

No. 719,340.

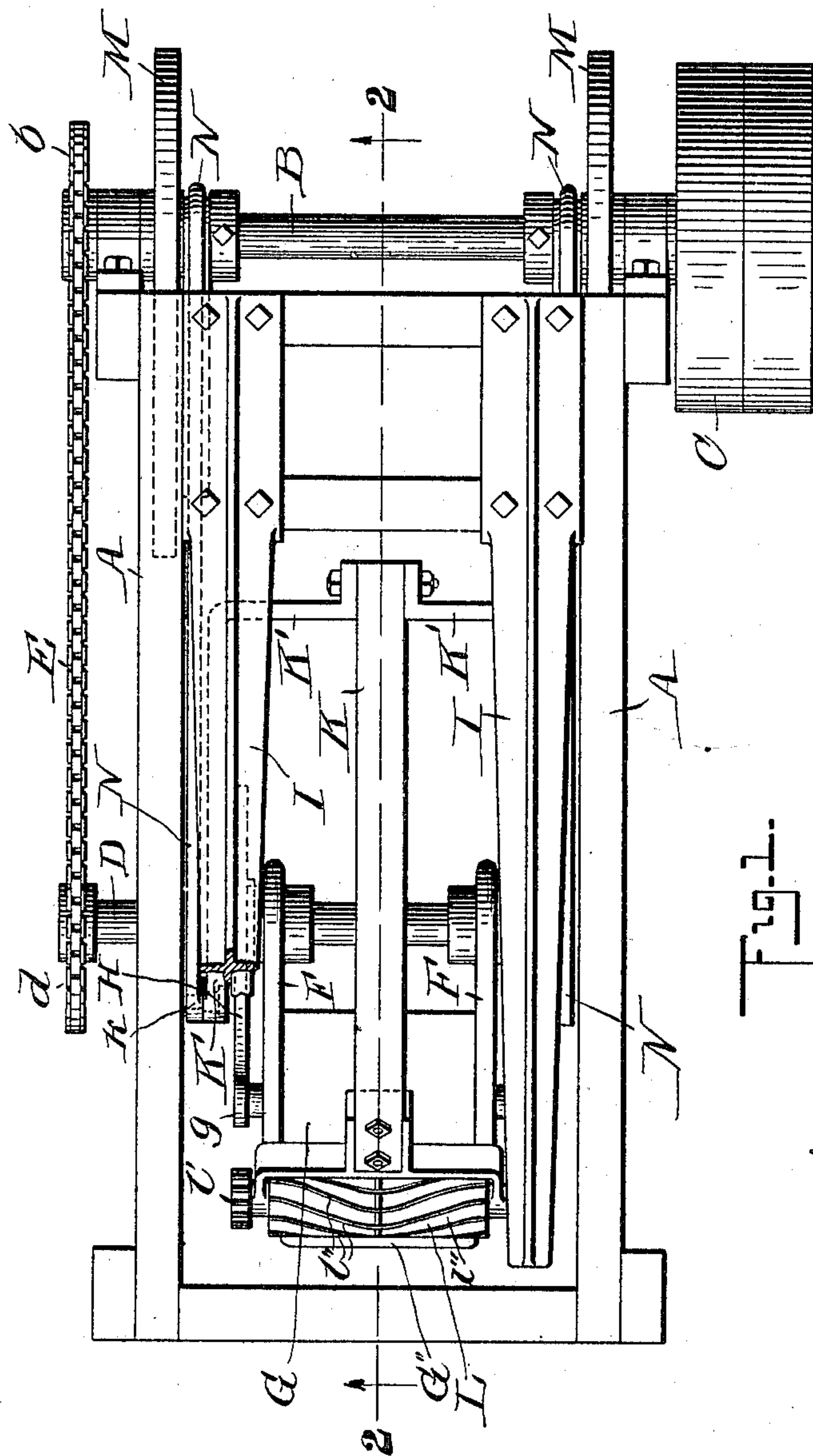
PATENTED JAN. 27, 1903.

F. C. KIMBALL.
STAKING MACHINE.

APPLICATION FILED MAR. 1, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses=

Charles F. Logan.
Laurens W. Moeller

Inventor

Frank C. Kimball

by *Alvan Andrieu*

his Atty

No. 719,340.

