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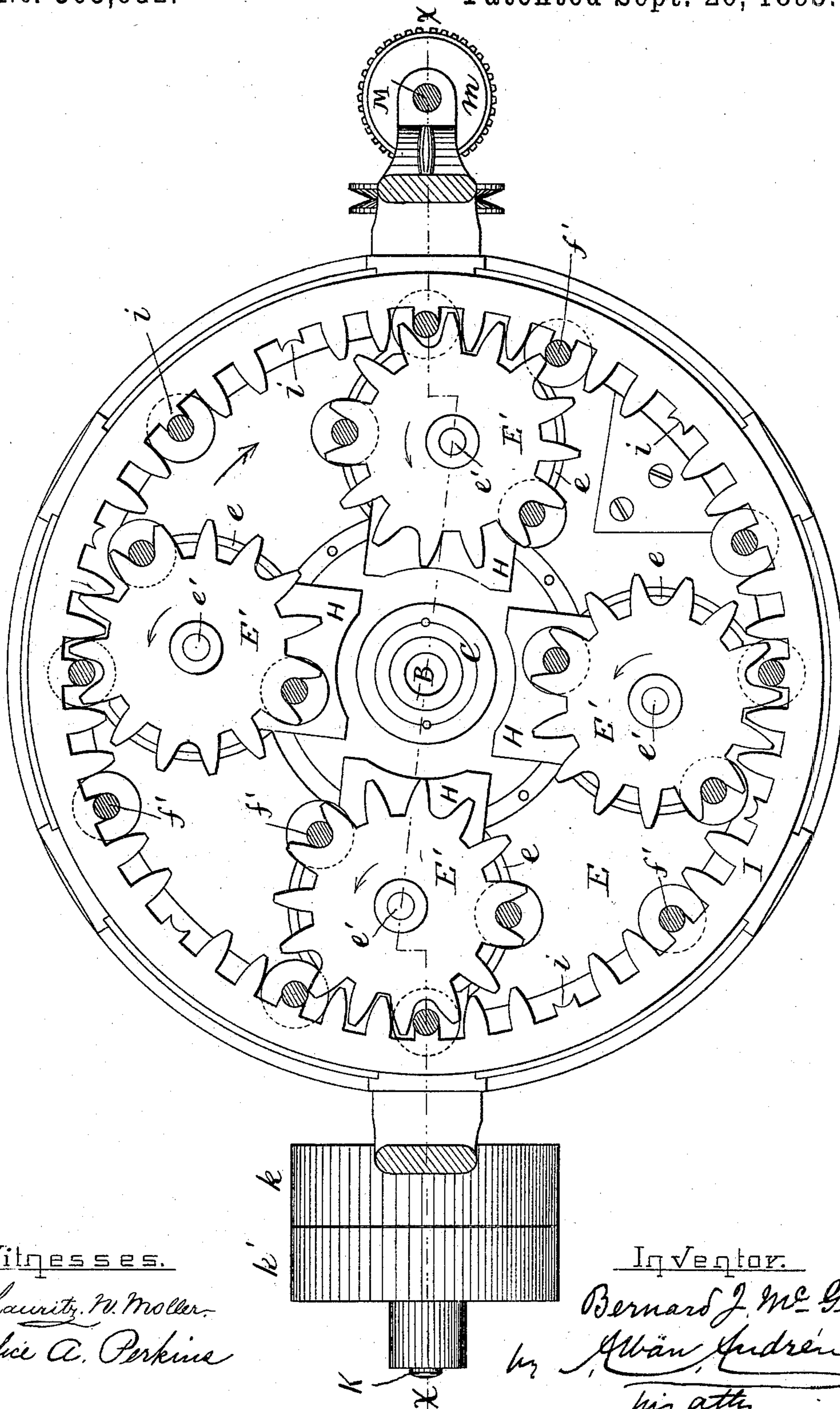
4 Sheets—Sheet 1.

