

No. 612,484.

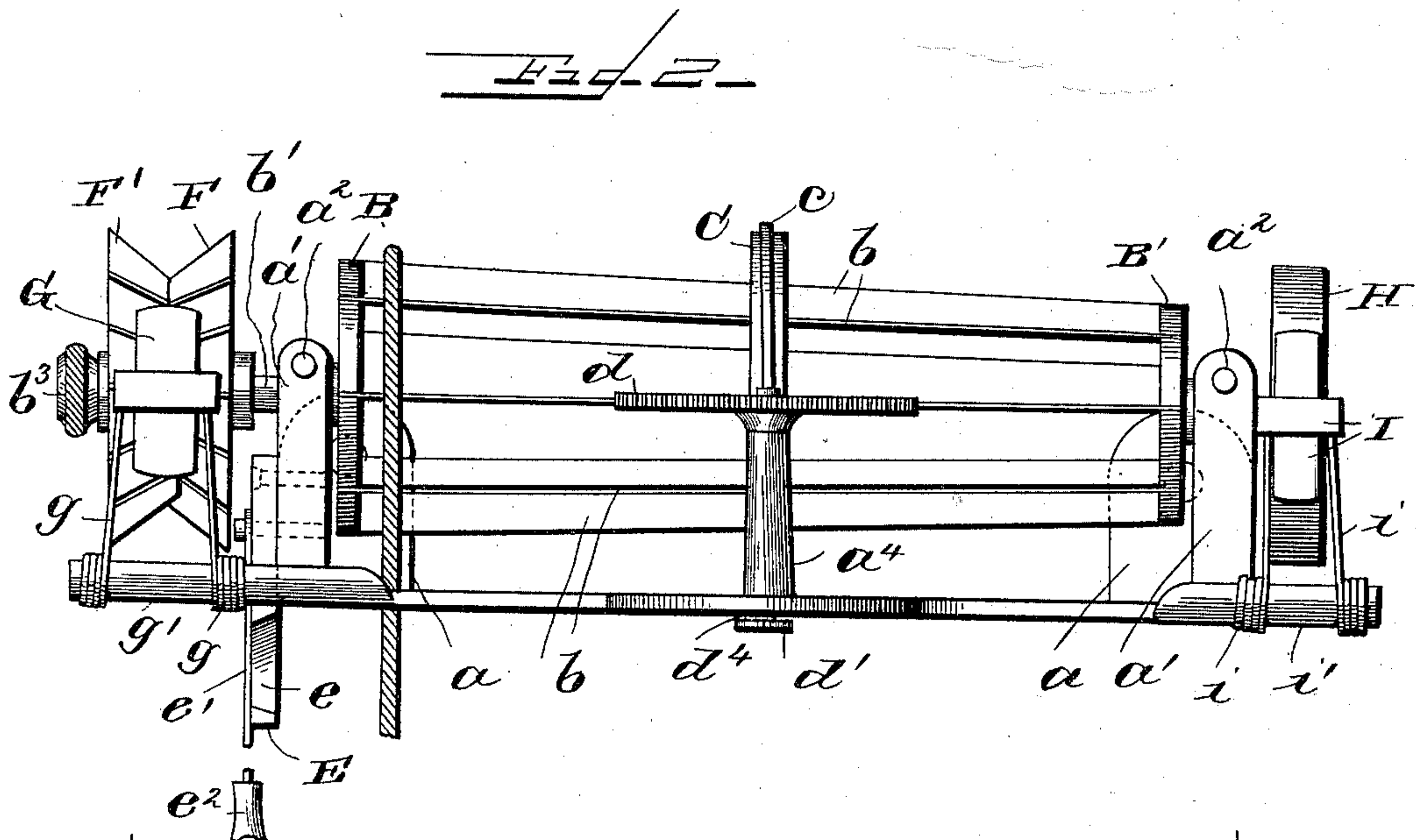