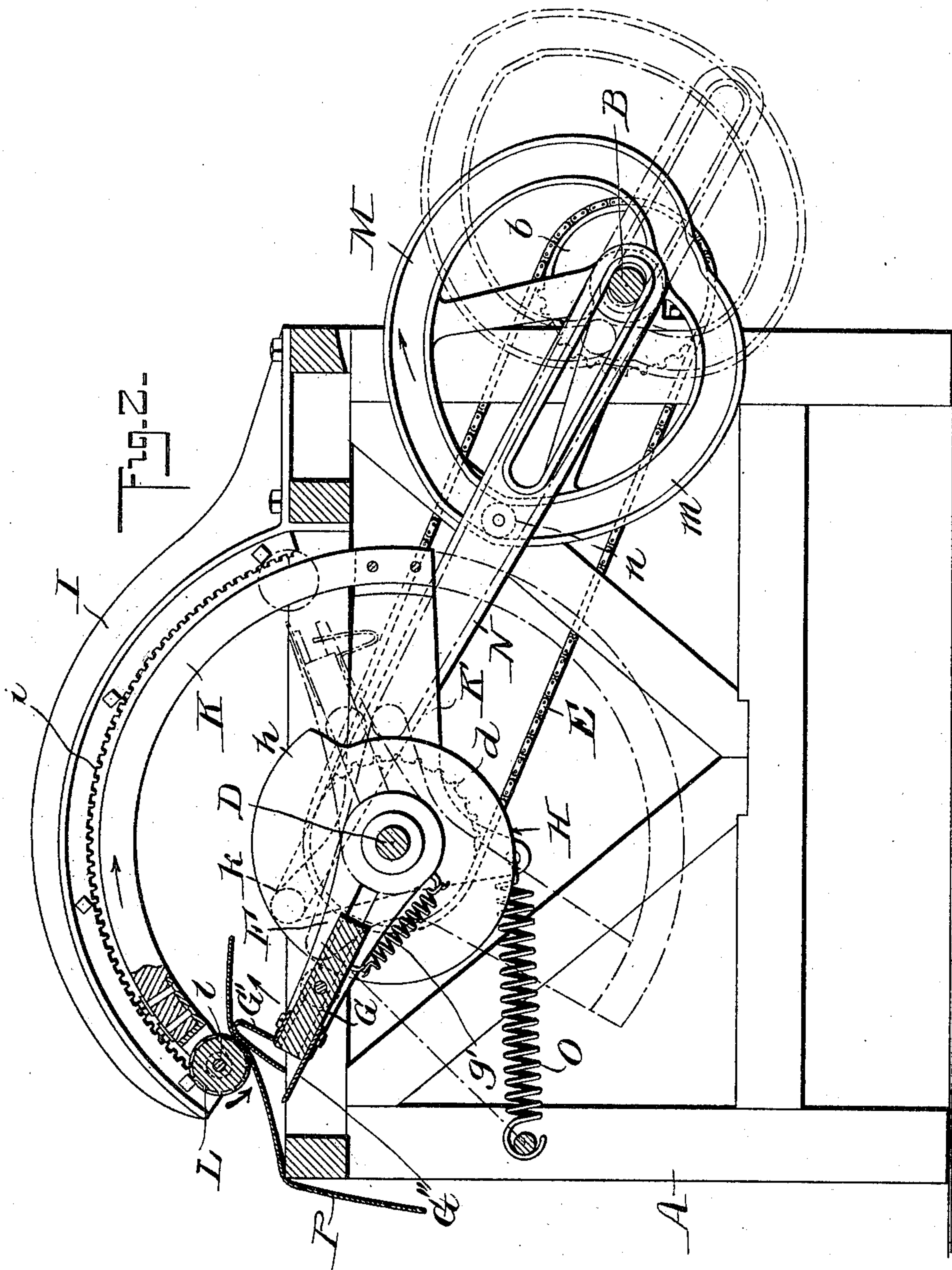
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4 SHEETS—SHEET 2.



