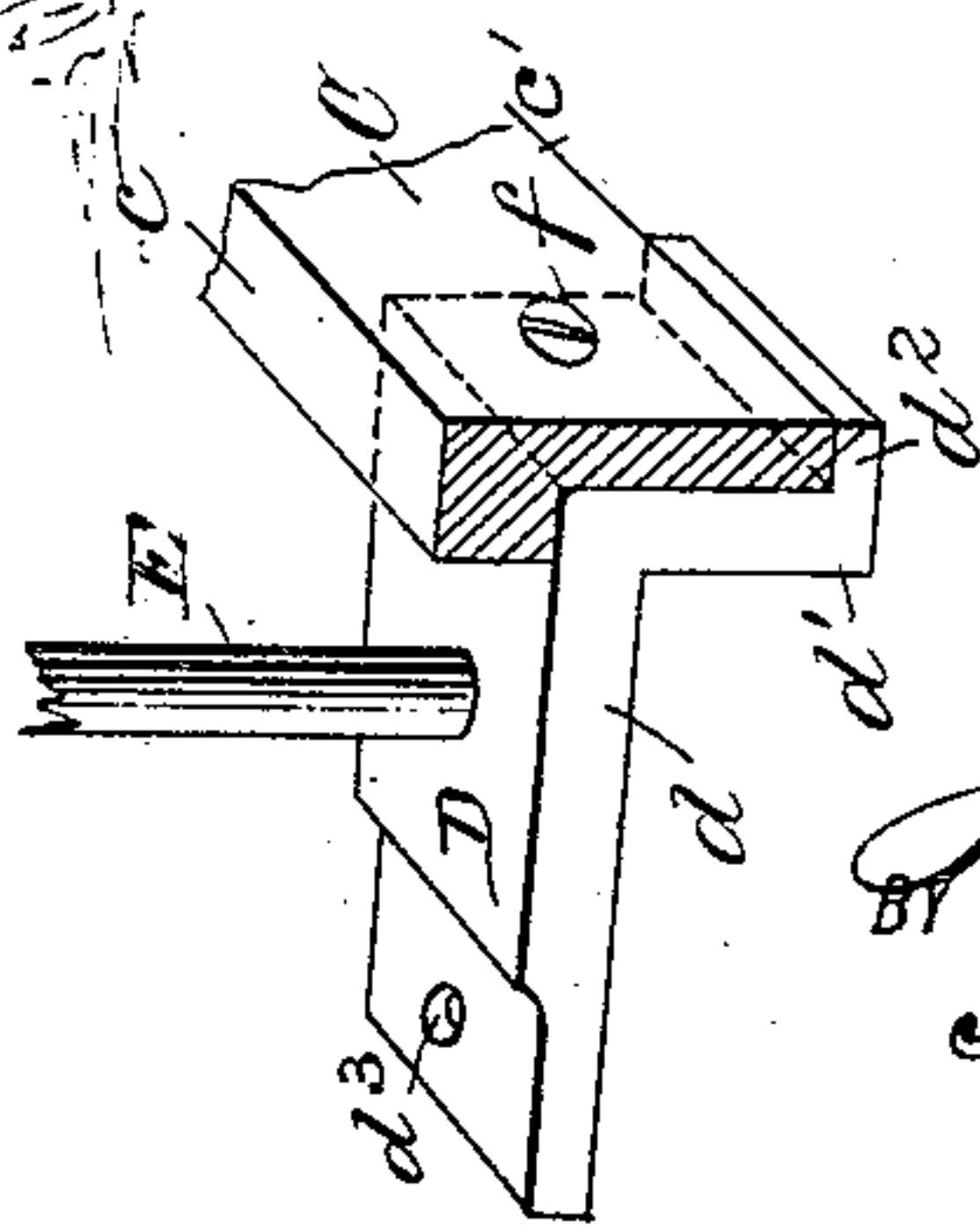