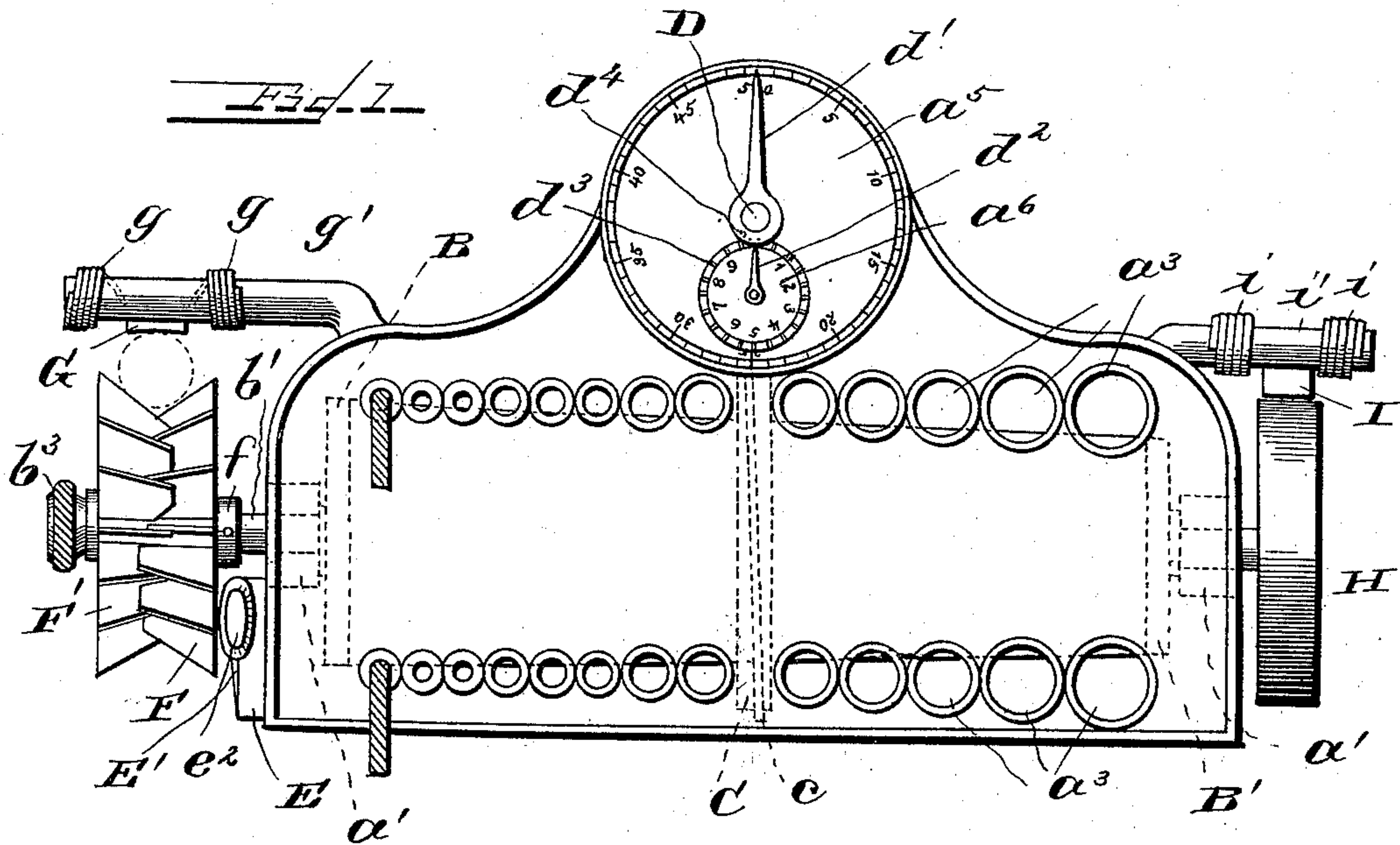
Patented Oct. 18, 1898.