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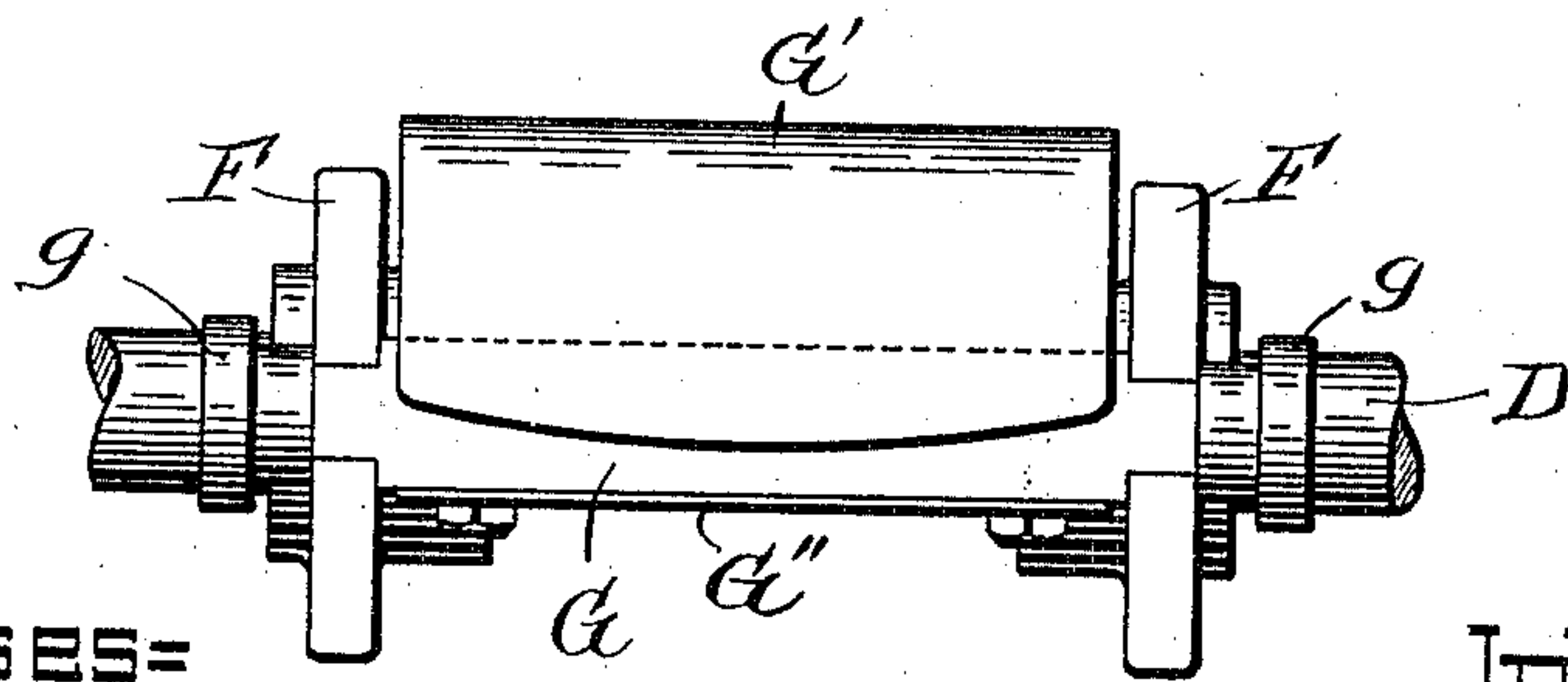