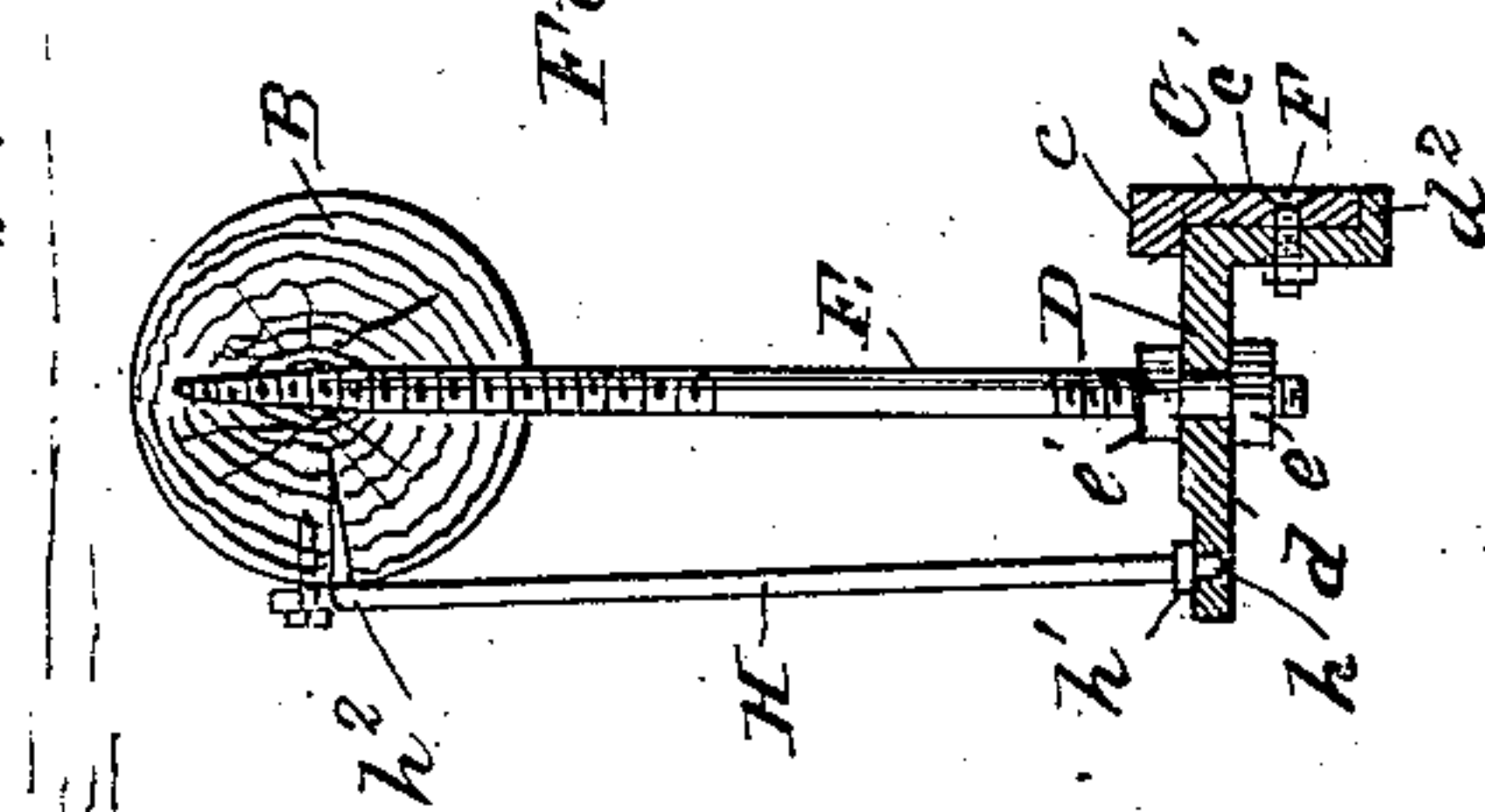
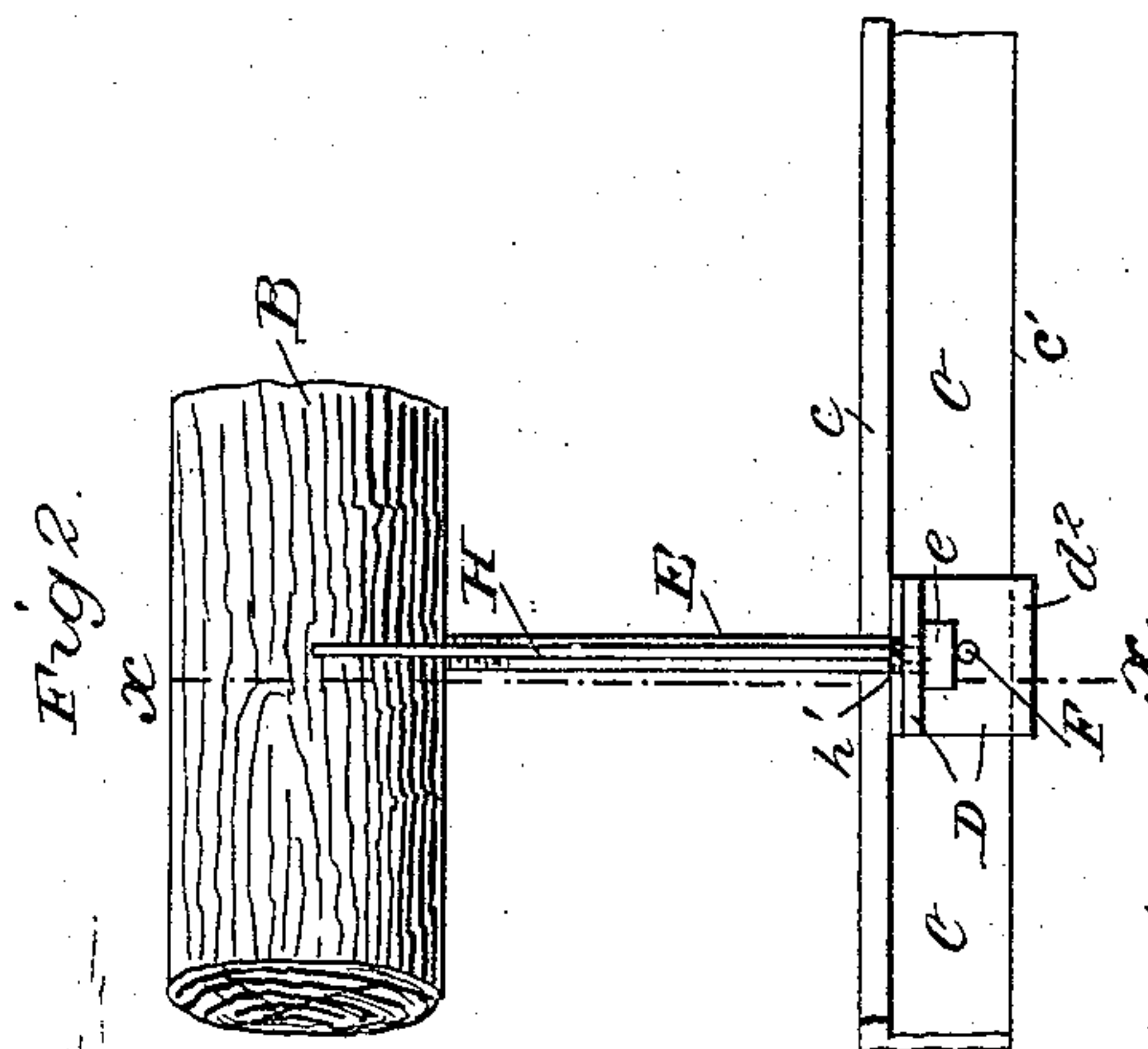
