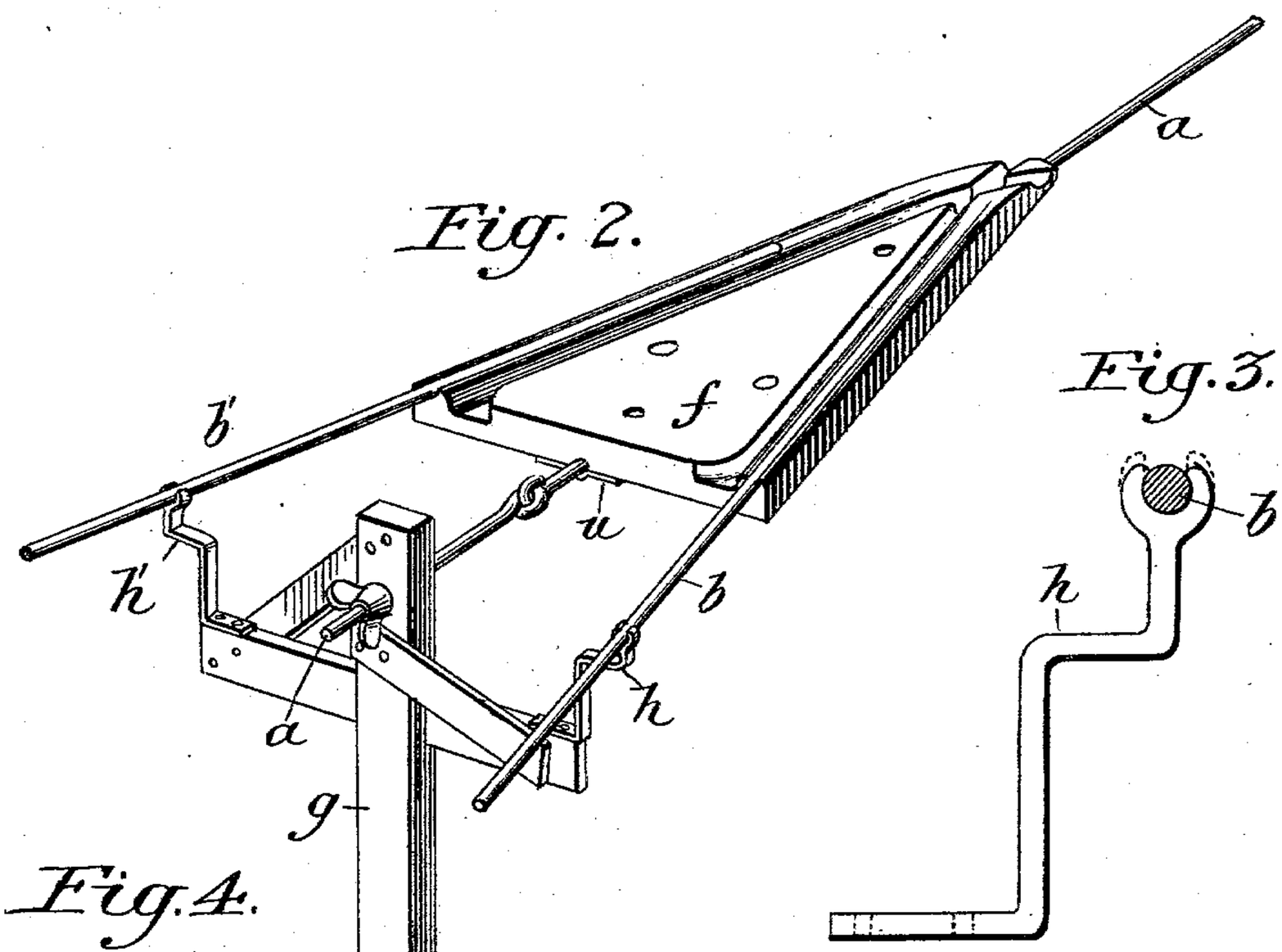


Fig. 3.

Fig. 4.