B. J. McGEE.
MACHINE FOR MAKING CORDAGE.

No. 505,632.

Patented Sept. 26, 1893.

Fig. 1.



Witnesses.

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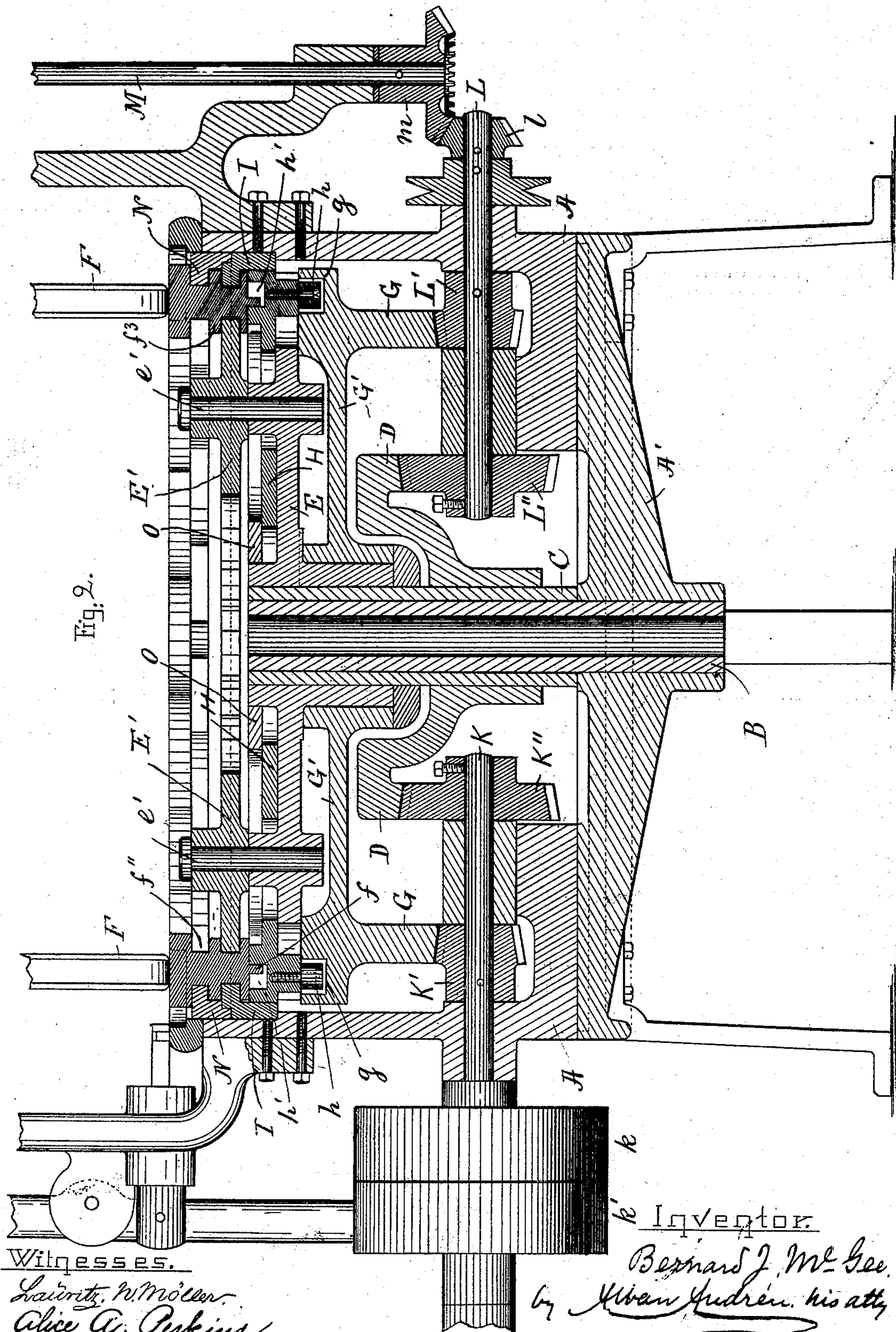
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