T. & W. H. COLDWELL.
ROPE MEASURING DEVICE.

(Application filed Feb. 26, 1898.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES.

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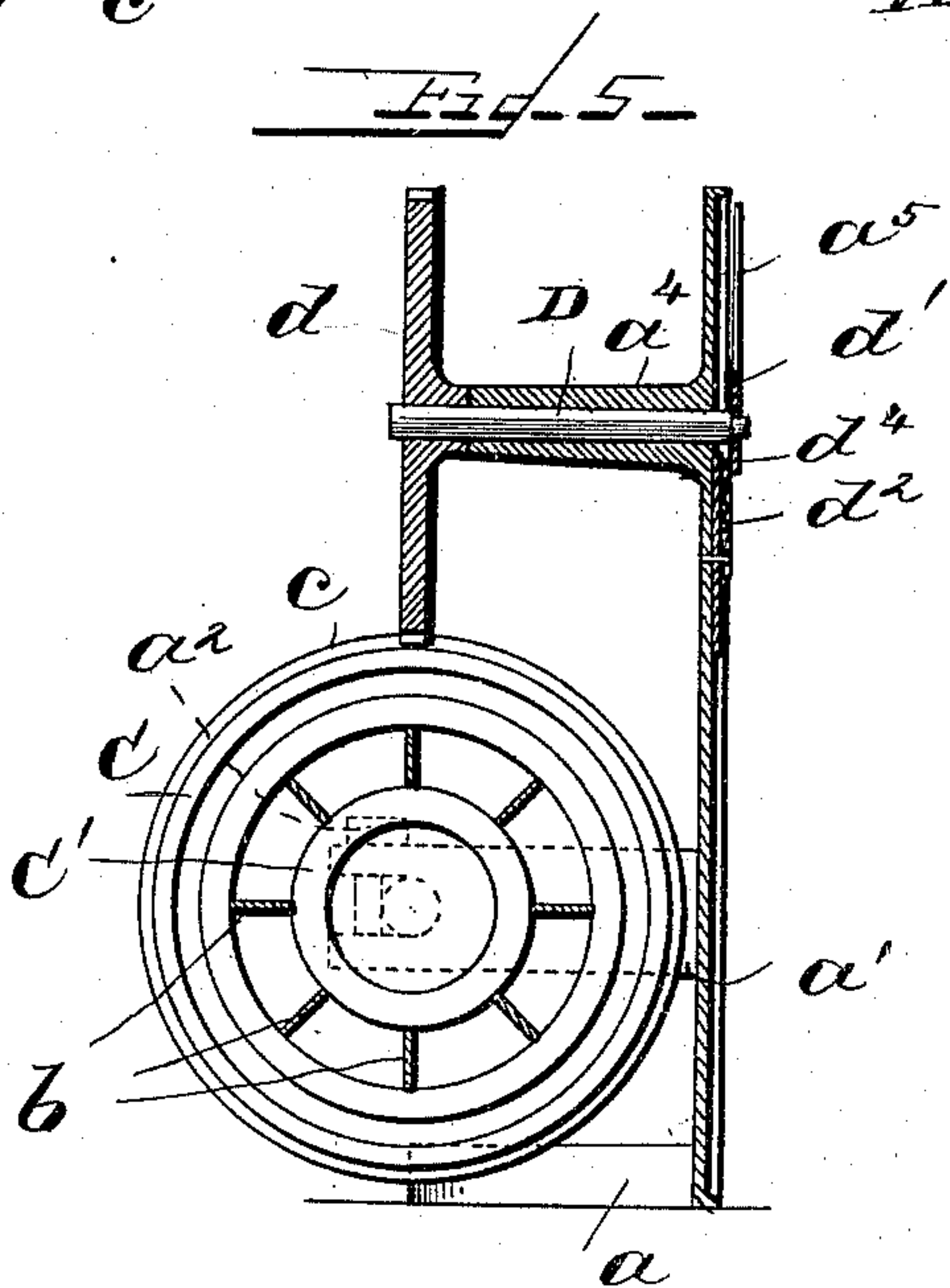
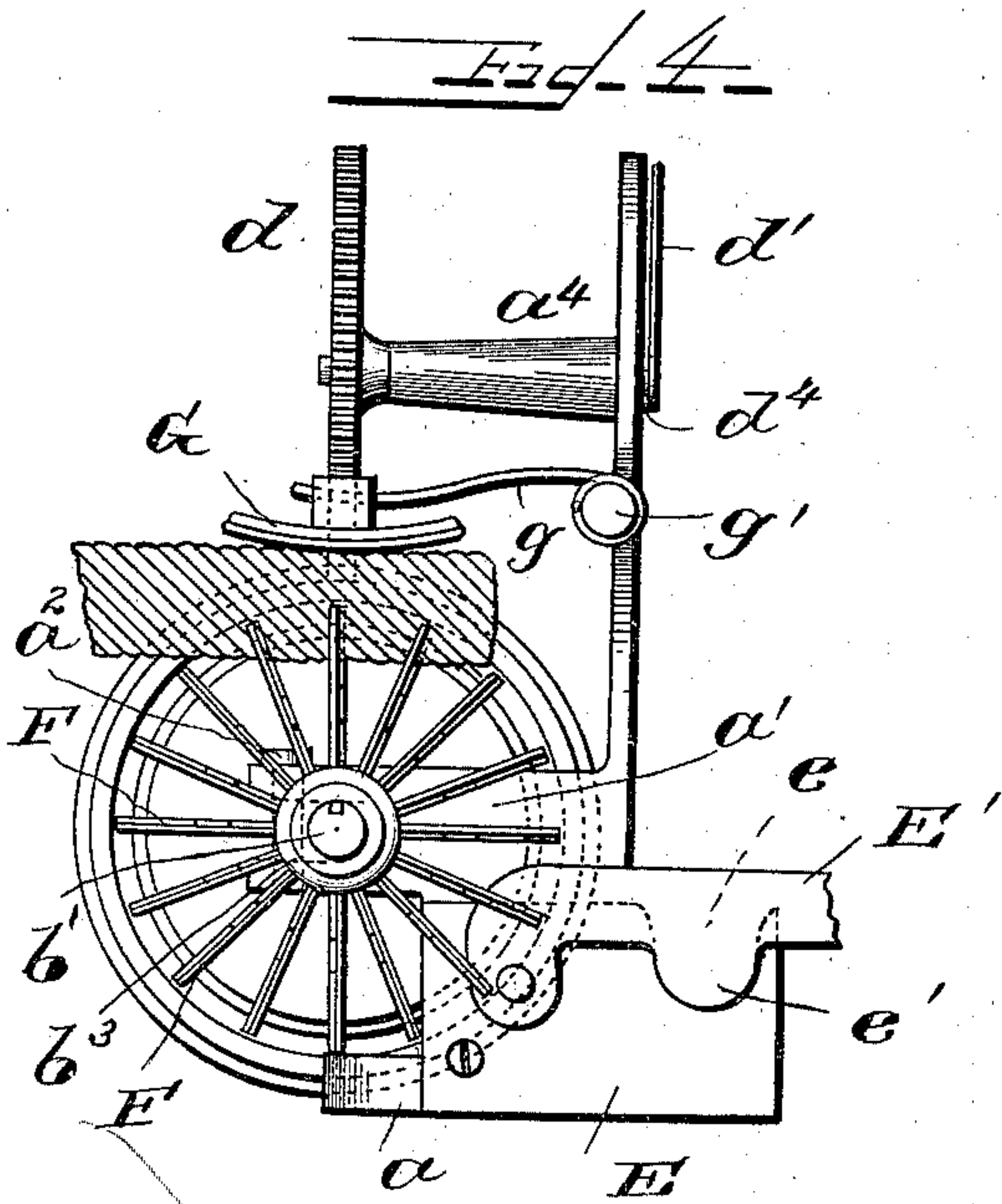
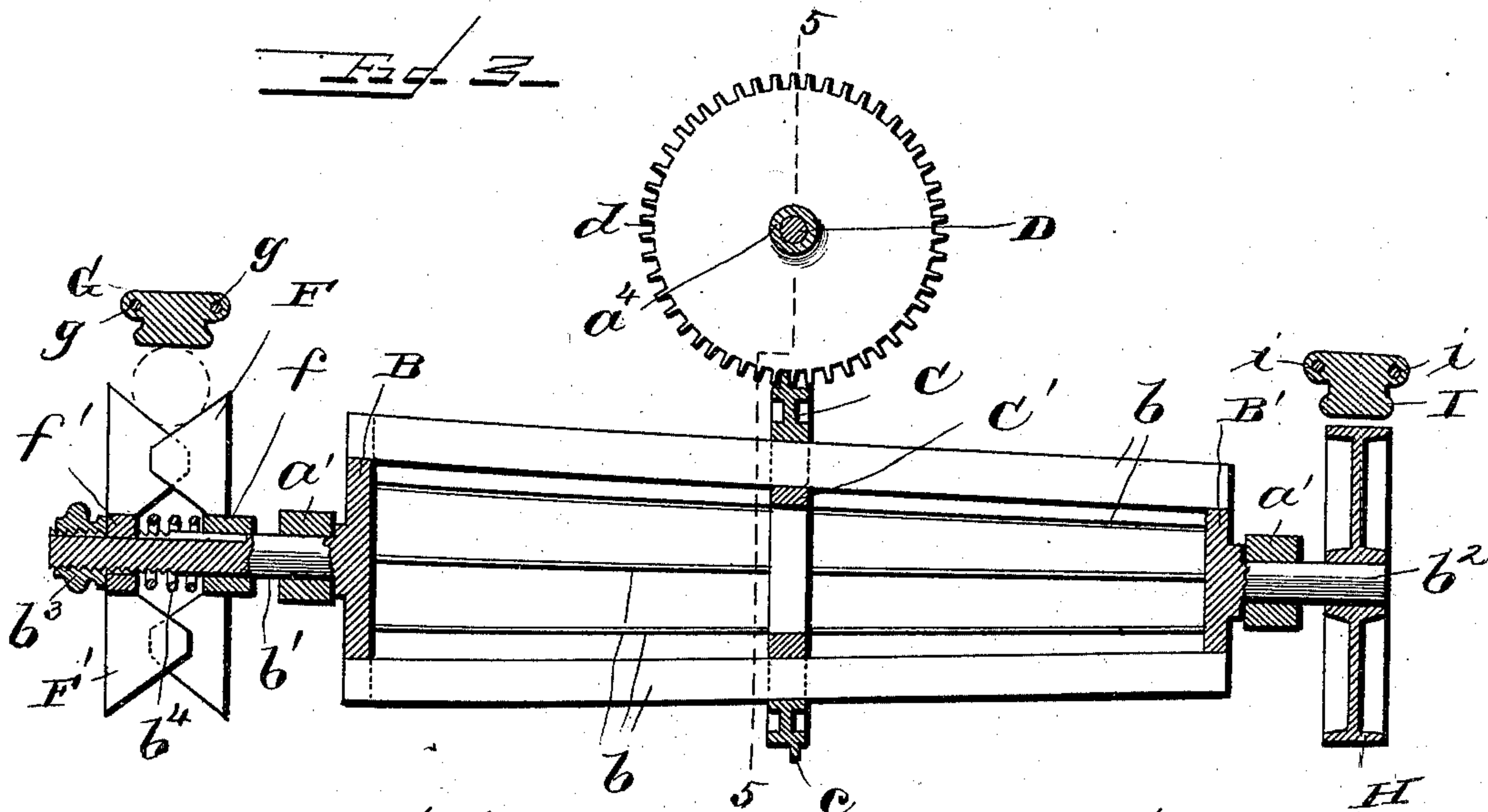
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UNITED STATES PATENT OFFICE.