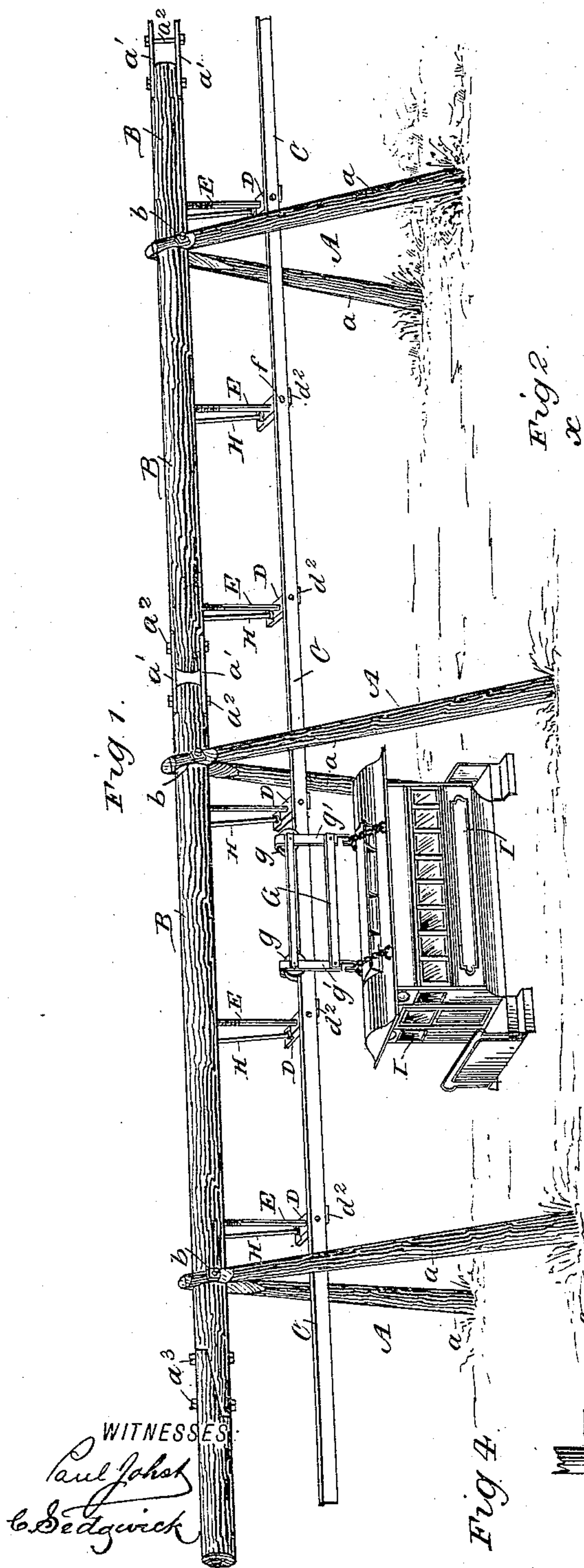