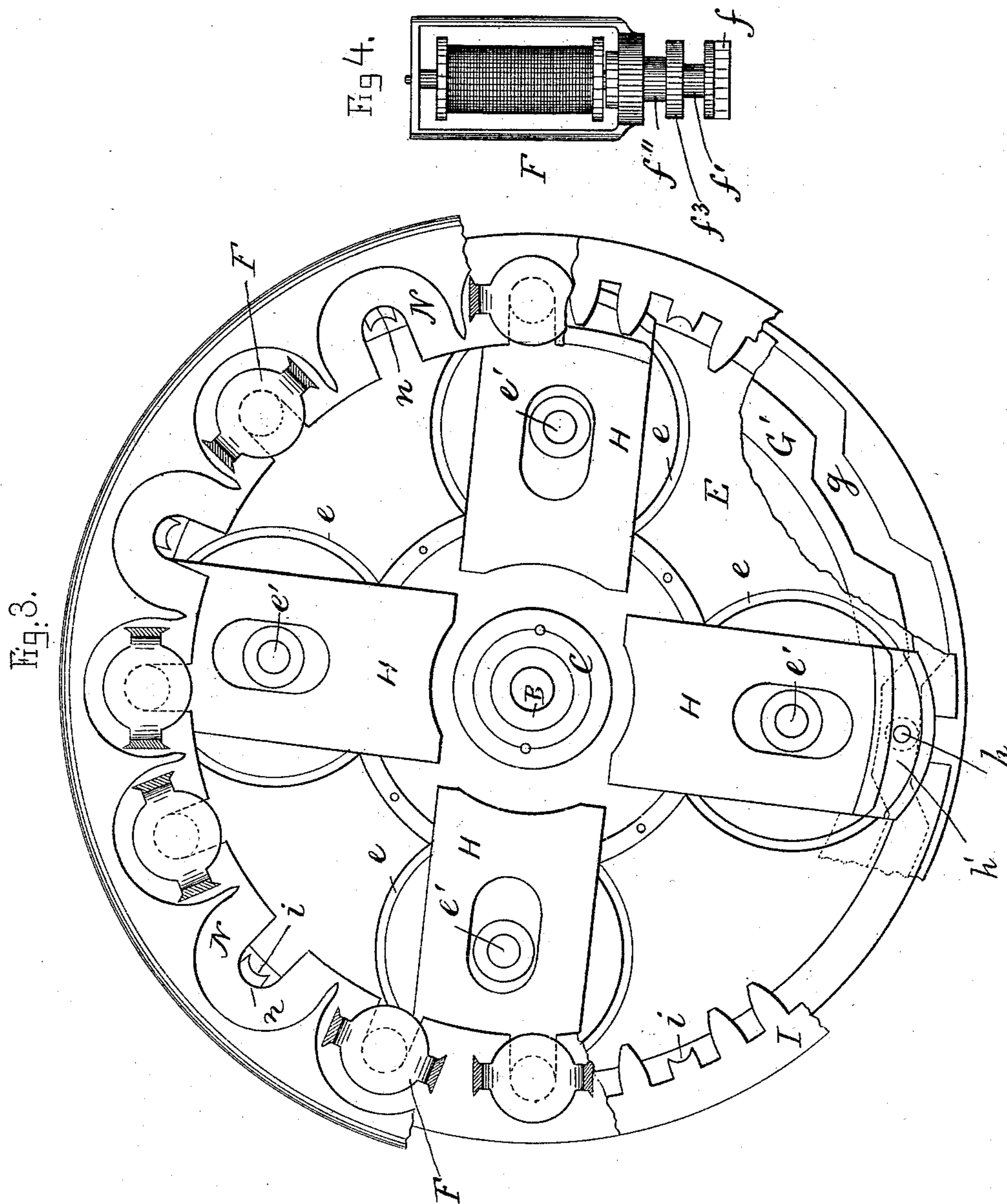
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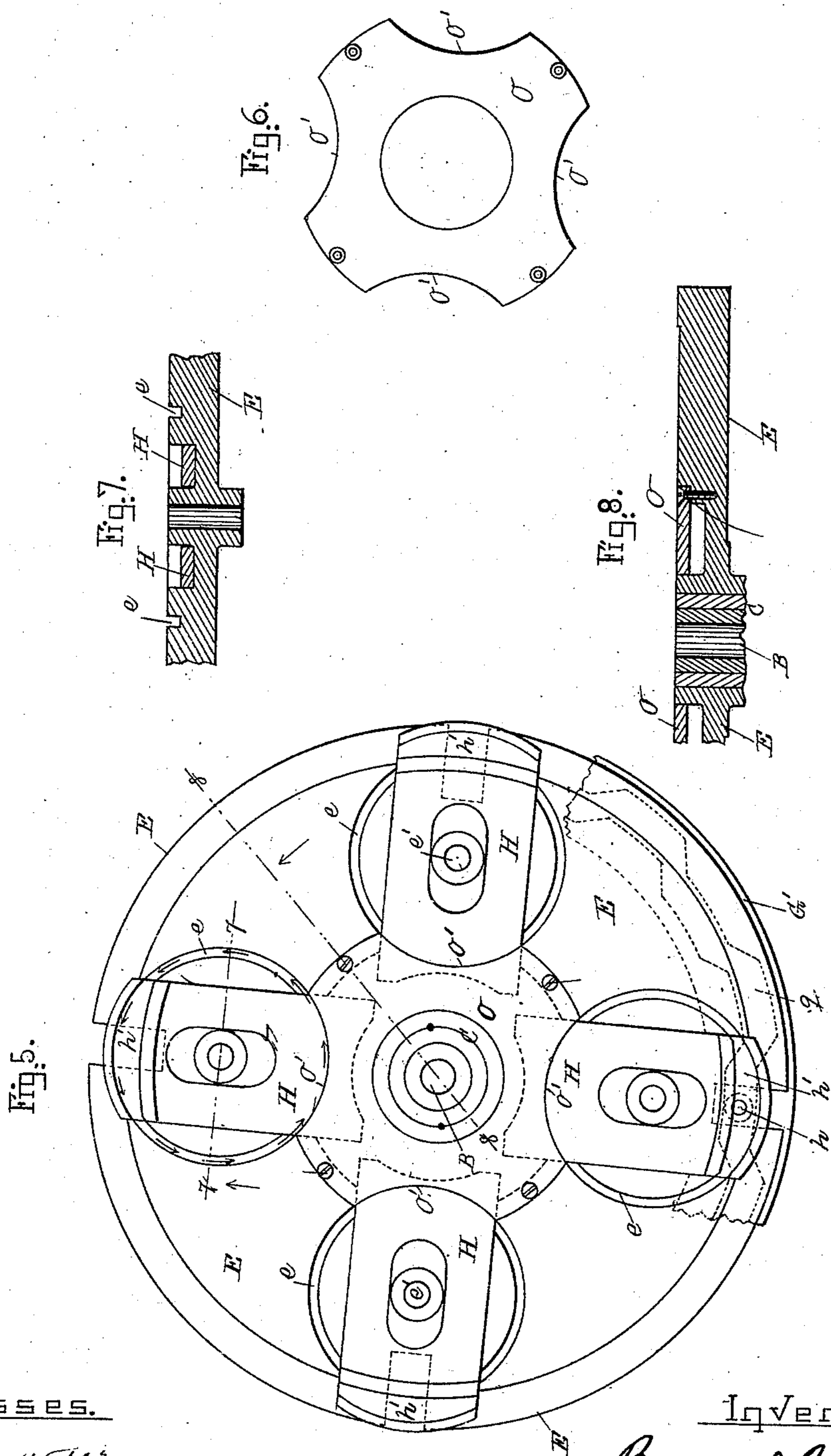
(No Model.)

