

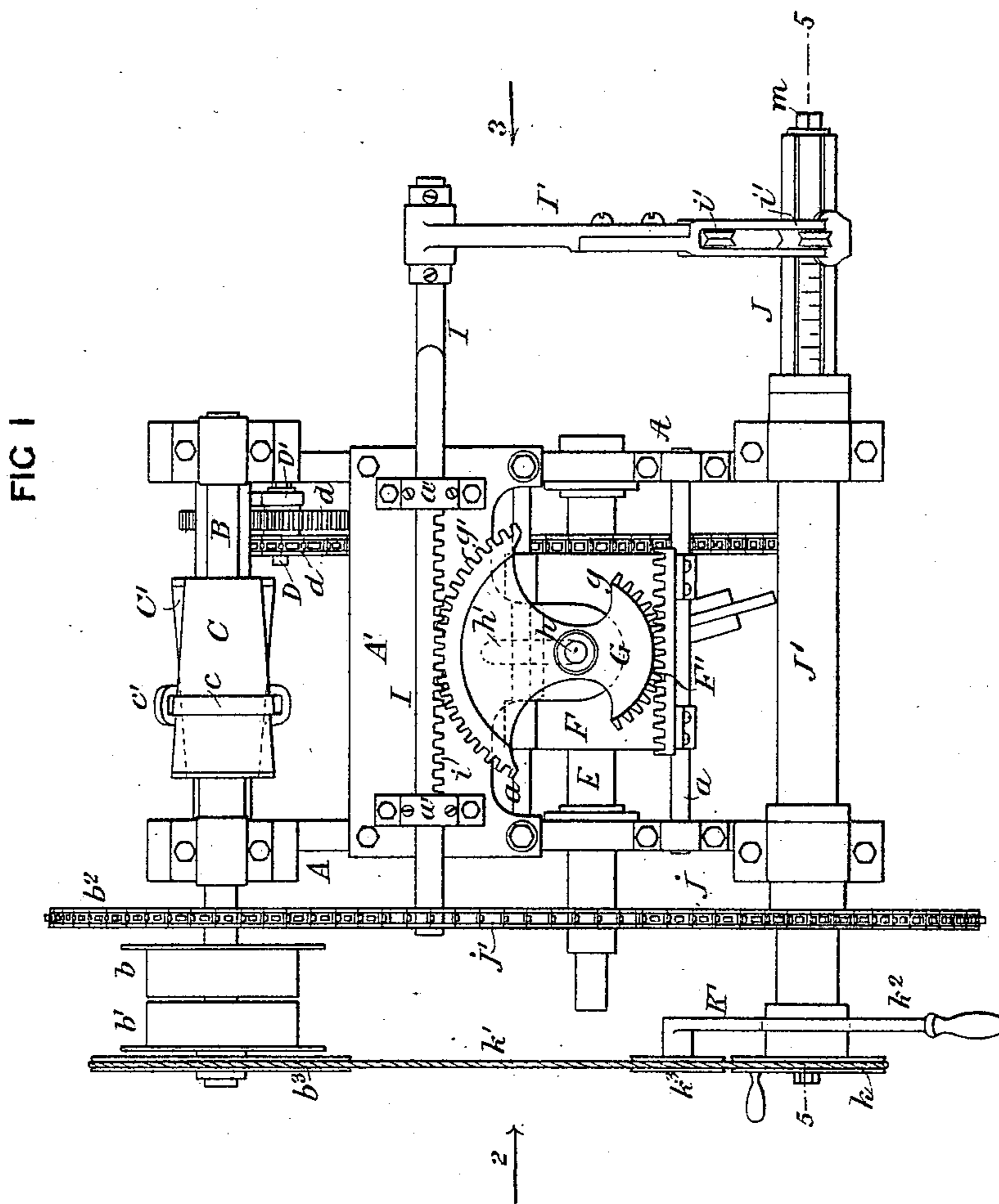
(No Model.)

4 Sheets—Sheet 1.

J. Garsed.
ROPE COILING MACHINE.

No. 538,485.

Patented Apr. 30, 1895.



