

(No Model.)

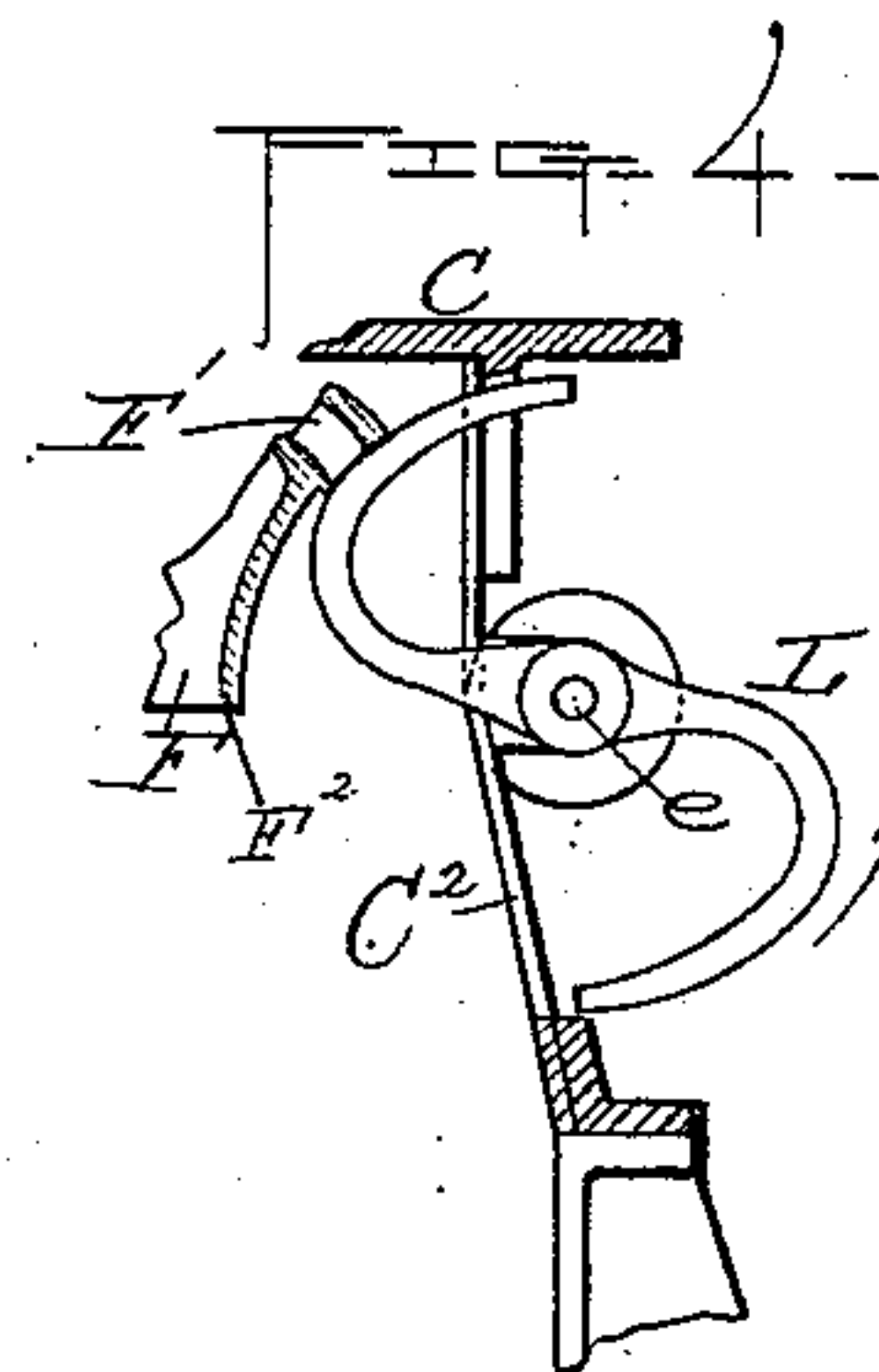
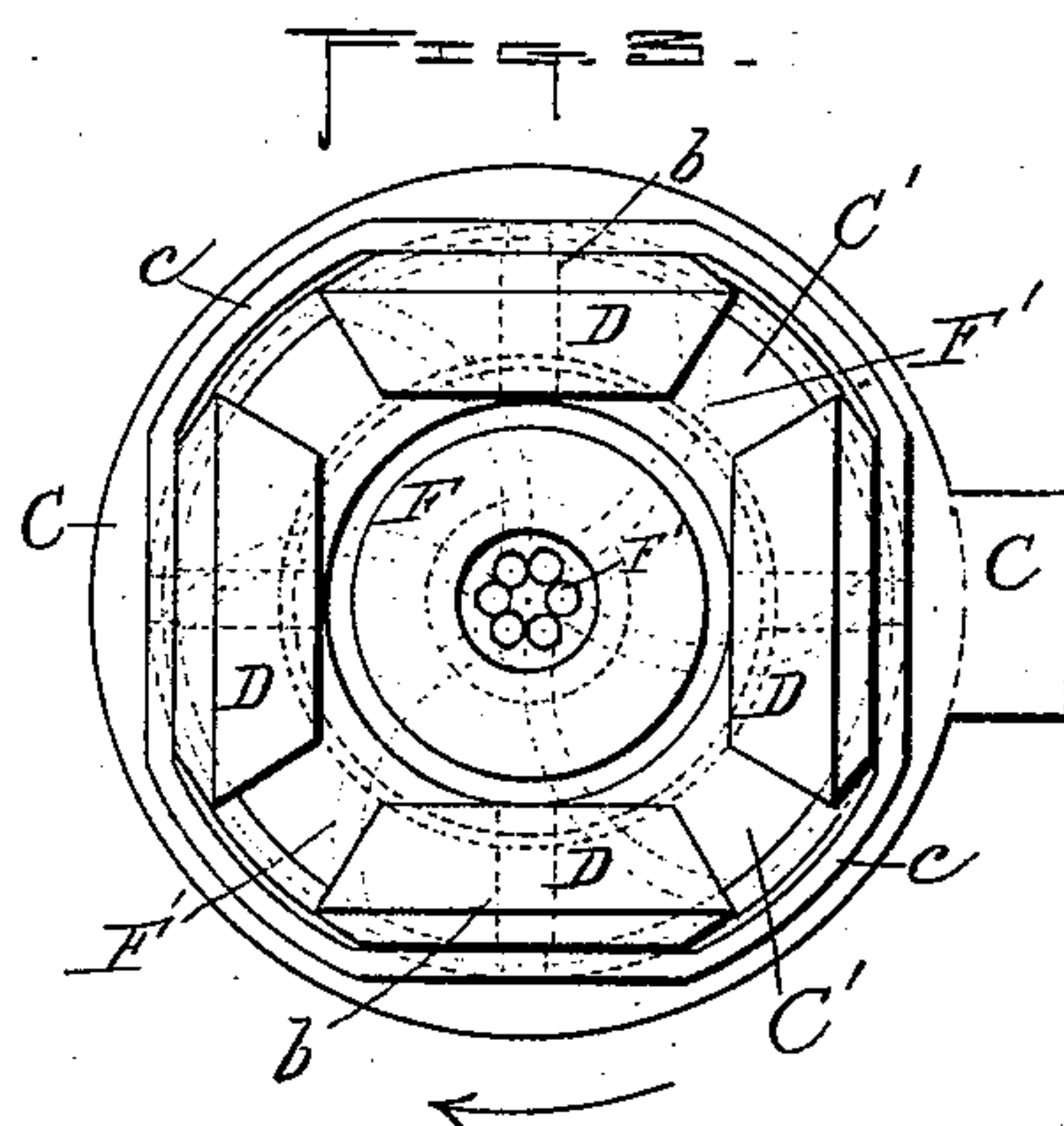
