

(No Model.)

J. W. TINDALL.
ROPE MEASURING DEVICE.

No. 357,136.

Patented Feb. 1, 1887.

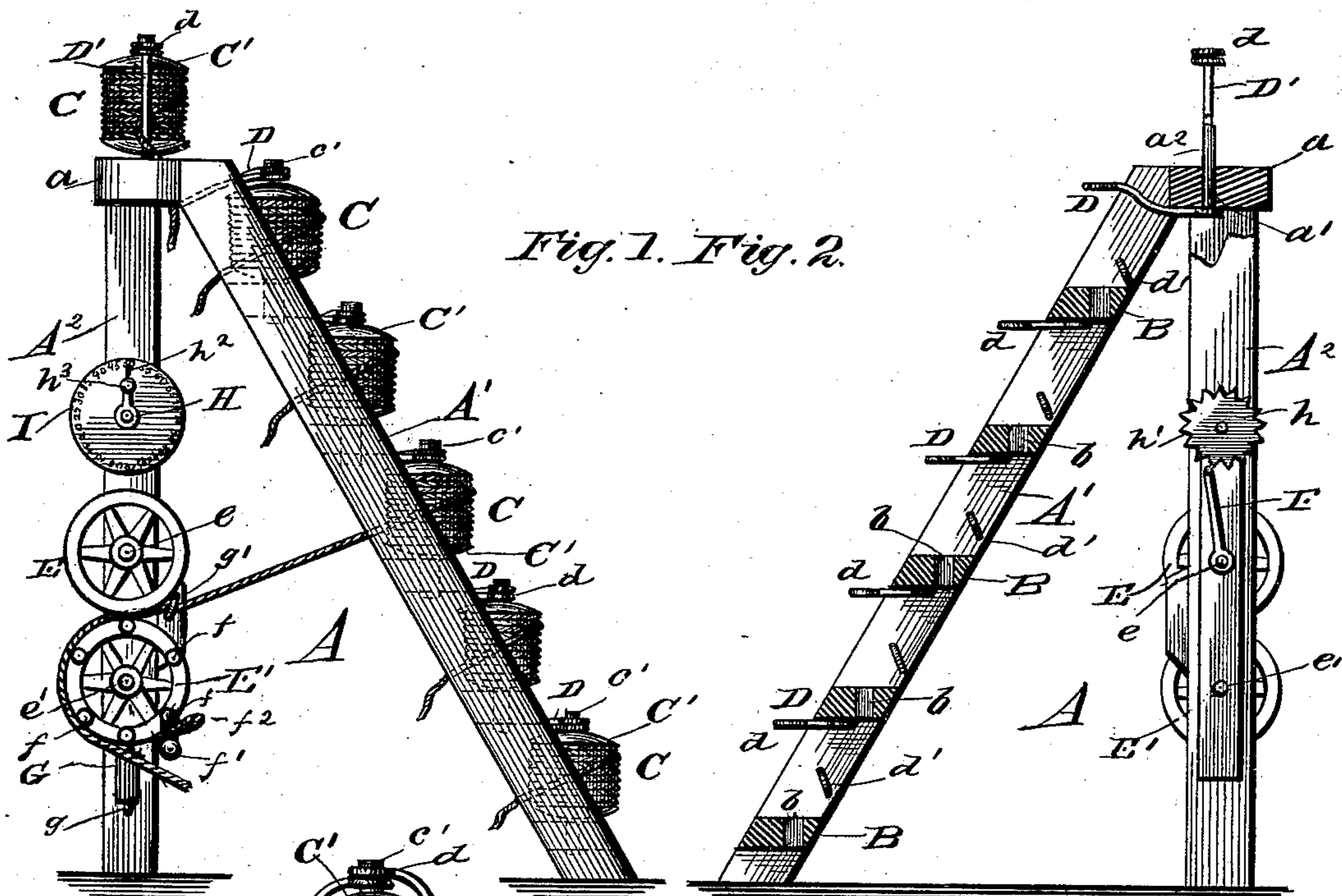


Fig. 3.