(No Model.)

J. N. VALLEY.
ELEVATED RAILROAD.

No. 446,272.

Patented Feb. 10, 1891.



INVENTOR:

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UNITED STATES PATENT OFFICE.

JOHN N. VALLEY, OF JERSEY CITY, NEW JERSEY.

ELEVATED RAILROAD.

SPECIFICATION forming part of Letters Patent No. 446,272, dated February 10, 1891.

Application filed August 7, 1890. Serial No. 361,307. (No model.)

To all whom it may concern:

Be it known that I, JOHN NAPOLEON VALLEY, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Elevated Railroad, of which the following is a full, clear, and exact description.

My invention relates to elevated railroads adapted for passenger or freight carrying purposes and also for use in timber-lands for getting out logs, or at mines for transporting coal, ores, or refuse, or in other situations.

My present improvements relate more particularly to the mode of suspending and bracing the elevated track-rail from the stringer, which is sustained by struts set upon or in the ground.

The invention will first be described, and then will be particularly defined in claims hereinafter set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a short section of elevated railroad built in accordance with my invention, and shows a passenger-car hung from the truck or trolley running on the track-rail. Fig. 2 is a rear view of part of the stringer and one of the hangers and chair-plates and their brace. Fig. 3 is a transverse vertical section taken on the line $x x$ in Fig. 2, but slightly modified in construction; and Fig. 4 is a perspective view of one of the chair-plates and a portion of its hanger and the elevated track-rail.