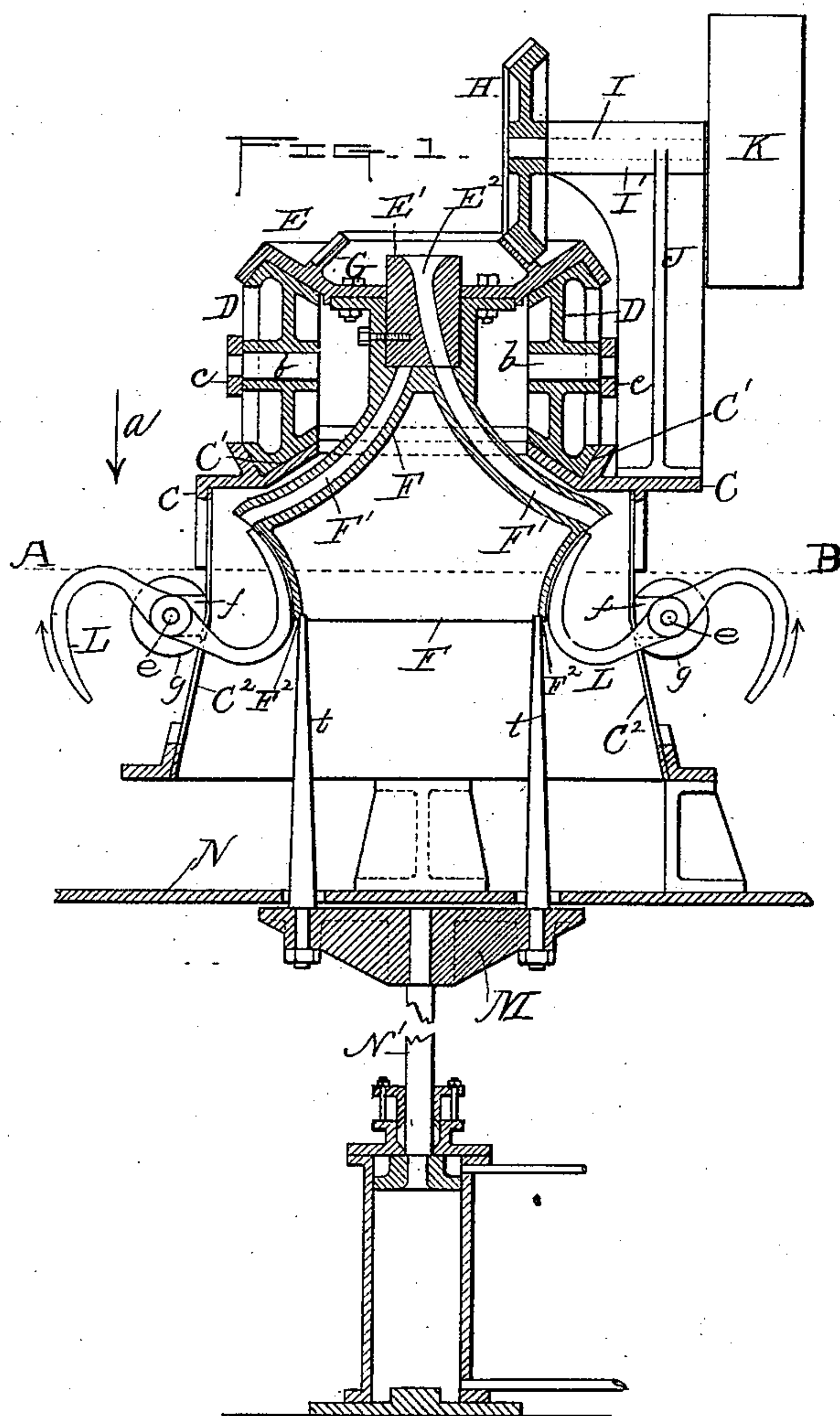
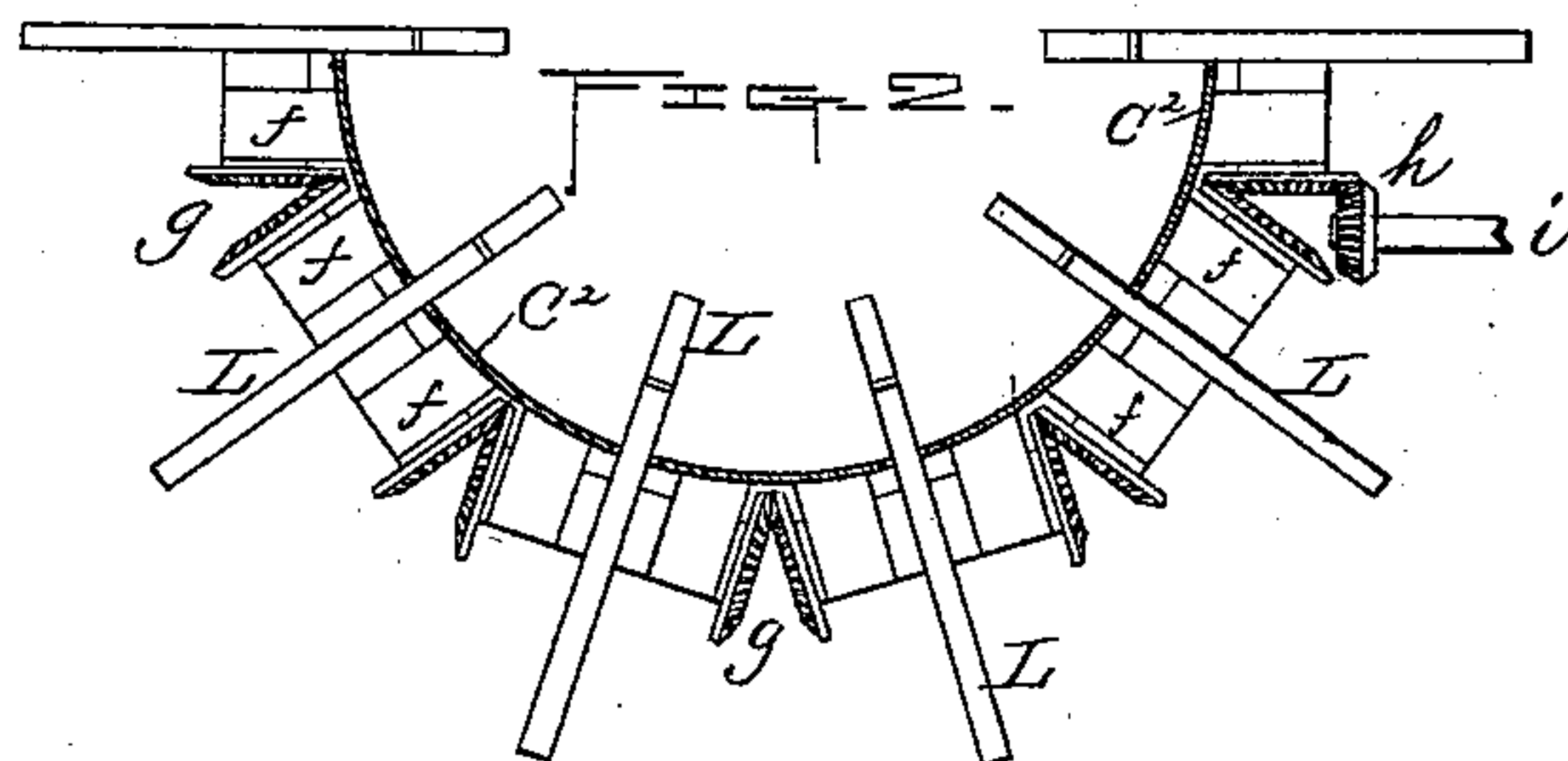
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H. A. YOUNG.