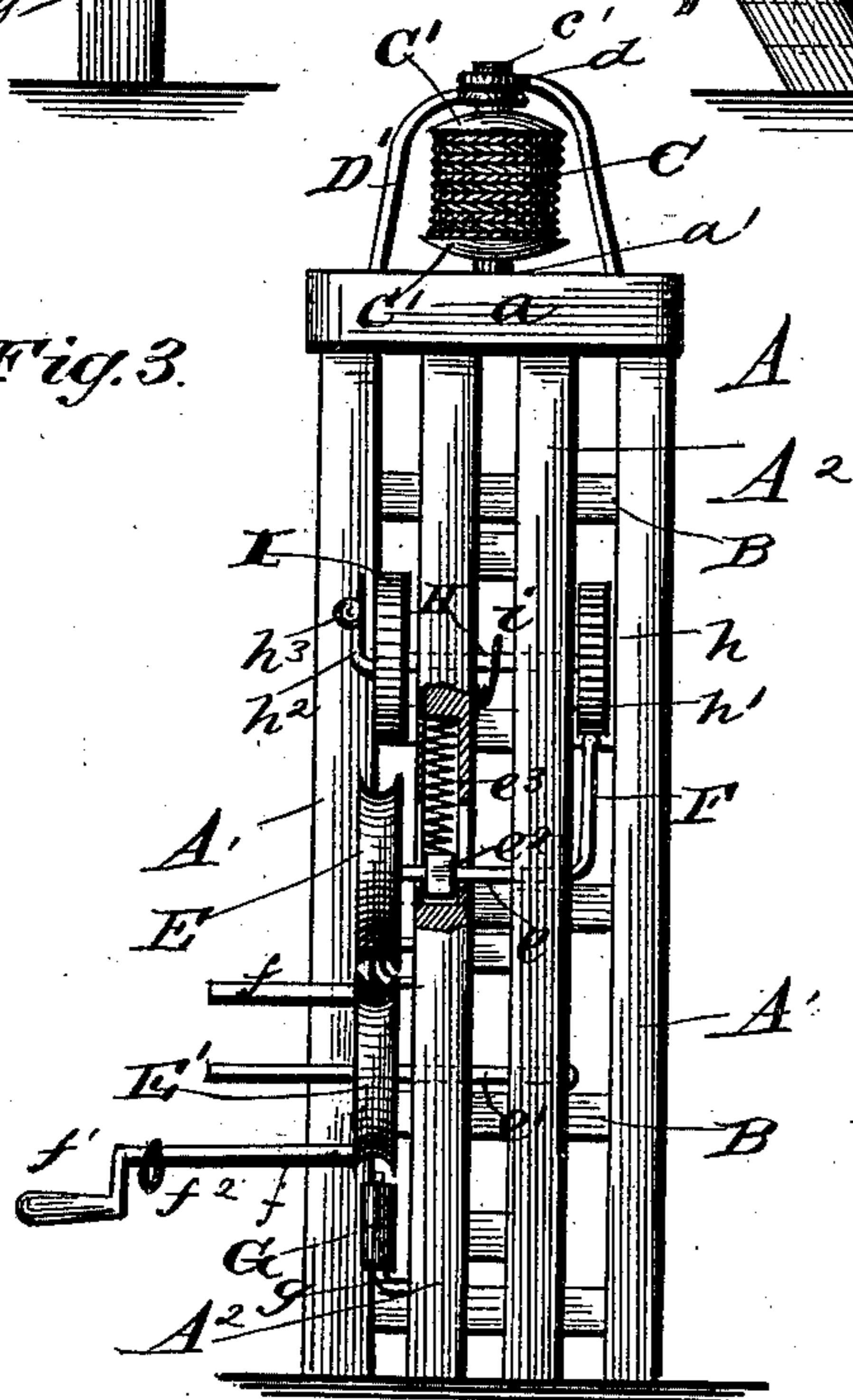


Fig. 4.