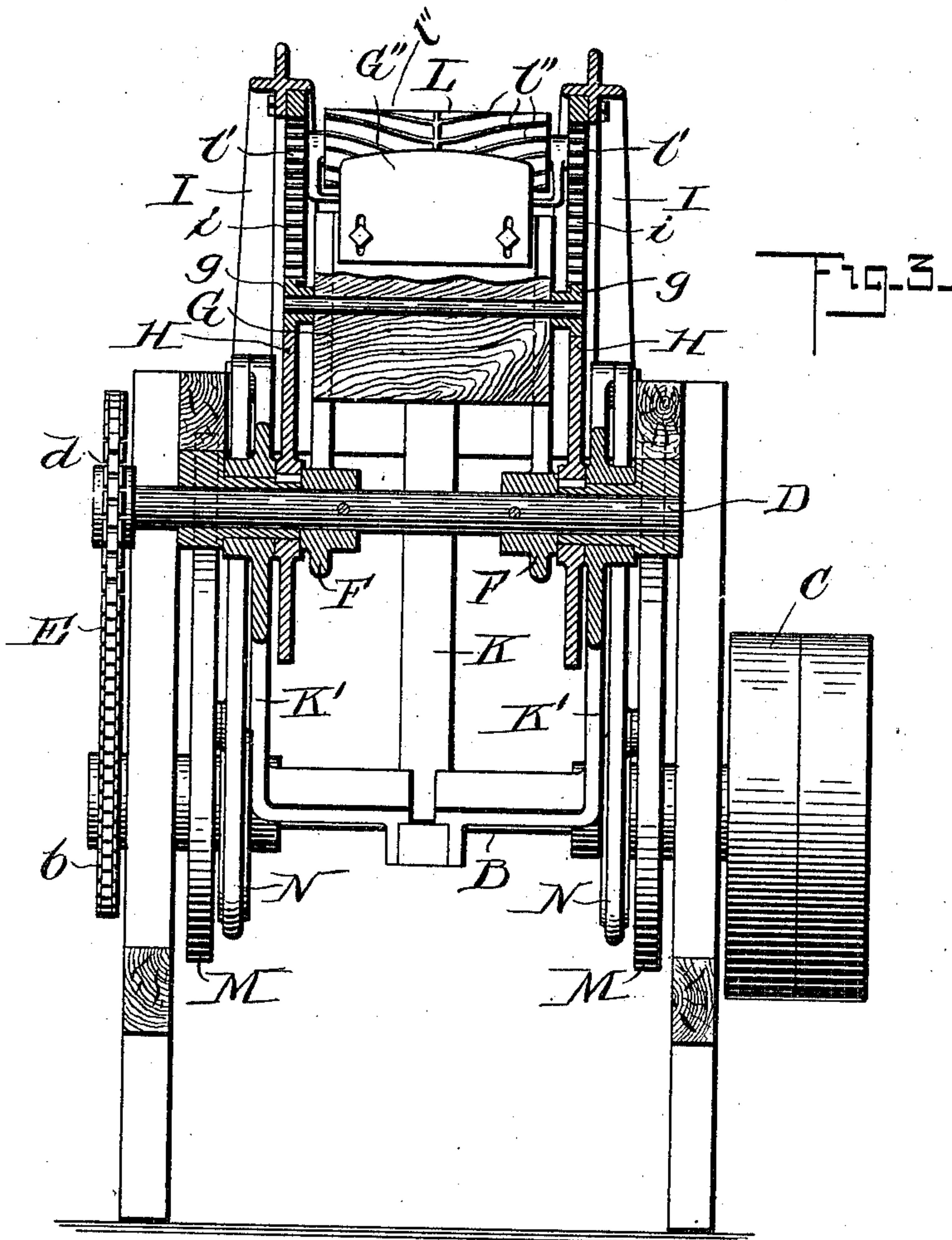
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4 SHEETS—SHEET 3.