THOMAS COLDWELL AND WILLIAM H. COLDWELL, OF NEWBURG,
NEW YORK.

ROPE-MEASURING DEVICE.

SPECIFICATION forming part of Letters Patent No. 612,484, dated October 18, 1898.

Application filed February 26, 1898. Serial No. 671,777. (No model.)

To all whom it may concern:

Be it known that we, THOMAS COLDWELL and WILLIAM H. COLDWELL, citizens of the United States, residing at Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Rope-Measuring Devices; and we do 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.

Our invention is an improvement in rope-measuring devices; and it consists in the novel features of construction and combination of parts hereinafter described, reference being had to the accompanying drawings, which illustrate one form in which we have contemplated embodying our invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a front view of our improved device. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical longitudinal sectional view of the device. Fig. 4 is an end view of the device. Fig. 5 is a vertical transverse sectional view on line 5 5 of Fig. 3.

The object of our invention is to provide an apparatus for measuring ropes of varying sizes and indicating the amounts so measured.

The main frame of the device consists of a vertical front plate A, which is provided with a suitable base for supporting the same, consisting in this instance of a pair of rearwardly-extending flanges a , having apertures therein, so that they may be rigidly secured to a supporting-table or counter. In rear of the plate A is the measuring drum or reel, of peculiar construction, the shaft or trunnions of which are supported in suitable bearings in the main frame. In this instance we have shown the plate A provided at each side with a rearwardly-extending arm a' , having an open bearing-recess in its rear end (see Figs. 4 and 5) in which the trunnions of the measuring drum or reel are held by detachable pins a^2 , which are passed downwardly through apertures in the portions of said arms above and below the bearing-recesses and in rear of

said trunnions; but said measuring-drum may be supported in other ways.