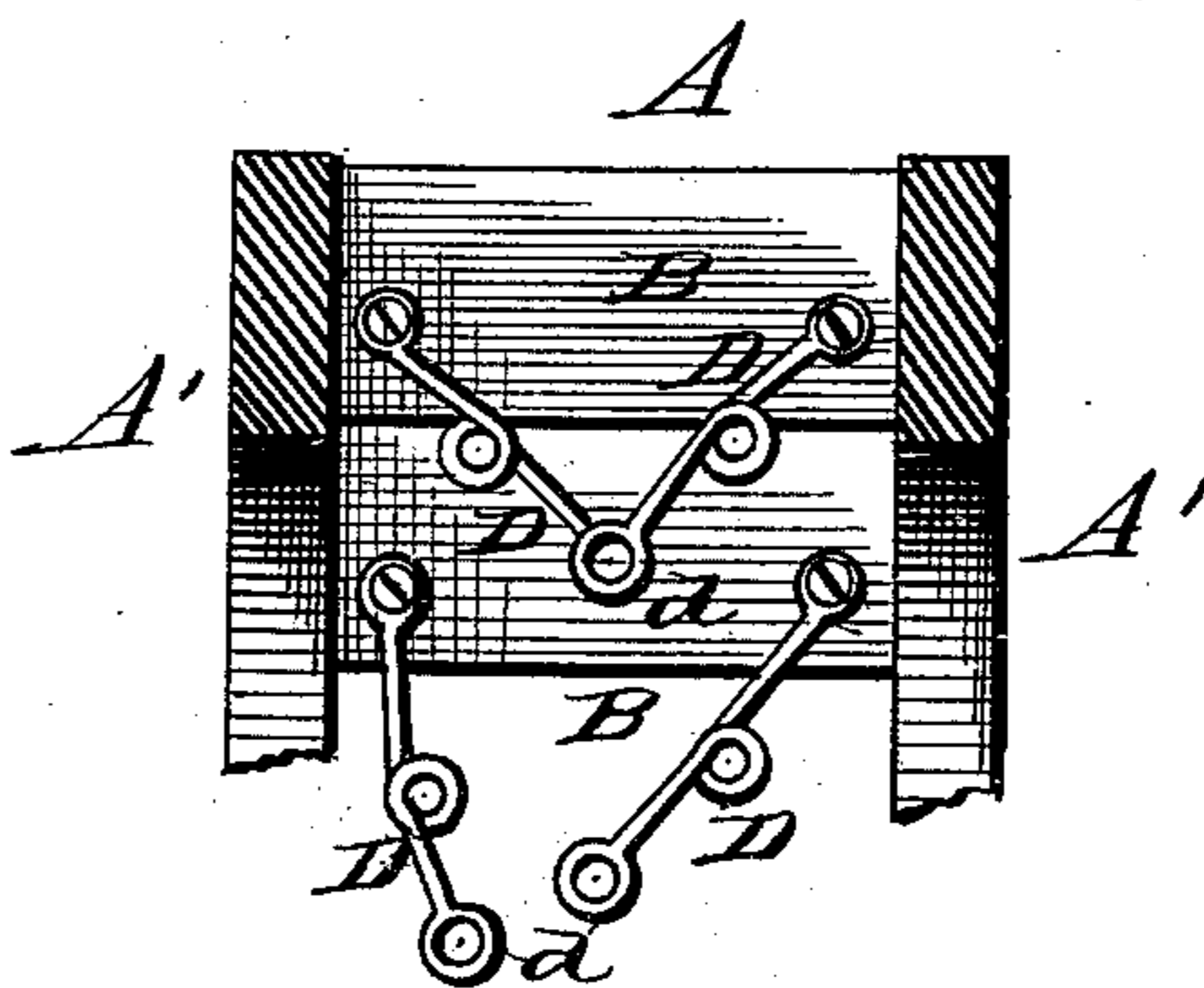
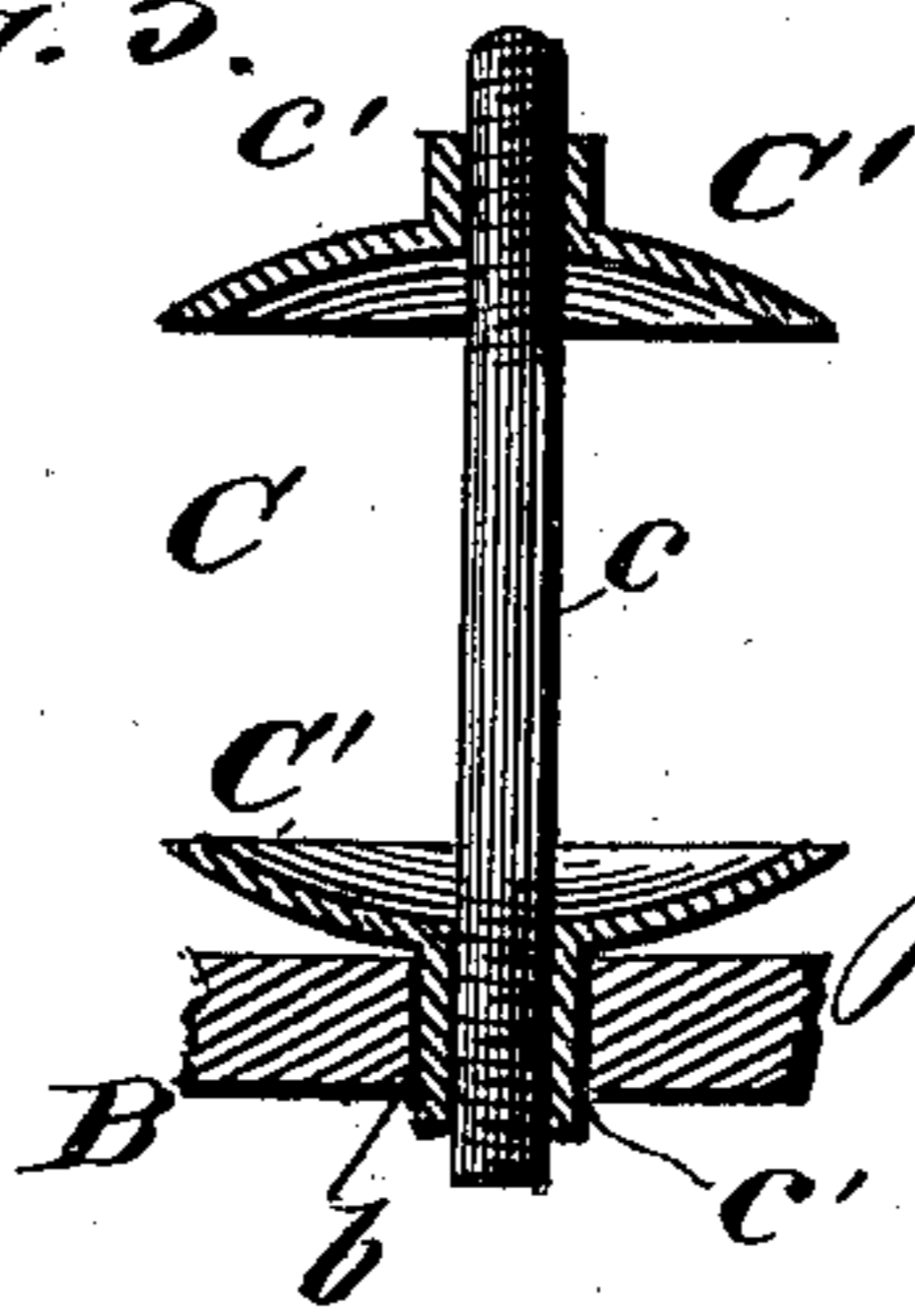