4 Sheets—Sheet 4.

B. J. MCGEE.
MACHINE FOR MAKING CORDAGE.

No. 505,632.

Patented Sept. 26, 1893.



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UNITED STATES PATENT OFFICE.

BERNARD J. MCGEE, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO THE
BOSTON WOVEN CORDAGE COMPANY, OF PORTLAND, MAINE.

MACHINE FOR MAKING CORDAGE.

SPECIFICATION forming part of Letters Patent No. 505,632, dated September 26, 1893.

Application filed September 12, 1892. Serial No. 445,588. (No model.)

To all whom it may concern:

Be it known that I, BERNARD J. MCGEE, a citizen of the United States, and a resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Machines for Making Cordage, of which the following, taken in connection with the accompanying drawings, is a specification.

10 This invention relates to improvements in machines for making cordage and it has for its object to gear the driving shaft directly to the grooved revolving disk by which the travelers are rotated, and the revolving cam disk by which the travelers are moved radially in and out, for the purpose of preventing back lash and causing a true movement to be imparted to the travelers which being received in and leaving the stationary gear ring, thus producing a positive and uniform motion of the travelers relative to the stationary gear ring and overcoming the usual objection common in other machines, namely, the wear and tear of the travelers while being taken and delivered by the cam slides.

25 The invention also has other objects which will hereinafter appear.

30 The invention consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

35 Figure 1 represents a plan view of the machine showing parts in section and the upper bearing ring as removed. Fig. 2 represents a longitudinal section on the line X—X shown in Fig. 1. Fig. 3 represents a plan view showing a portion of the upper bearing ring, a portion of the stationary gear ring and pinions as removed. Fig. 4 represents a detail side elevation of one of the travelers. Fig. 5 represents a plan view with the guide cover in position. Fig. 6 represents a detail plan view of the guide cover. Fig. 7 represents a cross section on the line 7—7 Fig. 5, and Fig. 8 represents a cross section on the line 8—8 Fig. 6.

45 Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings A, A, represents the frame

of the machine to which the bed A' is secured as usual.

B is a hollow vertical shaft which is secured to the bed A' as shown in Fig. 2.

55 C is a sleeve adapted to be rotated around said hollow shaft.

D is a bevel gear the hub of which is secured to the sleeve C as shown in Fig. 2.

E is a circular grooved disk the hub of which is secured to the upper end of the sleeve C, said disk having circular grooves *e, e*, on its upper side as shown in Figs. 1, 3, 5, and 6 for guiding the travelers F (shown in Fig. 4) in a circular path during the cording operation. To the central part of the plate E is secured a guide cover O having a series of guide surfaces O' which serve as continuations of the grooves *e* by which the webs *f* of the thread carrying travelers F are guided in a circular path during the cordage operation.

70 G is a bevel gear forming a part of a circular disk G' which is journaled on the hub of the grooved disk E and is provided on its upper side with a cam groove *g* that actuates the cam slides H by which the travelers are actuated and moved to and from the stationary gear ring I.

75 The mechanism for imparting a quick rotary motion to the bevel gear D and its grooved disk E and a comparatively slower rotary motion in the same direction to the bevel gear G and its cam disk G' is constructed in the following direct and simple manner: K is the driving shaft journaled in bearings in the frame A, A, and provided with fast and loose pulleys *k* and *k'* shown in Figs. 1 and 2. To said shaft K is secured a pinion K' the teeth of which mesh in the teeth of the bevel gear G as shown in Fig. 2. K'' is another and preferably larger pinion, secured also to the shaft K, the teeth of which mesh in the teeth of the bevel gear D as shown. By this arrangement I dispense with an intermediate shaft and gear, and connect the driving shaft positively and directly by means of pinions to the respective bevel gears D and G for the purpose hereinabove set forth.