The struts A, which sustain the stringer-timber B, from which the single rail C of the structure is suspended, are preferably made of two downwardly and laterally diverging posts $a a$, set in or on the ground, and are at their tops preferably let into opposite sides of the stringer, where they are fastened by a bolt b , as shown in Fig. 1 of the drawings. Any suitable connection of the tops of the strut-posts with the stringer may, however, be adopted within the scope of my invention. Where the railroad is to curve more or less sharply to the right or left hand, I connect the adjacent ends of the stringer-sections pivotally by means of a pair of links $a' a'$ and bolts $a^2 a^2$, passed vertically through the

stringer-sections and links. Where the road is straight, or nearly so, the stringer-sections will be halved and bolted together, as shown at a^3 at the left-hand end of Fig. 1 of the drawings.

The single rail or track C is hung from the stringer by means of chair-plates D, which are sustained by the heads e of bolts or lag-screws E, which are screwed into or otherwise held to the stringer. If desired, the lower retaining head or collar e may be a nut screwed onto a lower threaded end of the hanger-bolt E, and a jam or lock nut e' may be also used on the hanger above the chair-plate, as shown in Fig. 3 of the drawings. The chair-plates will be supported about six feet or more apart, as may be required by any special uses to which the railroad is to be put or the loads it is to carry.

Fig. 4 of the drawings most clearly shows that the chair-plates are each provided with an upper horizontal portion or body d , from one end of which hangs a flange d' , which is preferably vertical, and is provided at its lower edge with a laterally-projecting rib or bearing d^2 , and the rail or track C is made with a head portion c , which overhangs at one side of the rail-body c' , and whereby when the rail is placed on the suspended chair-plate the rail-head c will overlap the chair-plate body d and the rail-body c' will rest flat against the chair-plate flange d' and the lower edge of the rail will rest upon the lateral rib or bearing d^2 of the chair-plate, whereupon the rail will be fastened to the chair-plates by bolts or screws F, which preferably have countersunk heads f , which lie flush with or a little inside of the outer face of the body of the rail, so as not to interfere with the pendent arms $g' g'$ of the frame of the carriage or trolley G, which has wheels $g g$ traveling on the head c of the rail C.

The chair-plates are each extended sufficiently beyond or behind their suspending-bolts E to allow connection of an efficient brace-bar H to the chair-plate and stringer to steady the chair-plates and rail under the weight of the loaded carriage or trolley. I prefer at present to make these brace-bars H of iron and to provide each of them with a collar or shoulder h' above its lower end h , which is set into a hole d^3 , made near the

outer part of the rearward extension of the chair-body, which may be somewhat reduced in thickness to save unnecessary weight. The upper ends of these brace-bars H may
 5 either be bent at right angles to form a spike h^2 , which will be driven into the stringer A, as shown in full lines in Fig. 3 of the drawings, or this end of each brace-bar may be left straight and be secured to the stringer
 10 by a bolt, spike, or staple, as will be understood from the dotted lines in said Fig. 3. The upper ends of the braces may be fastened to the stringer by both the spike h^2 and a bolt, if desired. It is obvious that the rear
 15 braces H may be made of wood fastened in any suitable manner to the chair-plates and stringer. Weight or pressure coming upon the rail C by the passage of the trolley G along it will be counterbalanced by the resistance of the braces H, whereby the chair-plate will be held level and the rail will be held from tipping over sidewise and the suspension-bolts or hanger-bars E of the rail will not be twisted or bent backward, whereby
 20 the durability of this very inexpensive and simple construction of elevated railroads is assured.

Fig. 1 of the drawings shows a passenger-car I, hung by rod or chain bails to the lower
 30 hooked ends of the trolley-frame, and the car passes between the opposing posts $a a$ of the struts A as the trolley runs along the track-rail C.

Any approved means for propelling the car
 35 may be adopted.

Instead of a passenger car or carriage, a freight-car or ore-box may be slung from the trolley G, or one or more logs may be hung in chains attached to the trolley, the railroad
 40 being thus adapted for passenger or freight traffic, and in any service it will prove to be economical as to first cost and maintenance.