Witnesses=

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Fig. 4.

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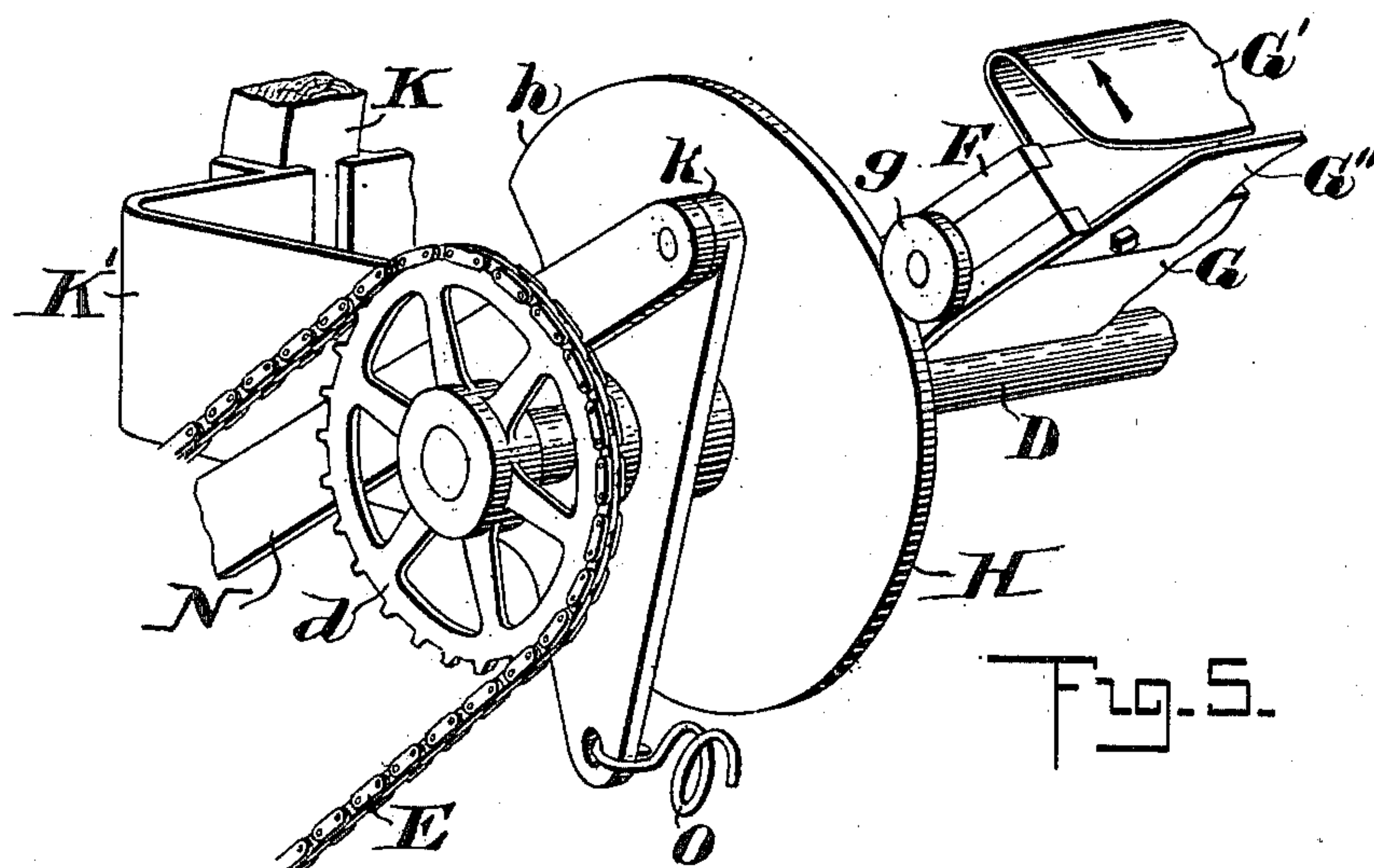


Fig. 5.