## WIRE ROD REELING MACHINE.

No. 353,047.

Patented Nov. 23, 1886.



Wavelength

Walter B. Kourse,  
Lucius W. Briggs

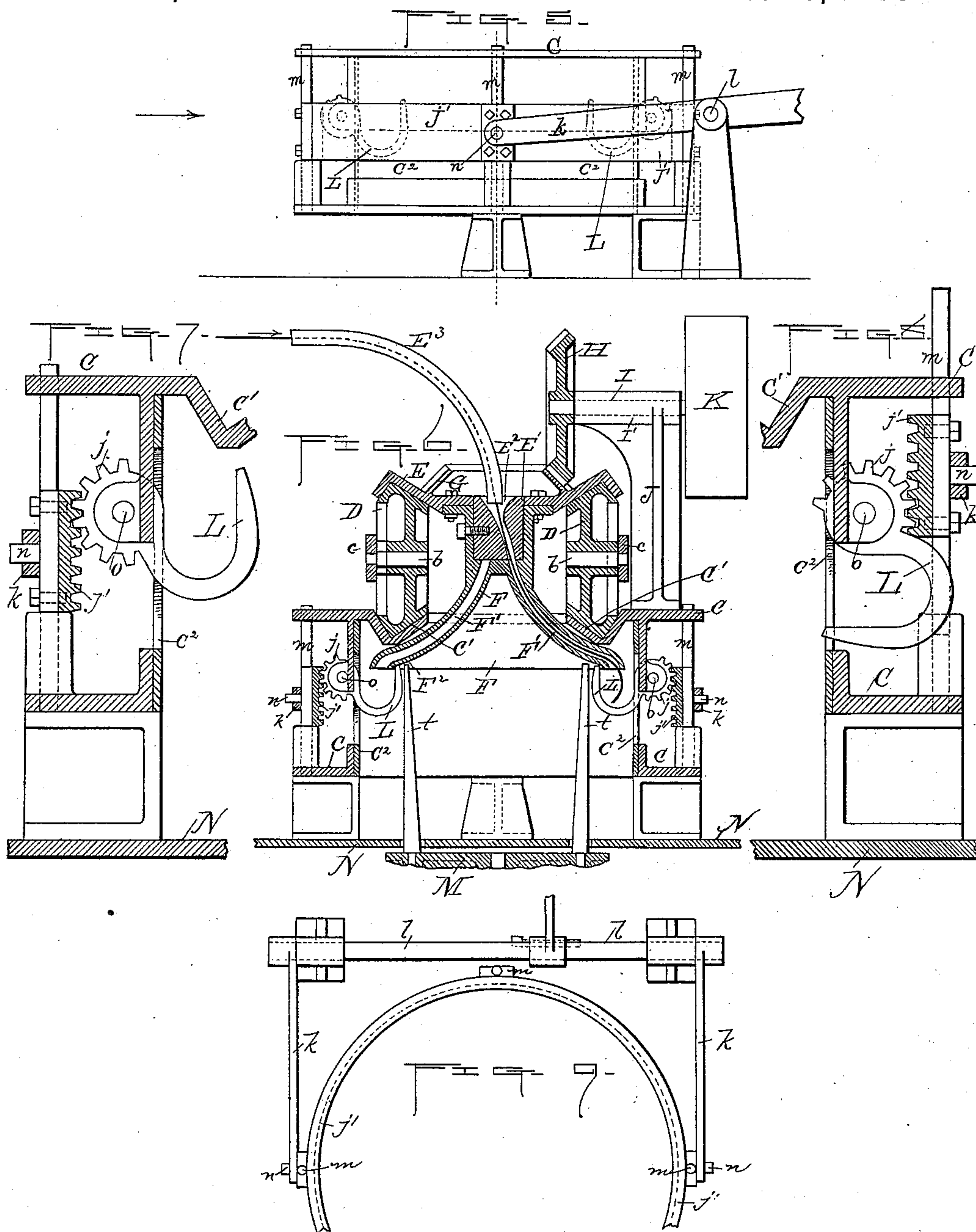
## Inventory

Horace A. Young.  
By A. H. Barker, Jatt'y.

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# WIRE ROD REELING MACHINE.

Patented Nov. 23, 1886.



With =====;

Lucius W Briggs.

Adelbert F. Mowry.

# Inventor;

Horace A. Young.

By A. A. Barker atty.



(No Model.)

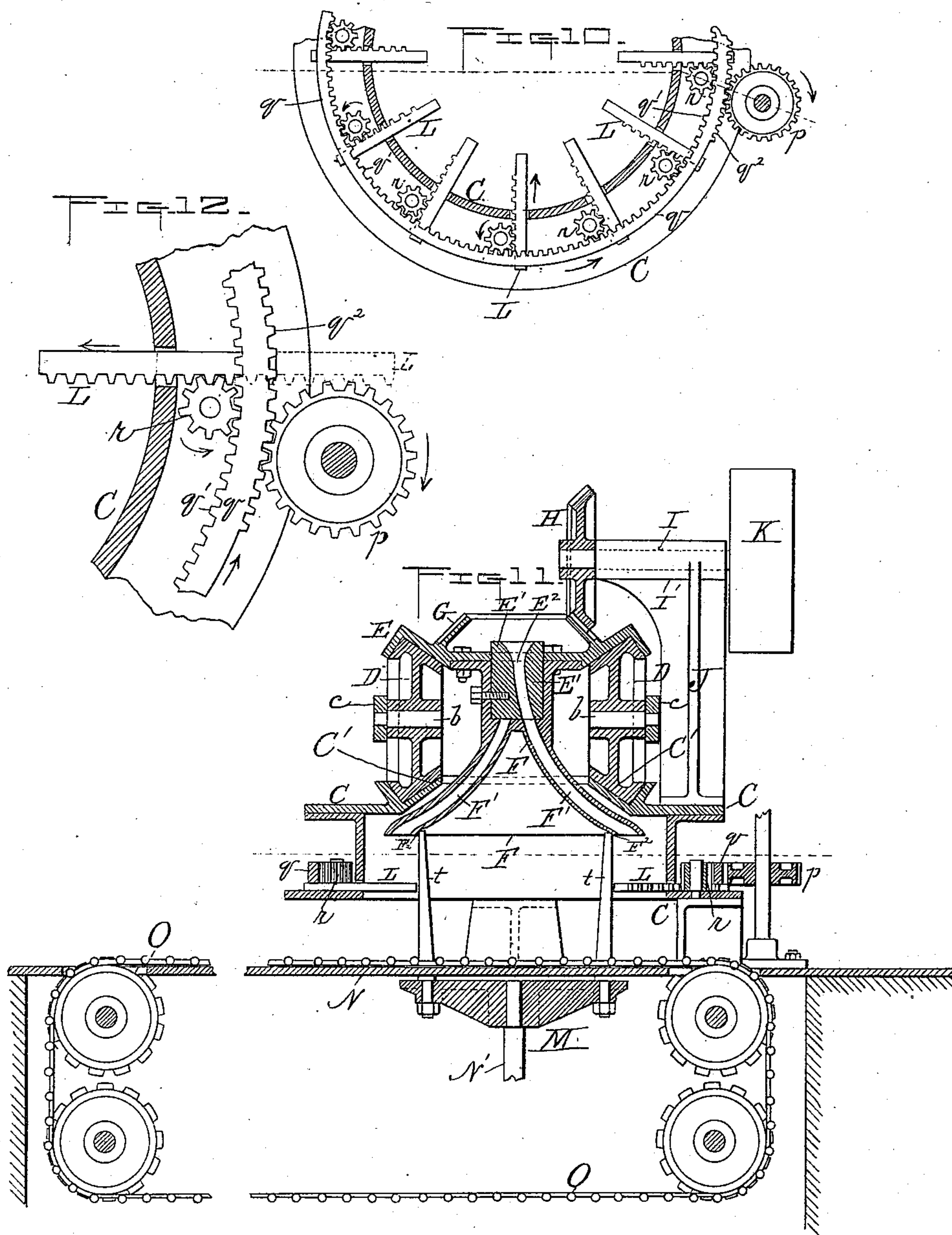
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Witnesses;