Fig. 5.



Witnesses:

Phil C. Dietrich,
A. E. Towell

Inventor:
John W. Tindall
by
W. Alexander
Attorney.

UNITED STATES PATENT OFFICE.

JOHN W. TINDALL, OF WINFIELD, ASSIGNOR TO FREDERICK J. LEE, OF
ENGLEWOOD, KANSAS.

ROPE-MEASURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 357,136, dated February 1, 1887.

Application filed March 25, 1886. Serial No. 196,443. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. TINDALL, of Winfield, in the county of Cowley and State of Kansas, have invented certain new and useful Improvements in Automatic Rope-Measuring Devices; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side elevation of my improved rope winding and measuring machine. Fig. 2 is a view of the opposite side of the same, partly in section. Fig. 3 is an end elevation. Fig. 4 is a bottom plan view of the frame, partly in section. Fig. 5 is an enlarged sectional view of one of the spools.

This invention relates to improvements in automatic rope or cord measuring devices; and it consists, mainly, in the construction and novel arrangement of mechanism, hereinafter described, whereby the length of rope moving between two pulleys of equal diameter is registered upon a dial fixed to the frame of the machine.

The invention further consists in the construction and novel arrangement of certain parts, hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, A designates the main frame of the machine, composed of the spool-holding frame proper, A', and the frame A², to which the measuring mechanism is attached. The spool-holding frame has at top an extension-piece, a, through an opening, a', in which a pin, a², passes, the said pin rising from the top of the frame A². When the device is in operation, the frame A² stands vertical and the frame A' inclines from the top thereof.

B B are cross-bars of the frame A', provided centrally with openings b b, in which enter the lower ends of the spindles c of the rope-spools C. The said spindles have threaded ends which screw into proper openings in the bases or hubs c' of the concave circular end plates, C', of the spools, the concavity of said plates looking toward each other or inward.

D D are spring-rods having their inner ends pivoted to the lower surfaces of the cross-bars

B and their outer ends looped or eyed at d to pass over the upwardly-extending bars or hubs c' of the spools. The highest spool has a spring-frame, D', passing over its hub, the said frame being attached to the extension-piece a, as shown.

d' d' are eyebolts or staples secured to the side of the frame A', for the purpose of directing the rope of the spools to the measuring mechanism. Each spool is designed to hold ropes of different size, so that a number of varying-sized ropes can be held by the same device.

e e' are the transverse shafts of two pulleys, E E', having grooved perimeters. The said shafts are journaled in the side bars of the frame A², the former above the latter. The journal of the shaft e, adjacent to the pulley E, has a bearing in a sliding journal-box, e², which plays in a proper way on the side bar of the frame A, and is pressed downward by the spring e³, which bears against a shoulder in said side bar, as shown. The object of this spring is to make the pulleys bind sufficiently upon the rope passing between them, whatever the diameter.