The drum or reel consists of a head or disk B and a similar head or disk B' of less diameter, said disks being connected by bars or strips b , preferably formed of steel and disposed radially with respect to said head, as shown in Figs. 2, 3, and 5, each of said heads being provided with a trunnion b' and b^2 , respectively. Each of the heads is provided with a series of radial slots or notches in which the bars b are secured in any desired manner. In passing ropes of different diameters around a measuring-drum it will be seen that the centers of the ropes will be at different distances from the periphery of the drum, and if the drum were of uniform diameter throughout its length a larger amount of a rope of large diameter would be measured off in a single revolution of the drum than of a rope of smaller diameter. In order that a single revolution of the drum shall measure the same length of ropes of different diameters, the drum is tapered gradually from one end to the other, as shown, and the front plate A is provided with two series of apertures a^3 , which determine the position at which each size of rope shall engage the tapering drum to measure the desired amount. These series of apertures are arranged in horizontal rows, as shown, one row being substantially in line with the top of the drum and the other substantially in line with the bottom of the drum, the rope entering through an aperture in one row, passing around the drum, and being drawn out through the corresponding aperture in the other row, the centers of the apertures in the two rows being in parallel lines, as shown. The central portion of the measuring-drum is provided in this instance with an external ring C, on the periphery of which is a spiral rib c , forming a worm. In order to attach the ring C rigidly to the drum, we provide an internal ring C', which is of such diameter that it may be driven toward the smaller end of the drum, so as to clamp the bars b firmly between it and the external ring C, (see Fig. 3,) thereby securely attaching the ring C and at the same time forming an internal support for the bars b .

The front plate A is provided on its rear side with a sleeve a^4 , in which is mounted a rearwardly-extending shaft D, on the rear end of which is secured a worm-wheel d , having its teeth engaging the worm c , so that one revolution of the worm c will move the wheel d one tooth. On the front end of the shaft D is a pointer d' , which frictionally engages said shaft, so that while it will turn with the shaft it may also be turned independently thereof. The front plate A is provided with a dial a^5 , concentric with the shaft D, said dial being provided with a series of divisions indicating the revolutions of the winding-drum, and we also prefer to provide said dial with a smaller dial a^6 , having a pointer d^2 , on the shaft of which is a toothed wheel d^3 , the teeth of which are adapted to be engaged by a stud d^4 on the pointer d' , so that when the pointer d' completes a revolution the said stud will move the toothed wheel d^3 one tooth, thus moving also the pointer d^2 . The pointer d^2 will also be frictionally secured to its shaft, so that it can be turned to the zero-point, as can the pointer d' .

The operation of the device in measuring ropes of different sizes corresponding to the holes a^3 in the front plate A will be readily understood from the accompanying drawings. The operator will draw the rope from its supply-spool, which may be located at any desired point near the device, pass it through the proper aperture in one of the rows of apertures a^3 , thence around the drum and back through the corresponding aperture in the other row. The pointers being placed at zero the operator will merely draw the rope until the desired amount is indicated on the dials, when it will be cut off and the part connected with the supply-spool returned to the spool.

At one end of the main frame we provide a cutting device which consists of a block E, secured to the main frame and provided with a recess e , in which the rope is laid. E' represents the knife-arm, which is pivoted to the block E and provided with a cutting-blade e' and handle e^2 .

In measuring ropes of larger diameter than those provided for by the apertures a^3 we provide an auxiliary device, as it would not be practical to bend such heavy ropes around the measuring-drum on account of the resistance which they would offer to such bending. We therefore arrange an auxiliary measuring device to rotate with the drum, and thereby actuate the indicating-pointers in the same manner as if the drum were used. In this instance we have shown this auxiliary device applied to the trunnion b' of the head B, and its construction is as follows: f indicates a collar secured to the trunnion b' and provided with a series of radial wings F, having their outer faces inclined toward the trunnion b' , as shown. f' indicates a similar collar which is secured to the trunnion by means of a spline or feather which permits it to move