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Horace A. Young,  
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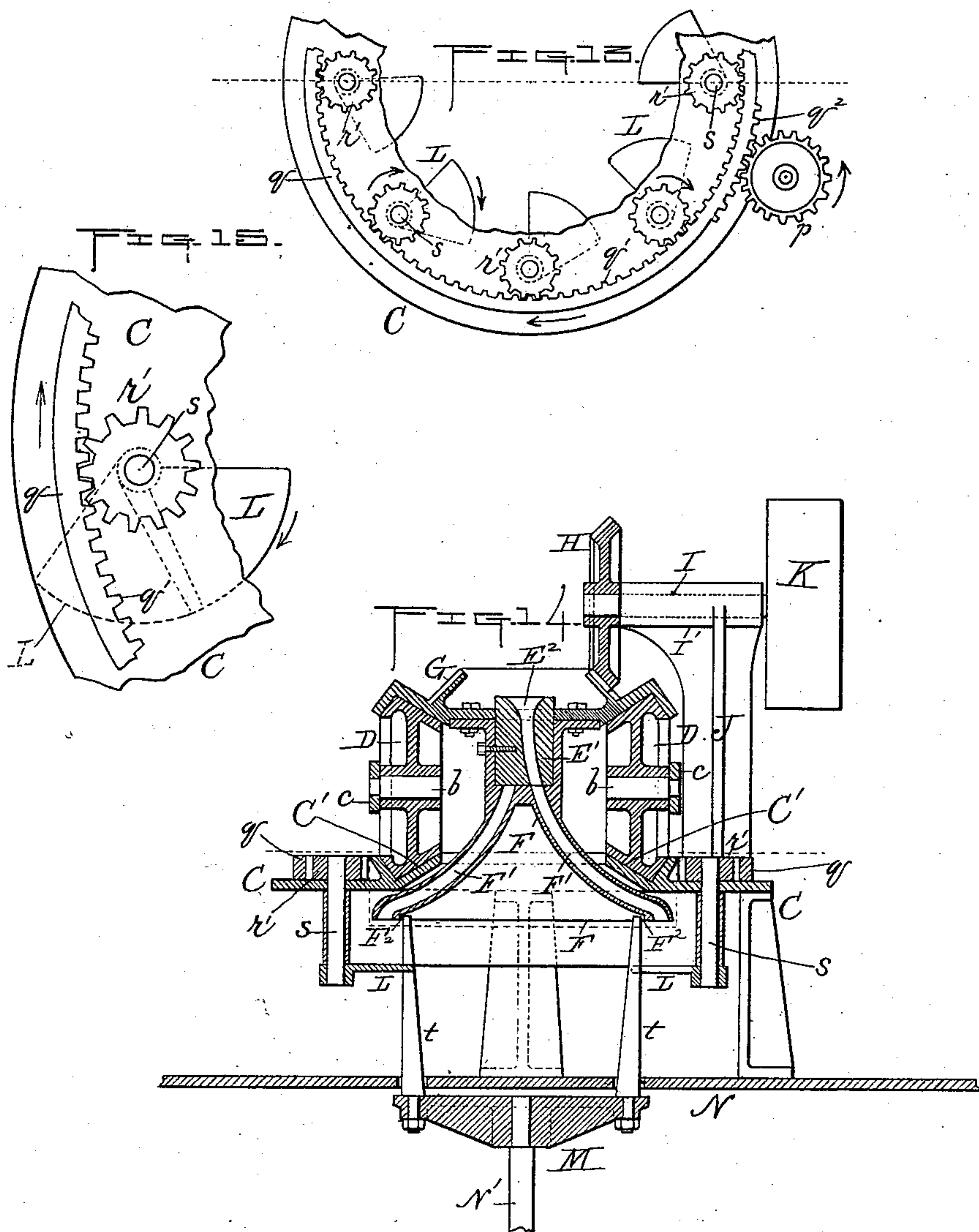
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(No Model.)