WITNESSES

B. Schleicher.
Chas Anon

INVENTOR

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Howson & Howson

(No Model.)

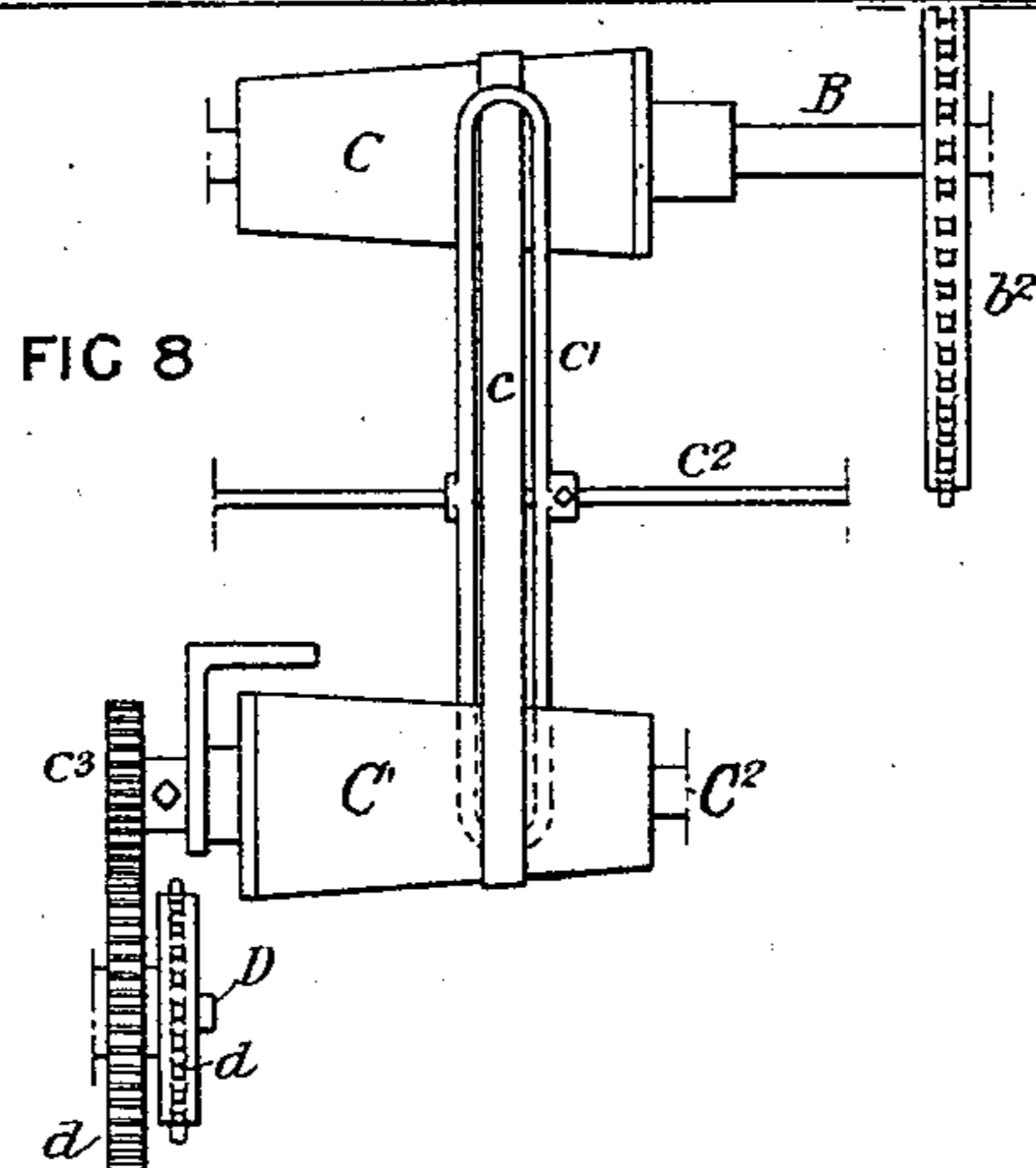
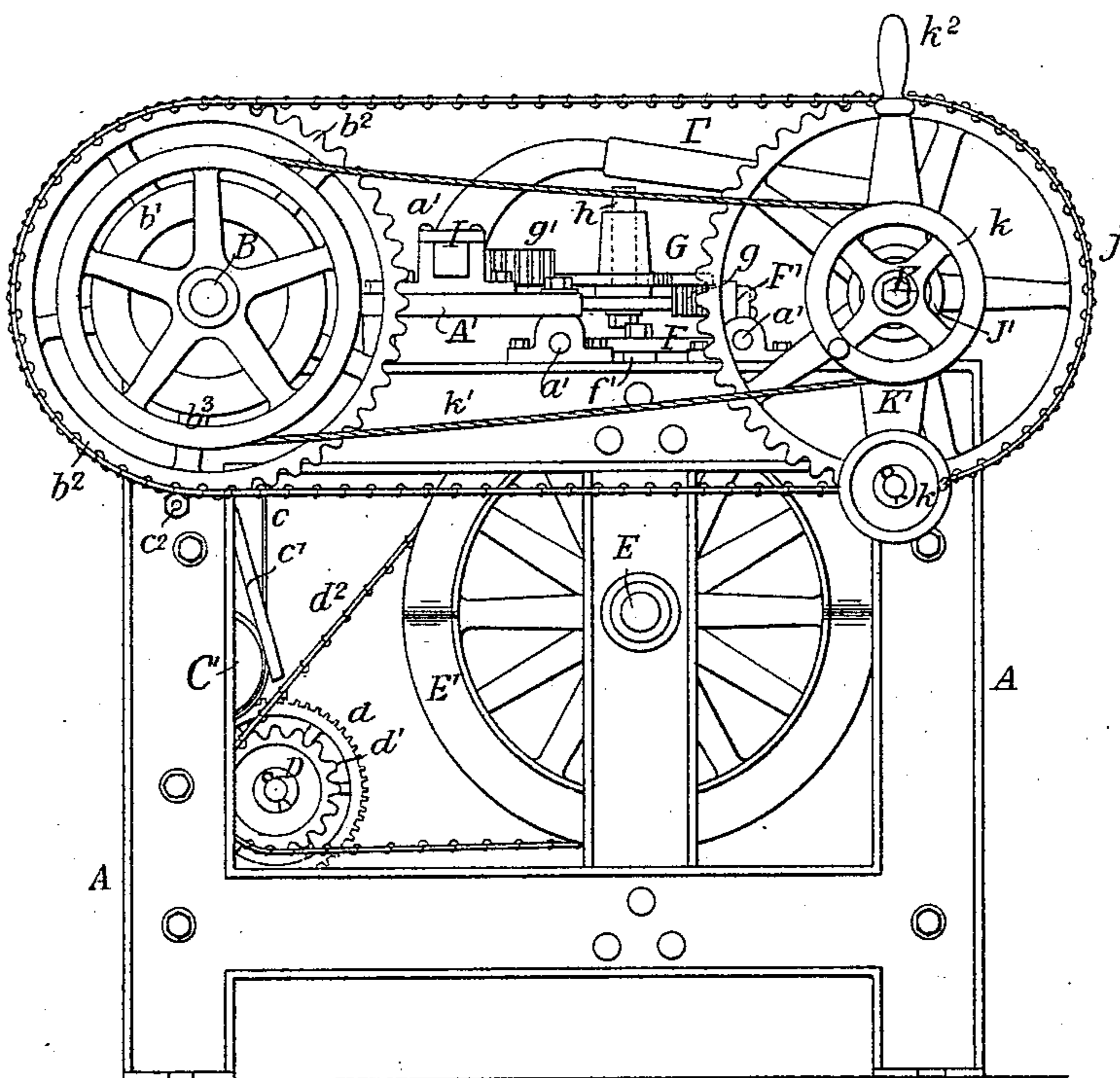
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FIG 2