longitudinally of the trunnion, and said collar is provided with a series of similar wings F', which engage and overlap the wings F and have their outer edges inclined reversely. This construction forms practically an expansible grooved pulley over which a rope may be drawn, and we provide means for adjusting said pulley for different diameters of rope. To this end the outer end of the trunnion b' is threaded and provided with an adjusting-nut b^3 , and we also prefer to interpose a spiral spring b^4 between the collars f and f' to hold them separated as far as the nut b^3 will permit. In order to apply a proper amount of tension to the rope to prevent its slipping, we provide a shoe or brake G above the expansible pulley, said shoe being located at the outer end of spring-arms g , secured to a supporting-stud g' , which is connected to the front plate A or some other portion of the main frame. To measure rope with this auxiliary device, the rope is passed over the top of the expansible pulley and beneath the shoe G, and as it is drawn forward it will revolve the said pulley and the drum, thus indicating the amount, as before described. By turning the set-nut b^3 the expansible pulley can be quickly adjusted for ropes of different diameters. At the other end of the drum we provide a second auxiliary device for measuring belting or any other material of a similar nature. This consists of a flat or smooth pulley H, secured to the trunnion b^2 of the head B', and a shoe I above said pulley, secured to the outer end of spring-arms i , secured to a stud i' , attached to the front plate A.

What we claim, and desire to secure by Letters Patent, is—

1. In a rope-measuring machine, the combination of a measuring drum, or reel, provided with portions of varying diameters for measuring ropes of different diameters, and indicating mechanism operatively connected with said drum or reel whereby ropes of different sizes can be measured upon said drum or reel by drawing them around different portions of the periphery of the drum, substantially as described.

2. In a rope-measuring machine, the combination with a measuring drum or reel, provided with portions of varying diameters for measuring ropes of different diameters, guides for holding said ropes in engagement with their respective portions of said drum or reel, and indicating mechanism operatively connected with said drum, or reel, substantially as described.

3. In a rope-measuring machine, the combination with a measuring drum or reel, tapering from one end to the other, whereby portions of varying diameters are provided for measuring ropes of different diameters, guides for holding the ropes in engagement with their respective portions of said tapering drum or reel, and indicating mechanism operatively connected with said drum or reel, substantially as described.

4. In a rope-measuring machine, the combination with a tapered measuring drum or reel, comprising the circular heads of different diameters and bars connecting said heads, of a ring surrounding said bars intermediate their ends, and provided with a worm, a wedging-ring engaging the said bars, within said drum, whereby the bars are clamped between said rings, rope-guiding devices, and an indicating mechanism operatively connected with said worm, substantially as described.

5. In a rope-measuring machine, the combination with a measuring-drum provided with portions of different diameters, an indicating mechanism operatively connected with said drum, an auxiliary measuring device consisting of an expansible pulley, means for adjusting said pulley to vary its diameter, and operative connections between said pulley and the said indicating mechanism, substantially as described.

6. In a rope-measuring machine, the combination with a measuring-drum provided with portions of different diameters, an indicating mechanism operatively connected with said drum, an auxiliary measuring device consisting of an expansible pulley, adapted to rotate with said drum, means for adjusting said pulley to vary its diameter, and a tension device adapted to engage the rope and hold it in contact with the periphery of said pulley, substantially as described.

7. In a rope-measuring machine, the combination with the main frame comprising the

front plate provided with the rope-guiding apertures, supports for the said plate and the drum-supporting hangers in rear of said plate, of a tapered measuring-drum supported in said hangers, indicating mechanism on said front plate, operatively connected with said drum, an auxiliary rope-measuring device consisting of an expansible pulley, at one end of said drum, adapted to rotate with the drum, an auxiliary belt-measuring wheel, at the other end of said drum, adapted to rotate therewith, spring-actuated tension-shoes for said auxiliary pulley and wheel, and a cutting device, substantially as described.

8. The combination with the measuring-drum and indicating mechanism operated thereby, of an auxiliary measuring device comprising two collars provided with overlapping wings having oppositely-inclined peripheral edges forming an expansible pulley and adjusting mechanism for said collars, substantially as described.

In testimony whereof we affix our signatures in the presence of witnesses.

THOMAS COLDWELL.

WILLIAM H. COLDWELL.

Witnesses as to signature of Thomas Coldwell:

JOHN W. TAYNTER,

E. J. PERRY.

Witnesses as to signature of William H. Coldwell:

A. W. MAPES,

I. B. SWEIGART.