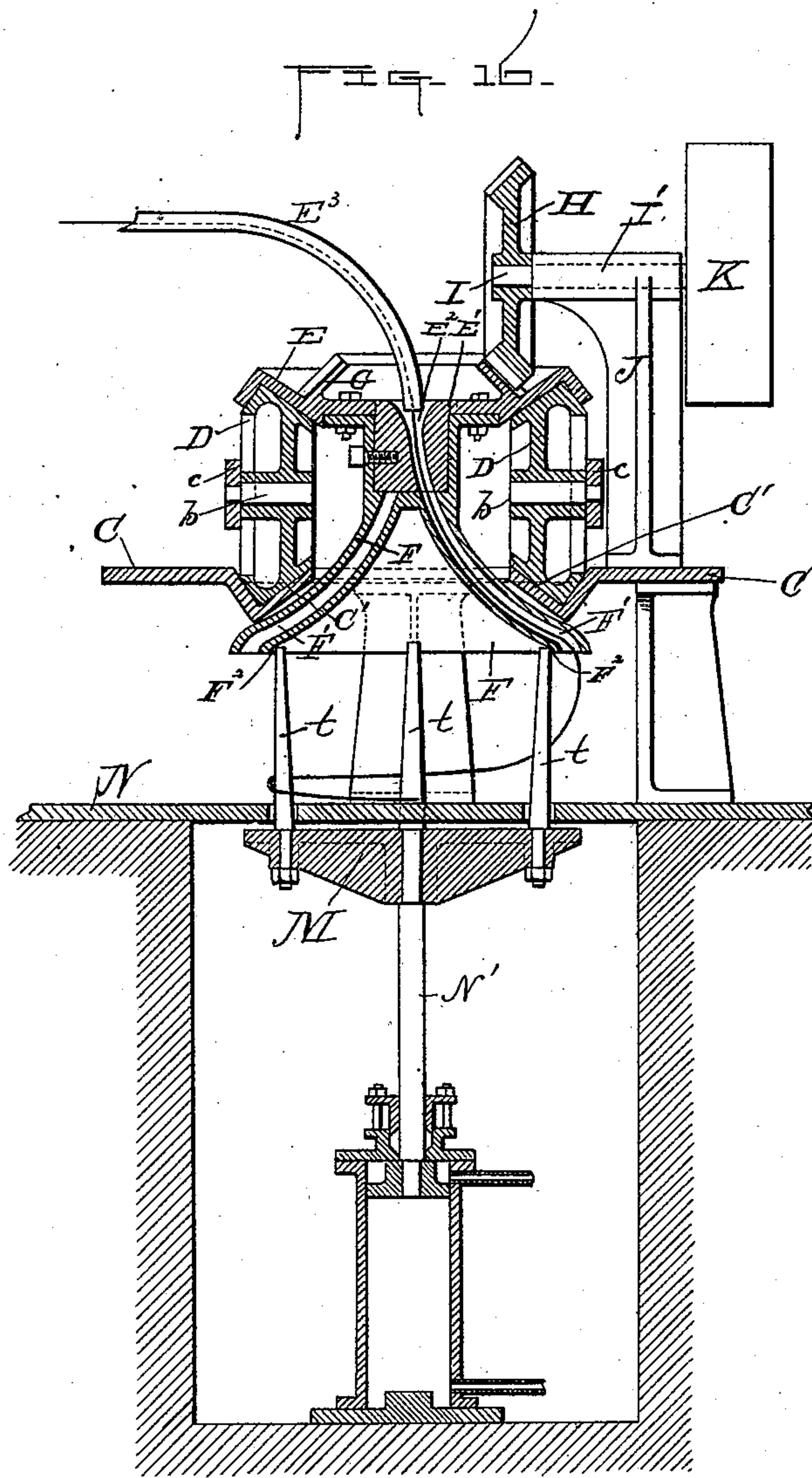
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WIRE ROD REELING MACHINE.

No. 353,047.

Patented Nov. 23, 1886.



Witnesses;

Leicester W. Briggs.

Adelbert W. Mowry.

Inventor;

Horace A. Young.

By A. A. Barker Atty.



# UNITED STATES PATENT OFFICE.

HORACE A. YOUNG, OF WORCESTER, MASSACHUSETTS.

## WIRE-ROD-REELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 353,047, dated November 23, 1886.

Application filed September 30, 1886. Serial No. 214,993. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE A. YOUNG, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain  
5 new and useful Improvements in Wire-Rod-Reeling Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part  
10 of this specification, and in which—

Figure 1 represents a central vertical section, partly in side view, of so much of a wire-rod-reeling machine as is necessary to illustrate my improvements thereon. Fig. 2 is a  
15 horizontal section through the machine, taken on line A B, Fig. 1, looking in the direction of arrow *a*, same figure, showing a plan view of the wire-rod-receiving levers, and means for operating the same. Fig. 3 is a plan view  
20 of the upper part of the machine, with the cover thereof and main driving mechanism removed to illustrate the parts coming under the same more fully. Fig. 4 represents a vertical section of a part of the machine, showing  
25 a side view of one of the wire-rod-holding levers in the position occupied by the levers after having been turned a partial revolution to discharge the finished wire-rod coil, as hereinafter specified; and Figs. 5 to 16, inclusive, represent various modifications of my  
30 invention, showing different ways of constructing, arranging, and operating the wire-rod-holding levers of the machine, and of depositing the rods as they are delivered from said  
35 machine.

The object of my invention is to provide a safe, convenient, and expeditious means for automatically coiling wire rods; and it consists in constructing and arranging the machine in such a manner as to deposit the wire  
40 rods from a delivering device having a horizontal rotary motion upon a series of stationary receiving arms or levers arranged in a circle, and adapted to be turned or otherwise operated by suitable means, so as to discharge  
45 the coil, when finished, from the bottom of the machine onto a reel or other receptacle arranged underneath to receive it, or directly from said delivering device onto said reel or  
50 other receptacle without the intervention of the aforesaid receiving-levers, as hereinafter specified.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe it more  
55 in detail with reference to the first four figures of the drawings, and subsequently to the modifications illustrated by the remaining figures thereof.

The parts marked C represent the framework of the machine, which is made of the proper shape to receive and support the various  
60 operating parts of said machine, hereinafter described. Said operating parts comprise two distinct mechanisms, one for delivering and  
65 coiling the wire rods, and the other for receiving said rods and discharging the same when the coil is completed, the latter operation being performed from the bottom of the machine, and the coil deposited upon a suitable reel or other  
70 receptacle arranged beneath to receive it. The latter, however, constitutes no part of my present invention, except in combination with my aforesaid improvements.

The wire-rod delivering and coiling mechanism is constructed and arranged to operate as  
75 follows: Upon the upper side of the frame C is formed a circular guideway, C', for a series of wheels or trucks, D, (four in this instance,) to travel in. Said wheels are fitted to turn on  
80 studs *b*, projecting inward from a horizontal plate or band, *c*, the office of which is to keep the wheels at their proper distances apart around the circular track or way C', as is shown in Figs. 1 and 3. Upon the tops of the  
85 wheels D rests an irregular-shaped plate, E, which is fitted to turn upon said wheels, and also serves as a cover for the top of the machine. It is provided with a central hub, E', having a curved tunnel-shaped opening, E<sup>2</sup>,  
90 formed vertically therein for the purpose hereinafter specified, and to the lower end of said hub is fitted and fastened the upper end of the central circular part, F, so as to turn with the  
95 hub and top plate. Said central part is provided with a series of curved openings, F', (six in this instance,) extending from near the center of its upper end down and outward in serpentine shape, as shown in Figs. 1 and 3, and  
100 it is in practice fastened to the hub E' in such a manner as to be conveniently adjusted upon said hub to bring any one of the aforesaid openings in line with the opening E<sup>2</sup> in the hub, as shown in Fig. 1, thus forming one con-



tinuous opening from the upper end of the hub to the lower end of the opening in said central part coming in line with said hub-opening.