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4 Sheets—Sheet 3.

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FIG 3

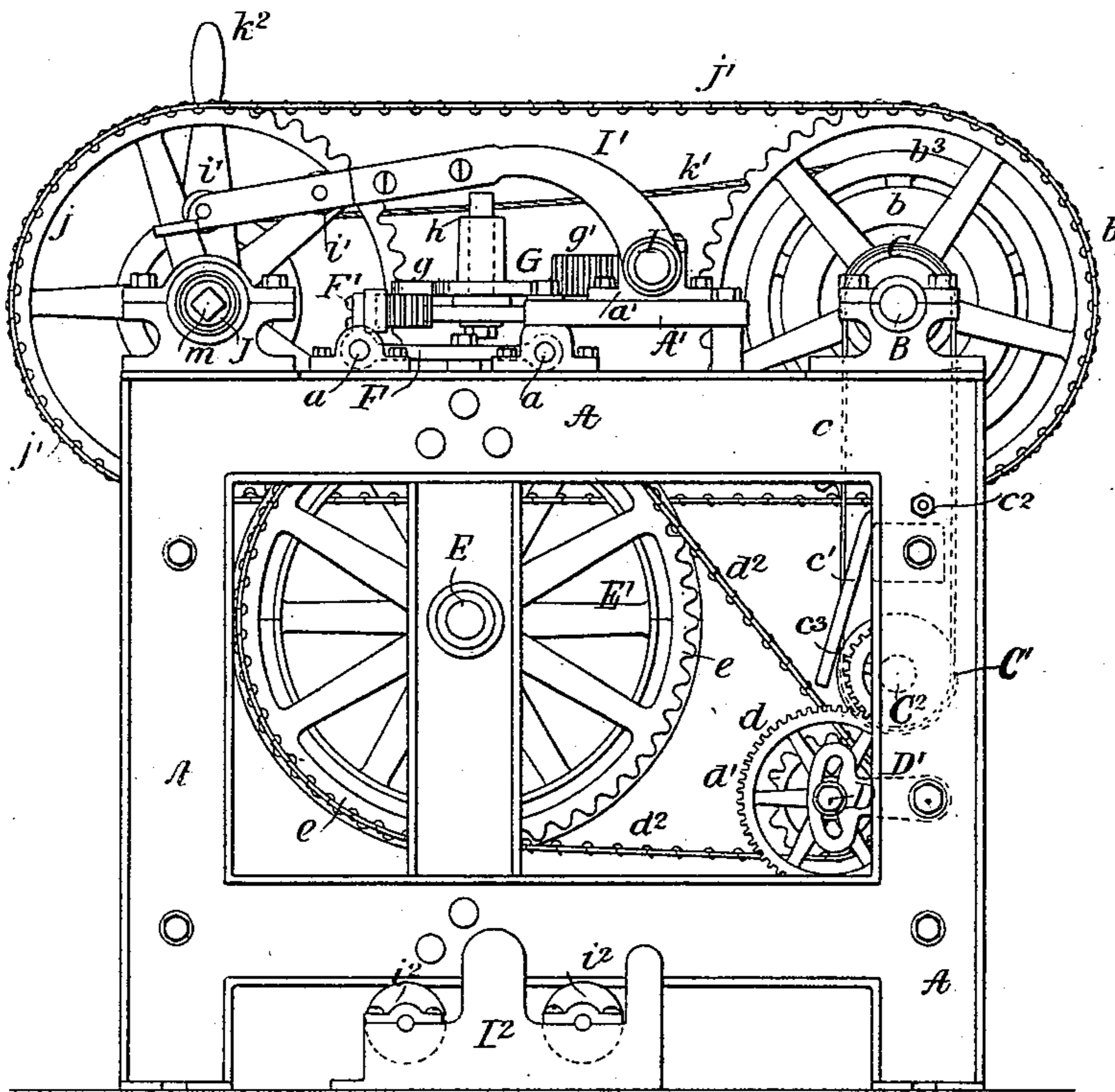


FIG 7



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FIG 4

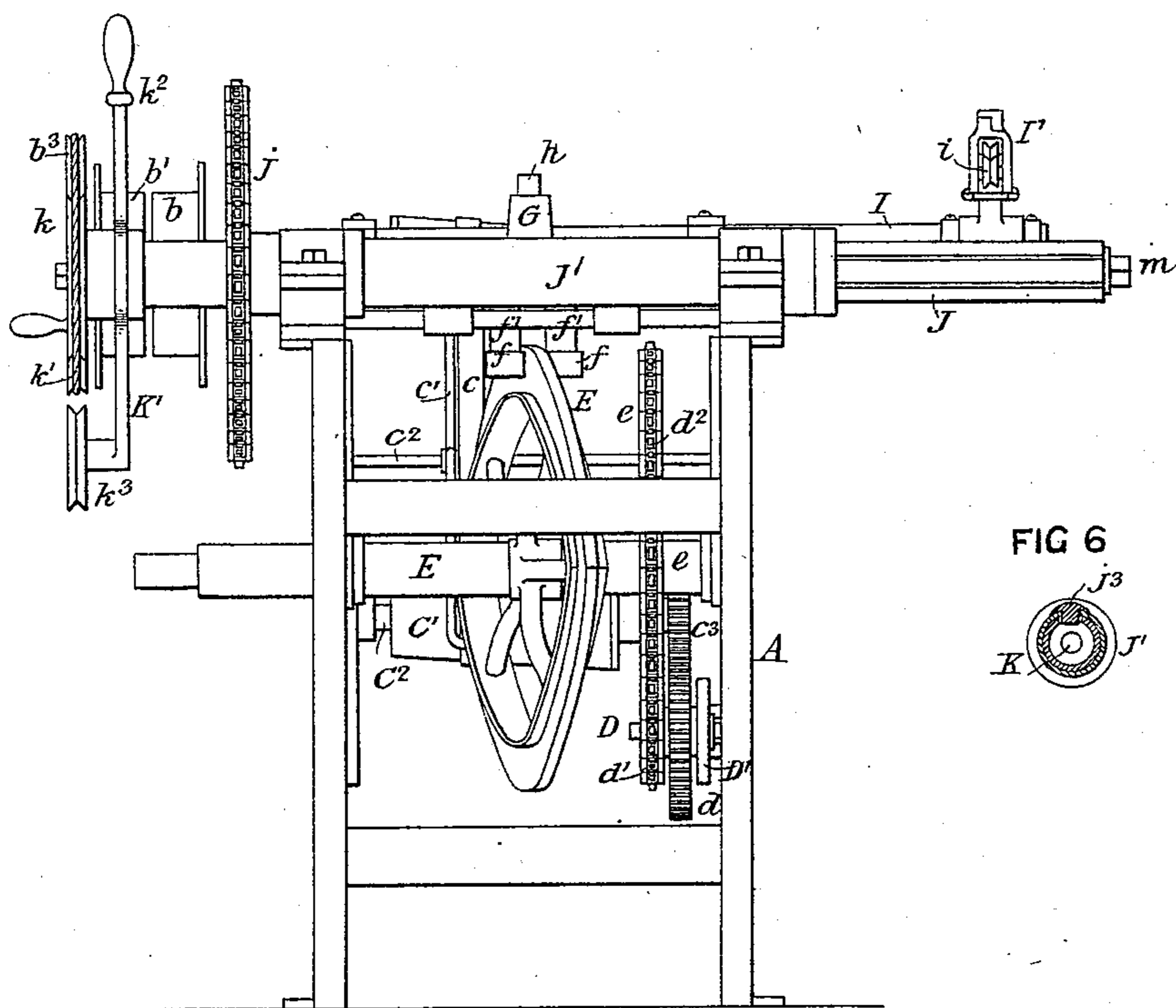