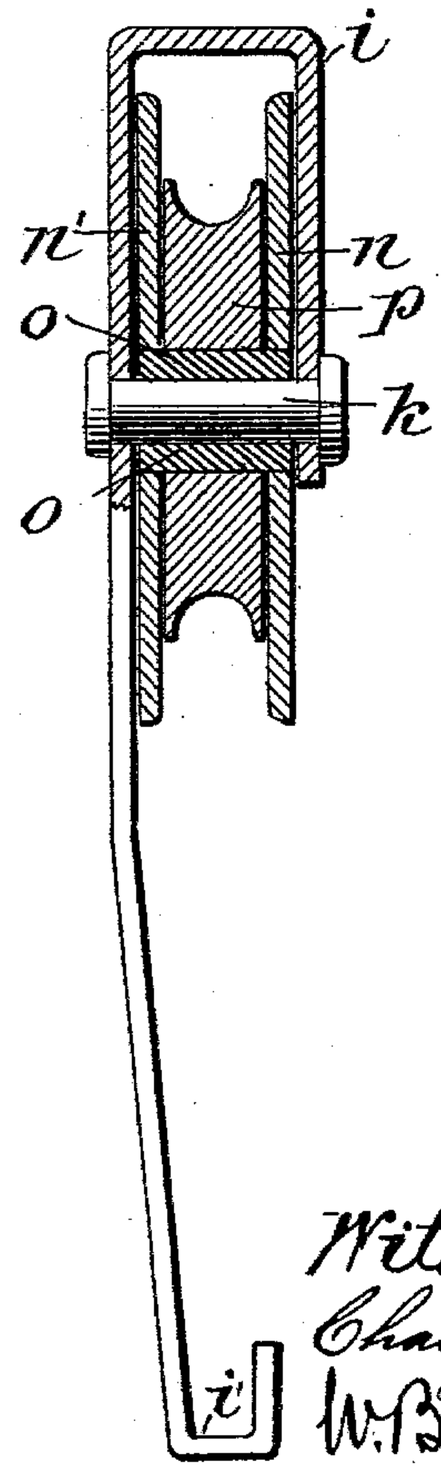


Fig. 5.

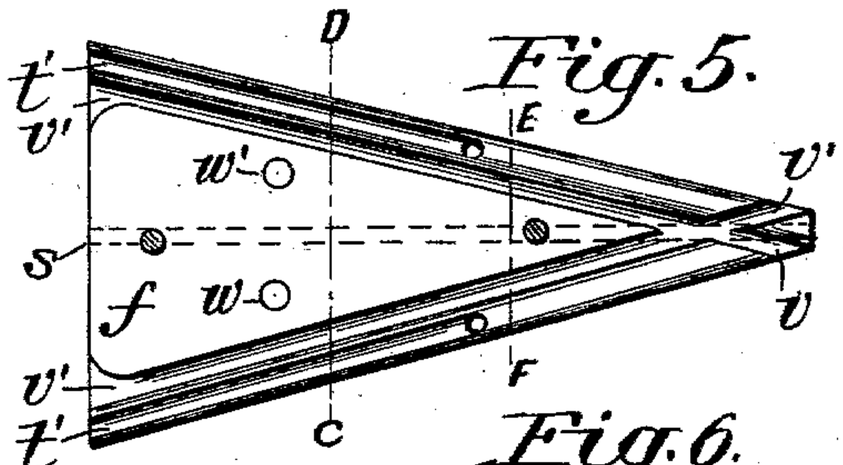
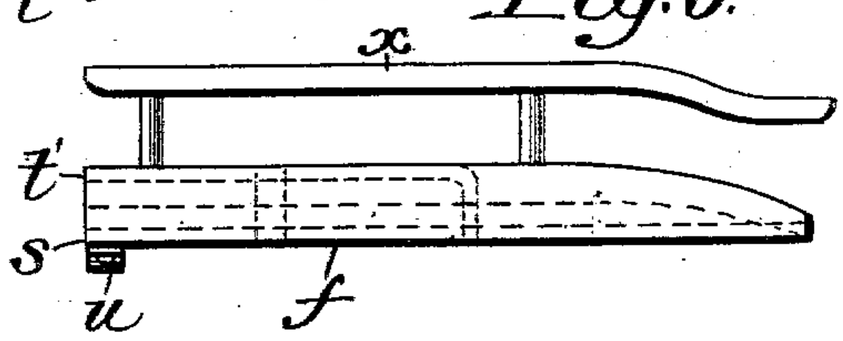
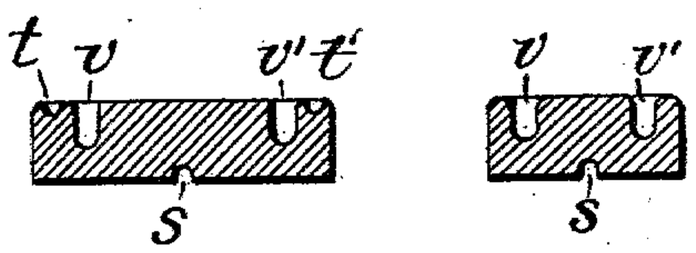


Fig. 6.





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UNITED STATES PATENT OFFICE.