Obviously the manner of sustaining the track-rail from the stringer by hangers sustaining chair-plates which carry the rail at one end and are braced to the stringer at the other end is especially serviceable when the stringer is sustained by struts made of two diverging posts between which the loaded
 45 trolley runs, as the steadiness given the track-rail by the braces H prevents swaying of the rail and avoids collision of the load with the strut-posts.

While I prefer to make the chair-plates
 55 separate from the hangers E and slip them loosely onto the hangers, the chair-plates may be fixed to the hangers or may be formed integral therewith, as will readily be understood.

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

1. In an elevated railroad, the combination, with an elevated stringer, of hangers held
 65 thereto, chair-plates sustained by the hangers, a rail supported by the chair-plates, and braces between the chair-plates and the

stringer, substantially as described, whereby the braces will steady the chair-plates and counterbalance the load-weight on the rail
 70 and prevent tipping of the rail, as set forth.

2. In an elevated railroad, the combination, with an elevated stringer and sustaining-struts therefor consisting of two downwardly-diverging posts held at their upper parts to
 75 the stringer, of hangers held to the stringer, chair-plates sustained by the hangers, a rail supported by the chair-plates, and braces between the chair-plates and the stringer, substantially as described, whereby the braces
 80 will steady the chair-plates and counterbalance the load-weight on the rail and prevent tipping of the rail and the car or trolley traveling on the rail will run between the diverging posts of the struts, as set forth. 85

3. In an elevated railroad, the combination, with an elevated stringer, of headed hangers held thereto, chair-plates held about centrally to the hangers, a rail held at one end of the chair-plates, and braces between the other
 90 ends of the chair-plates and the stringer, substantially as described.

4. In an elevated railroad, the combination, with an elevated stringer and hangers held thereto, of independent chair-plates on the
 95 hangers, provided with a pendent flange and a projecting rib or bearing at the lower part of said flange, and a rail fastened to the chair-plate flanges and resting on their lower ribs or bearings and having a head portion bearing
 100 upon the chair-plates, substantially as described.

5. In an elevated railroad, the combination, with an elevated stringer and hangers held thereto, of chair-plates on the hangers, provided with a pendent flange and a projecting
 105 rib or bearing at the lower part of said flange, a rail fastened to the chair-plate flanges and resting on their lower ribs or bearings, and braces between the chair-plates and stringer,
 110 substantially as described.

6. In an elevated railroad, the combination, with an elevated stringer and hangers held thereto, of chair-plates on the hangers, provided with a pendent flange and a projecting
 115 rib or bearing at the lower part of said flange, a rail fastened to the chair-plate flanges and having a head portion overlapping the chair-plates, and braces between the chair-plates and stringer, substantially as described. 120

7. In an elevated railroad, the combination, with an elevated stringer and hangers held thereto, of chair-plates on the hangers, provided with a pendent flange and a projecting
 125 rib or bearing at the lower part of said flange, a rail fastened to the chair-plate flange and having a head portion overlapping the chair-plates, and said rail resting also on the lower projecting ribs or bearings of the chair-plates, and braces between the chair-plates and
 130 stringer, substantially as described.

8. In an elevated railroad, the combination, with struts A, formed with downwardly-diverging posts $a a$, and a stringer B, sustained

by the struts, of headed hangers E e on the
stringers, chair-plates D on the hangers, a
rail C on the chair-plates, and braces between
the chair-plates and stringer, substantially as
5 described.

9. In an elevated railroad, the combination,
with struts, a stringer sustained thereby,
hangers on the stringer, chair-plates on the
hangers, and a rail on the chair-plates, of
10 braces H, having a lower extremity h enter-

ing a hole in the chair-plates, and provided
with a lower shoulder or collar h', resting on
the chair-plates, and also having an inbent
spike-head h² entering the stringer, substan-
tially as described.

JOHN N. VALLEY.

Witnesses:

HENRY L. GOODWIN,
C. SEDGWICK.