FIG 6

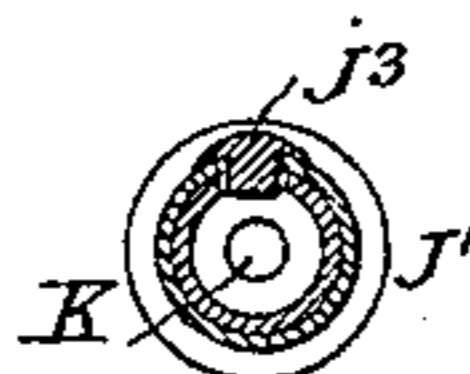
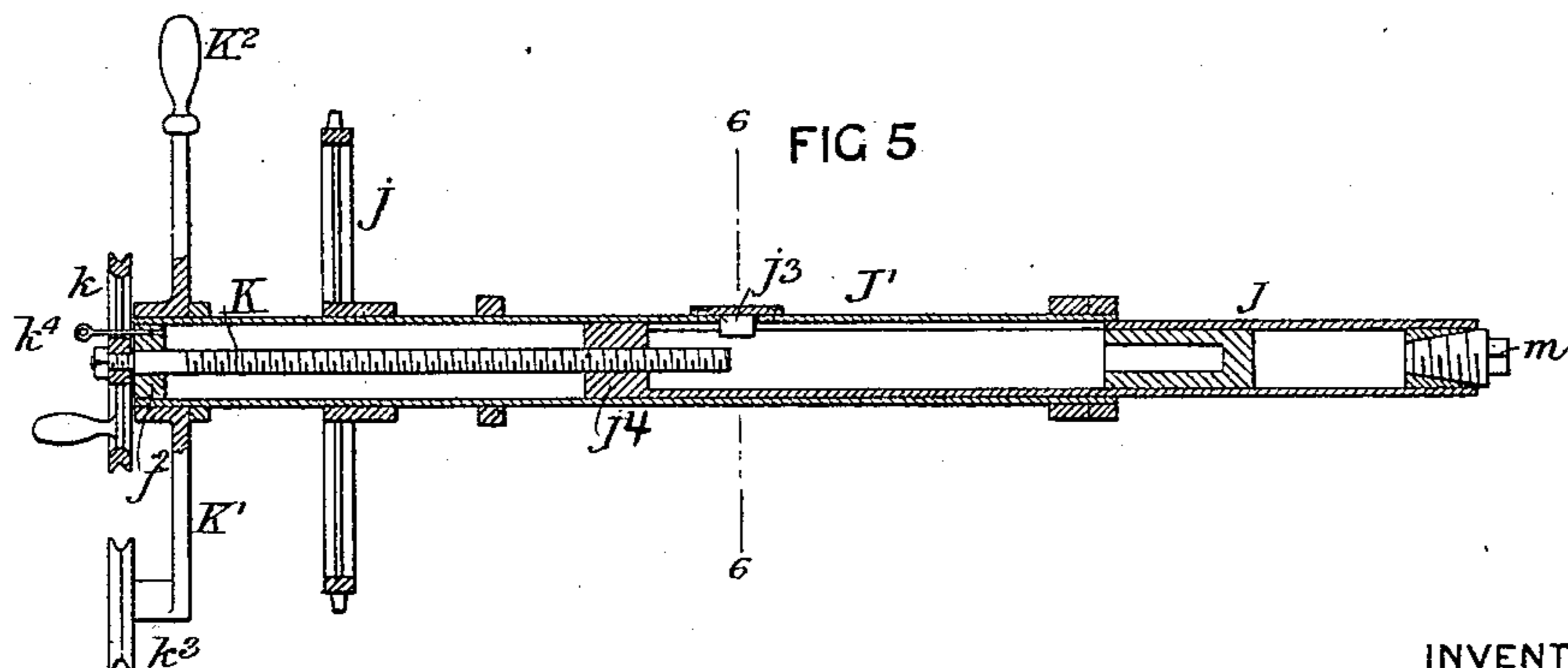


FIG 5



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UNITED STATES PATENT OFFICE.

JOSHUA GARSED, OF PHILADELPHIA, PENNSYLVANIA.

ROPE-COILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,485, dated April 30, 1895.

Application filed April 21, 1894. Serial No. 508,455. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA GARSED, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Rope-Coiling Machines, of which the following is a specification.