- 5 The top plate, E, and parts connected therewith may be operated in any suitable and convenient manner. In this instance I have formed a bevel-gear, G, upon the top of the plate, which meshes with another bevel-gear, H, fastened on the end of a journal, I, which is fitted to turn in a bearing, I'. Said bearing I' is formed in the upper end of a standard, J, extending up from frame C. Upon the opposite end of journal I from the bevel-gear H is fastened a large driving wheel or pulley, K, over which may be passed a belt connected with any suitable and convenient driving mechanism.

- I propose to make the part F by casting the same in one piece, with the openings F' formed therein. The top plate, E, and its hub E' are preferably made in separate parts and fastened together, but may be cast in one part also, if desired.

- 5 The rods are in practice coiled or reeled while in a heated state, being delivered direct from the rolling-mill to the reel. They are guided to the curved opening E<sup>2</sup> F' of my machine by means of a suitable conducting pipe or tube, E<sup>3</sup>. (Shown in Figs. 6 and 16.)

- Power being applied, the delivering device of my machine is rotated in the direction indicated by the arrow in Fig. 3. Therefore, as the rods are passed through the opening E<sup>2</sup> F' they are laid around in a circle on the receiving-levers L, which are held stationary during said coiling operation, and when the coil is completed it is discharged by turning the levers so that it will drop out of the same at the bottom of the machine.

- Said wire-rod receiving and discharging mechanism is constructed and arranged to operate in the following manner: The levers are made in the form of the letter S, and are fastened at the center to the journals e, fitted to turn in bearings f, formed upon or secured to frame C. To the outer ends of journals e, outside of the bearings f, are fastened the bevel-gears g, which mesh one with another entirely around the circumference of the machine, as shown by the half-plan view in Fig. 2. Therefore it will be seen that by the operation of one bevel-gear all the levers will be turned simultaneously. This may be done by means of a bevel-gear, h, on the end of a horizontal shaft, i, which shaft may be operated by any suitable and convenient driving mechanism. When at rest, ready to receive the incoming wire-rod, the levers are in the position shown in Fig. 1, thus forming an open circular receptacle in which to deposit said rod. Upon the coil being completed, the levers are turned, by means of the mechanism above described, in the direction shown by the arrows, into the position shown in Fig. 4, which operation, as will be obviously seen, causes the coil to be dis-

charged from said levers and allowed to drop down into whatever receptacle is arranged beneath to receive it, or onto the floor, as the case may be, ready to be removed from the machine. 70 In bringing the levers into position for the next rod they are turned in the same direction as in discharging the previous coil, until the opposite ends of the levers from those last used are brought into the position shown in Fig. 1. 75 They are then stopped and held stationary while the rod is being coiled thereon, when the above operation is repeated, and so on continuously for each successive coil. In the operation of discharging a finished coil and bringing the levers into position again for the next rod said levers are turned continuously from one position to the other, the position shown in Fig. 4 being when the revolution is incomplete, or in the position occupied by the levers just after having discharged the finished coil, as previously stated. The wire rod is prevented from being drawn out by friction against any of the levers, in drawing the latter out from under the finished coil in the discharging operation, by said rod coming in contact with the inner surface of the casing C<sup>2</sup> of frame C. 80 85 90

It is obvious that by the use of a rotating body, F, having several conducting-openings, F', as previously described, the operation of reeling is considerably facilitated, for the reason that when one conducting tube or opening becomes worn and unfit for use another is always at hand, (until they are all worn out,) into which the rods may be guided, and thus obviating the necessity of frequent renewals. 95 100

Numerous ways of constructing and operating the levers L to effect the same result may be adopted in lieu of that hereinbefore described, and I therefore do not limit myself to any particular construction and arrangement. 105

In Figs. 5 to 15, inclusive, I have represented three different modifications in the manner of making and operating said levers to accomplish the desired result. 110

The first modification (illustrated by Figs. 5 to 9, inclusive) consists in so constructing and arranging the levers as to operate the same by means of pinions j, formed on the base ends of said levers, which mesh with a rack or circular-toothed band, j', extending around the machine just outside of the levers. Said toothed band is operated up and down to operate the levers by means of the crank-arms k, fastened to the shaft l, which may be turned in any suitable way. The toothed band is fastened to the vertical rods m, which are fitted to slide in suitable bearings, and connection is made with the operating-arms by means of studs n, projecting out horizontally from the rods, the latter passing through slats formed in the ends of said arms. The levers are fitted to turn on stationary studs o, held in the frame. The delivering and coiling mechanism in this, as well as the two following modi- 115 120 125 130



fications, are the same as in the machine first described. By the use of a rack and pinions, as aforesaid, it is obvious that when said rack is lowered the levers are swung up into position to receive the rods, as shown in Figs. 6 and 7, and when moved up to swing down said levers to discharge the finished coil, as shown in Fig. 8, thus accomplishing the same result as in the first instance, only by a different way of turning the levers.

In the modification illustrated by Figs. 10, 11, and 12 the levers are made in the form of a rack and arranged with the teeth in a vertical direction. Instead of being turned vertically, as in the two previous instances, they are moved in and out horizontally toward and from the center of the machine, being moved in to form a support for the rods to be coiled upon, and out to discharge the finished coil. Said operations are performed by means of the driving-gear *p*, the toothed band *q*, and the pinions *r*, the latter being arranged to mesh with the teeth of both the levers and the inner teeth, *q'*, of the band *q*, while the gear *p* meshes with the outer teeth, *q''*, on said band, as shown in Figs. 10 and 12. Said gear *p* may be driven by connection with any suitable and convenient driving mechanism.