F is an arm projecting at right angles from the shaft e on the end opposite to the pulley E, and serving a purpose hereinafter explained.

f f are spindles extending outward from and at right angles to the spokes or web of the pulley E', and forming a rack on which the rope winds after passing between the pulleys.

f' is a crank-handle secured to the end of one of the spindles f, and f² is a loop or other suitable device on the said end to attach the ends of the rope to, so as to make it wind on the rack.

G is a vertical roller turning on the rod g, secured to the side of the frame A² below the pulley E'. The said roller serves to turn the rope outward from the pulley E' after passing between the pulleys and cause it to wind on the rack.

g' is an eyebolt or staple secured to the side of the frame A², and serving to direct the rope between the pulleys.

H is a transverse shaft journaled in the side bars of the frame A² a suitable distance above the pulley E. The said shaft has on its end

opposite the side of the frame A^2 carrying the pulleys a spur-wheel, h , the points h' of which are in striking distance of the arm F , hereinbefore described.

5 h^2 is a pointer or index-arm standing at right angles from the other end of the shaft H and bearing a weight, h^3 .

I is a dial-plate secured to the side of the frame A , and having the shaft H passing centrally through it. The said dial-plate is graduated into equal intervals, which are numbered to correspond to the circumference of pulley E' in feet or multiple of said circumference. Thus, if the pulley were five feet in circumference, the dial would be numbered 5, 10, 15 &c., from its initial point.

i is a spring secured to the frame A and bearing on the shaft H , so as to prevent the index-arm from dropping when moved to any position by the mechanism.

The operation is as follows: The rope passing from the spools, as described, and between the pulleys, the latter bind on it, and at each revolution draw out a quantity equal to the circumference of each. The arm F makes one rotation simultaneously with the pulleys, and striking against the spur-wheel h moves it one tooth. The teeth being equal in number to the divisions of the dial, the index-arm thereupon moves one division and indicates that a quantity of rope equal to the circumference of either pulley has been pulled off its spool. In beginning to measure, the spring i is lifted from the shaft H and the index-arm immediately drops to the last division of the dial, so as to be in position to start toward the first mark of the same. The spring-rods D prevent the spools from turning when the rope is not being drawn out.

40 The pulleys $E E'$ may be flat edged and not have grooved perimeters; but the latter construction is preferable.

The peripheries of the pulleys E and E' are sufficiently close together to bind on the rope and prevent it from slipping on the latter. This is important; otherwise the dial might not register correctly.

50 The springs D press down on the upper plates, C' , of the spools, and prevent the coil of rope from slipping on the spindles c .

Having described my invention, I claim—

1. In a device to measure rope, the combination of the rotatory spools, the pulleys with their shafts journaled in the frame of the device and adapted to have the rope pass between them, the rack formed of the spindles f on the lower pulley, the crank-handle f' on said rack, and mechanism, substantially as described, to register the amount of rope passed between the pulleys.

2. The combination of the vertical frame A^2 , the pulleys $E E'$, having their shafts journaled thereupon, the arm F on the shaft of the wheel E , the rack composed of the spindles f , the dial-weighted index-arm, the spring i , and spur-wheel on the dial-index shaft with the frame A , and the spools C , attached to the transverse bars thereof and composed of the spindles c and end plates, C' , substantially as specified.

3. In a device to measure rope automatically, the combination of the two frames $A' A^2$, the spools, the pulleys journaled on the frame A^2 , the registering mechanism, constructed substantially as described, the eye-bolts d' , secured to the frame A' , the directing-eyebolt secured to the frame A^2 , the rack composed of the spindles f , and the directing-roller G , substantially as described.

4. In a device to measure rope, the combination of the rotatory spools C , composed of the vertical spindles c and end plates, C' , and journaled upon the cross-bars B of the main frame, and the spring-rods D , having their ends attached to said cross-bars, and the center loops surrounding the upper parts of the upper plates, C' , so as to press the same down with suitable force on the coils of rope, to prevent them slipping on the spindles c with the two equal-sized pulleys having their shafts journaled in the main frame, and the rope-measuring mechanism, constructed substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN W. TINDALL.

Witnesses:

CORNELIUS TRUMP,
JAMES W. CHANEY.