The object of my invention is to construct a machine for coiling rope in such a manner that the coil will be self-supporting and all
10 ties, reels or spools will be dispensed with. I coil the rope upon a hollow drum which is retained within the coil, giving the bundle a firm support. I prefer to use an ordinary heavy paper tube for this purpose as it is sup-
15 ported while the rope is being coiled by the mandrel upon which it is mounted and after the rope is once coiled the bundle is set so that the rope will not crush the drum.

In the accompanying drawings, Figure 1 is
20 a plan view of my improved rope-coiling machine. Figs. 2 and 3 are side views looking in the direction of the arrows 2 and 3, respectively, Fig. 1. Fig. 4 is a front view of the machine. Fig. 5 is a longitudinal sectional view on the line 5 5, Fig. 1. Fig. 6 is
25 a section on the line 6 6, Fig. 5. Fig. 7 is a view of a coil of rope, and Fig. 8 is a view of sufficient of the mechanism at the rear of the machine to illustrate the change gearing.

30 A is the frame of the machine on which is mounted the driving shaft B having fast and loose pulleys $b b'$. On this shaft B is a cone pulley C over which passes a belt c to a cone pulley C' on a shaft C² at the back of the ma-
35 chine. The belt c passes through a shifter c' adapted to be adjusted across the face of the pulleys on a bar c^2 so as to increase or diminish the speed of the shaft C². This shifter can be fastened to the shaft by a set screw.
40 The shaft C² has a gear wheel c^3 meshing with a gear wheel d on a stud D projecting from an adjustable bracket D' pivoted to the frame of the machine. The stud is also adjustable in a slot in the bracket. On the hub of the
45 wheel d is a sprocket wheel d' over which passes a chain d^2 to the large sprocket wheel e on the cam shaft E mounted in bearings in the frame A and on this shaft is a scroll cam E' actuating the device for directing the rope
50 onto the drum as it is wound.

The upper portion of the cam E' passes between two rollers $f f$ on studs f' projecting

from a slide or carriage F mounted on cross bars $a a$ of the frame A and on the slide F is a rack F' which meshes with teeth g of a seg- 55
ment G mounted on a stud h which is longitudinally adjustable in a slot h' in the cross plate A' secured to the frame A. As the cam E' revolves the slide F is reciprocated and the
60 segment oscillates.

On the segment G is a rack g' meshing with the teeth i on a bar I which is adapted to
slide in bearings a' on the plate A' and on the outer end of this slide I is secured the guide
65 arm I' having guide wheels i' around which the rope to be coiled is passed.

The segment G is in the form of a lever and the teeth g' are at the long end of the lever
so that the bar I will have a longer movement than the slide F, as clearly illustrated in Fig. 70
1, and its movement can be regulated by simply substituting other segments in which the leverage is increased or diminished, the slot
75 h' in the plate allowing for this adjustment.

The rope to be coiled passes around the
75 tension drums i^2 mounted in the frame I² secured to the floor and from these tension drums it passes around wheels i' to the drum on which it is coiled. The movements of the
80 cam, E, of the peculiar form described and shown, relatively to the revolutions of the spindle upon which the rope is wound will cause the rope to be coiled in the manner
shown in Fig. 7. As soon as the strand reaches the end of the drum it immediately
85 recedes and is tied in by the overlapping of one strand upon another, as clearly shown in said Fig. 7.

The mandrel J upon which the rope is coiled, is a continuation of the hollow shaft
90 J' adapted to the bearings in the frame of the machine and on this shaft is mounted a sprocket wheel j around which passes a chain j' from the sprocket wheel b^2 on the driving shaft B. The mandrel J can be drawn into
95 the shaft J' in the following manner:

The mandrel J extends into the shaft and has at its rear end a nut j^4 to which is adapted a long screw K mounted in a bearing j^3 at the
end of the hollow shaft J'. Secured to this
100 shaft K is a belt wheel k around which passes the belt k' from a belt wheel b^3 secured to the loose pulley b' .