LUCIO FERREIRA, OF PAAUHAU, TERRITORY OF HAWAII.

AERIAL TRAMWAY FOR CONVEYING CROPS OR MERCHANDISE.

SPECIFICATION forming part of Letters Patent No. 745,486, dated December 1, 1903.

Application filed March 7, 1903. Serial No. 146,607. (No model.)

To all whom it may concern:

Be it known that I, LUCIO FERREIRA, a citizen of Portugal, residing at Paauhau, Island of Hawaii, Territory of Hawaii, have invented certain new and useful Improvements in Aerial Tramways for Conveying Crops or Merchandise; and I 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.

My invention is designed for aerial tramways in which the loads run by gravity, being suspended from trolleys whose wheels run upon wire rope. When such a tramway is used, for example, to convey harvested sugar-cane in bundles from the fields to the mill, it is desirable to have a system of branch tramways through the fields converging and joining one another successively.

My invention relates to the method of joining these branches and supporting these tramways and a suitable trolley for same.

Referring to the accompanying drawings, Figure 1 represents in plan a simple system of aerial tramways embodying my invention. Fig. 2 represents in elevation the method of supporting the branch tramways. Fig. 3 represents, on a larger scale, one of the supports for the wire rope. Fig. 4 represents in part section a trolley such as I employ. Fig. 5 represents a top plan view of a junction-block or frog for connecting branch tramway-ropes. Fig. 6 represents a side elevation of the same with a guard above. Fig. 7 represents a transverse section through the frog.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawings, it will be noted in Fig. 1 that the wire ropes a a' a'' end at the posts g g' g'' and that the tramways are continued by the ropes b b' c c' d d', with a frog f f' f'' located at each of the junctions. The posts g g' g'' not only take the strain of the ropes a a' a'', but support the branch ropes by means of cross-arms or brackets, to which are bolted the irons h h', as shown in Fig. 2. The upper end of these iron supports is cut so as to receive the wire rope, and the tips are bent over to grip the wire, as shown in Fig. 3. The support h may also be attached to a projecting bracket from a post to support the rope, as indicated by j j' j'' in Fig. 1. In the construction of the trolleys I use a piece of pipe or tubing o free to turn on the pin k in the yoke i, which terminates in the hook i' at its lower end. At each end of this pipe o is secured a disk n n', between which the sheave or wheel p is free to revolve upon the pipe o. These disks straddle the rope and prevent the trolley from jumping off, and the whole forms a simple and cheap construction. I employ a frog f, preferably of malleable iron, at the junction of the branch ropes having a grooves underneath for the rope a and grooves t and t' on its top and along its diverging edges for the two branch ropes. Grooves v and v' are also provided, so that the disk n of the trolleys may clear the frog. The rope is clamped in the groove s by means of the clip u, while the ends of the branch ropes pass through and are secured to the bottom of the frog. The frogs may be suspended from an arm or bracket by bolts or rods attached at w w', Fig. 5. Supported by studs above the frog may be placed a guard at a suitable height to permit the trolley-frame i to pass underneath and at the same time prevent the trolley from jumping off when passing over the frog.

The mode of operation will be apparent. The lines are erected with sufficient downgrade to cause the loads to run by gravity toward the end of the main line. The loads being attached to the trolley hooks are started down the branch line, passing over the frogs, continuing to the mill, where they are dumped and the trolleys returned to the field.

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

1. A system of aerial tramways, comprising branching load-supporting ropes having, at the junction of the branches, frogs to which the ropes are secured, substantially as described.

2. A frog for aerial tramways, having a groove underneath in which is clamped the main rope, grooves along its top diverging edges for the two branch ropes, holes through which the ends of the branch ropes may be

passed and secured, and grooves such that the trolleys may clear the frog, substantially as described.

3. A load-supporting trolley for aerial tramways, comprising a yoke or frame to which the load is attached, a sheave journaled in said yoke, and disks mounted in said yoke upon opposite sides of the sheave and extending beyond the periphery of the latter, substantially as described.

4. A load-supporting trolley for aerial tramways, comprising a yoke or frame to which the load is attached, a spool comprising a hollow spindle and end disks journaled in said yoke, and a sheave mounted upon said spool between said disks, substantially as described.

5. An aerial tramway having a frog or branch block and a guard secured to and above said frog, for the purpose and substantially as described.

6. In an aerial tramway, the combination of branching wire ropes, frogs connecting said ropes at the junctions of the branches, supports for the ropes and the frogs, and load-supporting trolleys running upon said ropes, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

his
LUCIO × FERREIRA.
mark

Witnesses:
J. M. CAMARA,
J. R. MONIZ.