By the above-described construction and arrangement it will be seen that by turning the gear *p* from right to left the various parts will be operated in the direction shown by the arrows in Fig. 12 and the levers moved into the position shown by full lines, ready to receive the incoming wire rod, and by reversing the motion of said gear said levers will be moved out from the center of the machine to the position shown by dotted lines in said Fig. 12, thereby allowing the finished coil to drop down out of said machine.

Substantially the same construction is illustrated in Figs. 13, 14 and 15 as in the modification last described, the only difference being that instead of the toothed levers being used and operated in and out longitudinally they are in this instance made fan-shaped, and their base ends fastened to the journals *s*, to which the pinions *r'* (corresponding with pinion *r*) are fastened, as is shown in Fig. 14. It is therefore obvious that by turning the various parts in the direction indicated by the arrows in Figs. 13 and 15 the levers are swung out into the position shown by dotted lines in Fig. 15 to discharge the finished coil, and vice versa to bring said levers into position for the next succeeding wire rod to be coiled thereon, as shown by the full lines in the drawings.

The means employed for catching and holding the coils as they are dropped down out of the machine constitute, as before stated, no part of my invention, except when used in combination with the mechanism hereinbefore described. Any suitable means may be adopted. I prefer, however, to employ an upright reel, *M*, whose spokes *t* project up to just inside of the bottom edge, *F''*, of the central part, *F*, when said reel is in its highest

or normal position, as shown in the drawings. I also prefer in practice to first deposit the wire rods in a coil on the adjustable levers *L*, and then when the coil is completed discharge the same onto said reel *M*, as previously specified; but, if desired, said levers and their operating mechanism may be dispensed with entirely and the parts arranged as illustrated in Fig. 16, to deliver the rods direct from the delivering device to said reel without departing from the principle of my invention.

It is obvious that in either case, in order to remove the finished coils from the reel, the latter must necessarily be lowered or dropped down to bring the top ends of the spokes *t* on a line with or below the top of the flooring or bed *N*, which operation may be performed by hydraulic, steam, or any other suitable power connected with the shaft *N'* of said reel.

If desired, a suitable carrying-chain, *O*, (see Fig. 11,) may be employed for conveying the coils from under the machine after having lowered the reel *M* out of the way, as above described; or both the reel and said chain may be dispensed with when the levers *L* are used and the finished coils deposited upon the floor, or a truck run under the machine for conveying said coils from beneath the same.

I desire to cover in my present invention a delivering device independently, having several conducting openings, and otherwise made and operated, as hereinbefore described; also, said delivering device combined with a suitable receiving-reel, and with the adjustable levers *L* and reel, as set forth in the claims.

I am aware it is not new to deliver wire rods upon a stationary body or receptacle by means of a rotating conducting device adapted to deposit said rods in a coil over said body, such a device being already patented to C. H. Morgan and F. H. Daniels, under date of February 24, 1880, and numbered 224,942. I therefore, in view of said patent, limit my invention to a delivering device made and operated as above stated, and its combination with means admitting of the finished wire-rod coils being removed from the bottom of the machine, as set forth.

What I claim is—

1. In a wire-rod-reeling machine, a device for delivering the rods in a coil upon a suitable stationary reel or other receptacle, consisting of a central rotating body having a series of curved conducting openings formed vertically therein and adjustably suspended from a top plate having a central hub through which a curved opening is formed, adapted to be adjusted in line with any one of the openings in the aforesaid central body, said top plate also being supported and arranged to turn on a series of wheels arranged to travel in a circular guideway or track, and provided with a bevel-gear or its equivalent, whereby driving-power may be operatively connected therewith to turn the same and the central body suspended therefrom, substantially as shown and described.



2. In a wire-rod-reeling machine, a delivering device consisting of a central body having a series of curved conducting-openings formed vertically therein, and adjustably suspended  
5 from a top plate having a central hub through which a curved opening is formed, adapted to be adjusted in line with one of the openings in the aforesaid central body, and means for supporting and rotating said plate and body,  
10 in combination with a series of adjustable levers arranged in a circle, horizontally, or substantially so, below the openings in the central body, and adapted when in one stationary position to receive and support the wire rod  
15 as it is delivered from the aforesaid rotating delivering device, and to discharge the coil at completion by moving them into another position, and means for supporting and operating said levers, substantially as shown and  
20 described.

3. A wire-rod-reeling machine comprising a delivering device having a central body provided with a series of curved conducting-openings formed vertically therein, and adjustably  
25 suspended from a top plate having a central hub through which a curved opening is formed, adapted to be adjusted in line with any one of the openings in the aforesaid central body, and means for supporting and rotating said  
30 plate and body, also comprising means for sup-

porting the wire rods while being coiled and discharging the same at completion, consisting of a series of adjustable levers arranged in a circle, horizontally, or substantially so, below the openings in the central body, and adapted  
35 when in one stationary position to receive and support the wire rod as it is delivered from the aforesaid rotating delivering device and to discharge the coil at completion by moving  
40 them into another position, and means for supporting and operating said levers, in combination with an upright stationary reel, and means for operating said reel up and down, substantially as set forth.

4. In a wire-rod-reeling machine, the com- 45  
bination of a central body having a series of curved conducting-openings formed vertically therein, with a top plate having a central hub through which a curved opening is formed,  
50 said central body being so fastened to said hub as to admit of the adjustment thereof to bring any one of its openings in line with the hub-opening, and means for supporting and operating said top plate and central body, substantially as and for the purpose set forth.

HORACE A. YOUNG.

Witnesses:

ALBERT A. BARKER,  
LUCIUS W. BRIGGS.