Mounted on the hollow shaft J' is a lever

K' having at one end a handle K^2 and at the opposite end an idler wheel k^3 which can be drawn up against the belt k' . When the wheel k^3 is out of contact with the belt, the belt is slack and will not drive the screw K, but when the wheel is forced up in contact with the belt the slack is taken up and the belt will drive the screw providing the main driving belt is on the loose pulley b' , in which case the mandrel will be retracted and will be drawn out of the tube or coil of rope. The wheel k can be locked to the bearing j^2 by a pin k^4 , or by any device so that the coil of rope will not be accidentally removed. Outward movement of the mandrel J is limited by a stop j^3 on the shaft J'.

In the end of the mandrel J is a tapered screw block m having a squared end to which can be applied a wrench and this screw block is adapted to a screw thread in the mandrel J. The ends of this mandrel are split so that when the screw block is forced into the mandrel the ends will spread out and thus hold the tube, on which the coil of rope is mounted, tight in position.

When it is wished to remove the rope and tube from the mandrel the block is unscrewed, thus freeing the tube and when the belt k' is tightened the screw will draw the mandrel J into the hollow shaft.

As shown in Fig. 7, strands of rope must be coiled one directly back of the other and in order to accomplish this in different thicknesses of rope I make the adjustment in the change gears c^3 , d and on the cone pulleys C C' by removing the gear c^3 from the shaft c^2 and substituting therefor one greater or less in diameter, and by moving the adjustable arm D', or moving the stud D in the slot in the arm ropes of different thicknesses can be coiled, but in order to have the rope tightly packed I make the final adjustment by means of the shifter on the cone pulleys C C'.

It will be seen by my invention that rope of any thickness can be readily coiled without the use of spools and when once coiled the bundle of rope will be self-contained dispensing with tie cords and frames that are usually employed.

The width of a coil of rope can be regulated by changing the segment G and the change gear and belt on the cone pulleys can be adjusted for different thicknesses of rope.

I claim as my invention—

1. The combination in a rope coiling machine, of the mandrel on which the rope is coiled, a guiding arm, a cam for reciprocating said arm, a base-plate having a slot therein, a double segment between the cam and arm through which motion is imparted to the arm, the pivot for said segment being supported in the slot of said plate so that segments of different proportions may be mounted thereon, substantially as described.

2. The combination in a rope coiling machine, of the mandrel upon which the rope is coiled, the arm for guiding the rope on the coil, a cam for reciprocating the arm, a base-plate having a slot therein, a double segment between the arm and the cam for regulating the throw of the arm, the pivot for said segment being supported in the slot of said plate so that segments of different proportions may be mounted thereon, and change gear for regulating the rate of travel of the arm, substantially as described.

3. The combination in a rope coiling machine, of the mandrel for the rope, the rope directing arm, the driving shaft, and an intermediate shaft each having a cone pulley, a belt and shifter therefor, a cam shaft, gearing intermediate the cam shaft and the cone pulleys, a cam on said shaft, a segment controlled by said cam and controlling the rope directing arm, substantially as described.

4. The combination in a rope coiling machine, of the mandrel, the rope directing arm, a cam shaft, a cam thereon, a carriage acted upon by the cam, a rack on the carriage a base-plate having a slot therein, a double segment engaging with the rack and with a rack on the rope directing arm, the pivot of said segment being supported in the slot of said plate so that segments of different proportions may be mounted thereon to regulate the throw of the arm, substantially as described.

5. The combination in a rope coiling machine, of the driving shaft, the hollow mandrel shaft, a mandrel movably connected with said shaft, a screw engaging with the mandrel, belt wheel on said screw and a belt passing around said belt wheel and the loose pulley on the driving shaft, substantially as described.

6. The combination of the main driving shaft, the intermediate shaft belted thereto, an adjustable stud, a gear on said stud, change gear on the said intermediate shaft meshing with gear on the stud, a cam shaft driven through said gearing, a cam thereon, a rope guide controlled by said cam, substantially as described.

7. The combination with a hollow shaft, of the retractible mandrel operating therein, a screw for retracting the mandrel, a stop for limiting its outward movement, means for locking the mandrel to the shaft, the end of said mandrel being split, with a tapered screw plug adapted to spread the mandrel and hold the rope tube on the mandrel, substantially as described.

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

JOSHUA GARSED.

Witnesses:

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JOSEPH H. KLEIN.