80 In practice I prefer to arrange opposite to the driving shaft K, a shaft L located in bearings in the frame A, A, and having secured to it the pinions L' and L'' meshing in the teeth

of the respective bevel gears G and D as shown in Fig. 2.

To the outer end of the shaft L is secured a bevel pinion *l*, the teeth of which mesh in the teeth of the bevel gear *m* secured to the vertical shaft M connected to the take up device for taking up the finished cord, such take up device being however not shown in the drawings as it does not form any part of my invention.

Each cam slide H has in its outer end, a pin or pin and roll *h* projecting into the cam groove *g* on the disk G' by which a radial reciprocating motion is imparted to the cam slides during the rotation of the disks E and G' for the purpose of intermittently anchoring the travelers F in the notches *i* on the stationary gear ring I and guiding them into the grooves *e, e*, on the disk E during the cording operation.

E', E', are pinions journaled on pins *e', e'*, secured to the rotary disk E, which pinions mesh in the teeth of the stationary gear ring I and serve the purpose of guiding the thread carrying travelers F intermittently in circular paths in the grooves *e, e*, on the disk E as is common in machines of this kind. Each cam slide H has at its outer upper end, a cam groove *h'* adapted to receive a web or projection *f* on the lower end of the traveler F as shown in Figs. 2, 3 and 4. By the reciprocation of the cam slides the travelers are intermittently moved out of the grooves *e, e*, and inclosed in the notches *i, i*, on the stationary gear ring and guided from the latter into the grooves *e, e*, and carried by the pinions E', E' in circular paths to be again temporarily anchored and so on.

f' is the shank near the lower end of each traveler which is anchored in the notches *i* on the stationary gear ring I. In practice however I have found that such shank and gear ring are not sufficient to properly anchor the traveler on account of the severe tensional strain exerted on the traveler by the thread while making the cordage and to overcome such objections I secure above the ring I a secondary bearing or anchoring ring N, having notches *n, n*, adapted to receive an upper shank *f''* on the traveler which shank is separated from the lower shank portion *f'* by means of an annular flange *f³* adapted to enter the intervening annular space between the rings I and N as shown in Fig. 2, by which arrangement the travelers are firmly held and anchored in

position after being pushed outward by the cam slides and until they are again guided into the circular grooves *e, e*.

In the operation of the machine the travelers are intermittently rotated around their own axes as well as around the central axis of the machine and anchored as above described by which the cord is formed by the threads carried on the travelers as is usual in machines of this kind.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a cordage making machine, the combination with a stationary toothed and notched gear ring I, of a secondary notched bearing ring N resting directly upon the upper side of the toothed and notched gear ring and having a flange extending over said ring, the travelers F each provided with two shanks *f' f''* and an intervening annular flange *f³* which latter rests at intervals directly upon the upper surface of the toothed and notched gear ring and against the under surface of the flange on the bearing ring, and the intermittently reciprocating slides H, substantially as and for the purpose described.

2. In a cordage making machine, the combination with a stationary toothed and notched gear ring I, of a secondary notched bearing ring N resting directly upon the upper side of the toothed and notched gear ring and having a flange extending over said ring, the travelers F each provided with two shanks *f' f''* and an intervening annular flange *f³* which latter rests at intervals directly upon the upper surface of the toothed and notched gear ring and against the under surface of the flange on the bearing ring, a rotary disk G' provided in its upper surface with a cam groove *g*, and a series of radially movable slides H each provided on its lower side with a stud or roller *h* engaging the cam groove of the rotary disk and in its upper side with a groove *h'* to receive a part of the travelers, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 6th day of April, A. D. 1892.

BERNARD J. MCGEE.

Witnesses:

ALBAN ANDRÉN,
ALICE A. PERKINS.