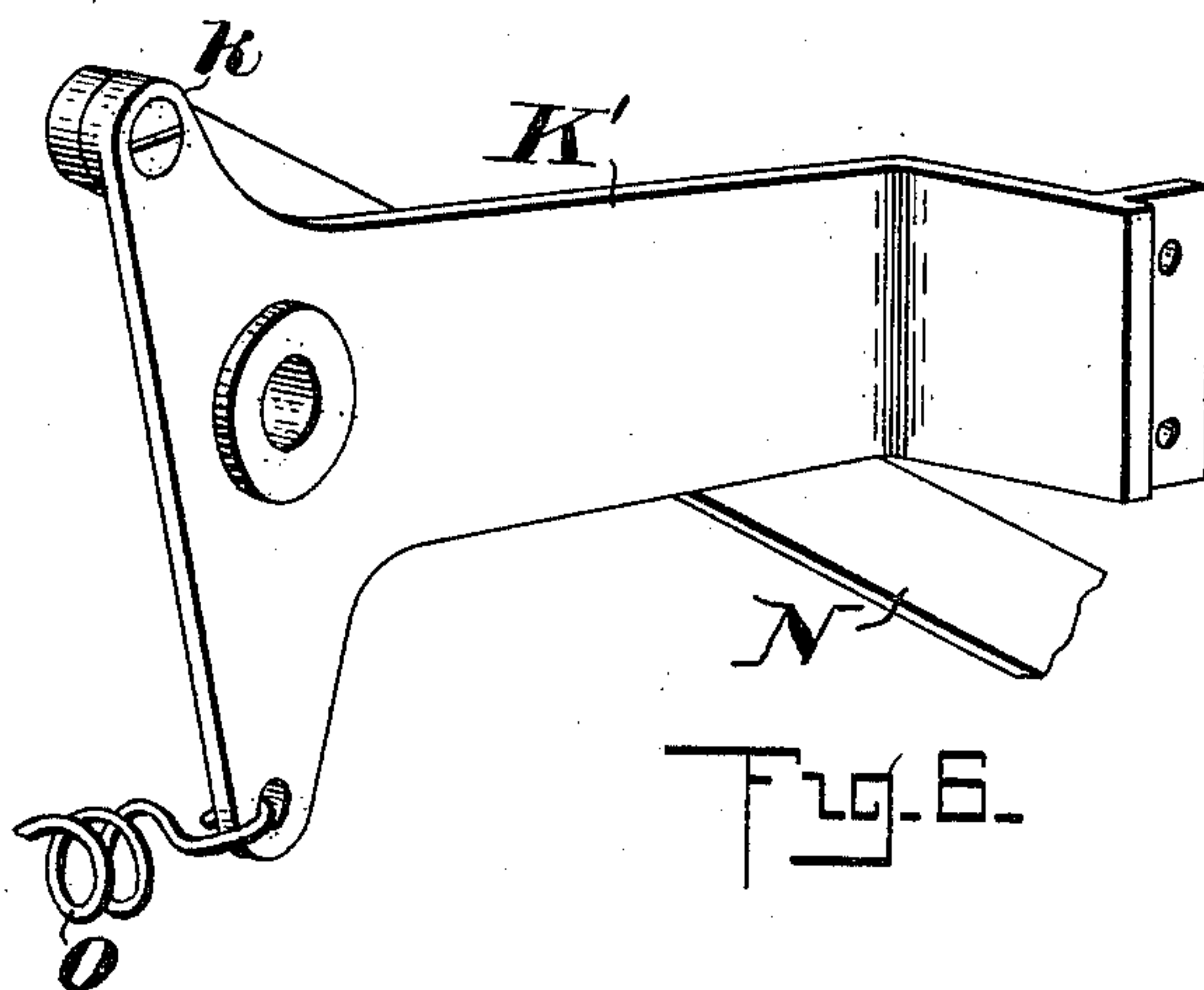


Fig. 6.

Witnesses=

Charles F. Logan.
Charles H. Smith

Inventor

Frank C. Kimball
by Alvan Andrew
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UNITED STATES PATENT OFFICE.

FRANK C. KIMBALL, OF SALEM, MASSACHUSETTS, ASSIGNOR TO CHARLES H. BRADSHAW, OF SOMERVILLE, MASSACHUSETTS.

STAKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 719,340, dated January 27, 1903.

Application filed March 1, 1902. Serial No. 96,206. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. KIMBALL, a citizen of the United States, and a resident of Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Softening Hides or Skins, of which the following is a specification.

This invention relates to improvements in machines for softening hides or skins, generally termed "staking-machines;" and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 is a top plan view of the machine, showing a portion of one of the toothed segments removed. Fig. 2 is a vertical section on the line 2 2 shown in Fig. 1. Fig. 3 is a vertical section of Fig. 2, showing the rotary slide-carrying arms held in a vertical position. Fig. 4 is an end view of the rotating arms and the staking parts radially movable therein. Fig. 5 is a perspective view of the mechanism for operating the staking-blades and rolls. Fig. 6 is a perspective view as seen from the central line of the machine, showing one of the segmental bar-supporting arms and its actuating-link.

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

In the drawings, A A represent the frames of the machine, secured at proper distances apart by means of stays or braces, as usual.

B is a driving-shaft journaled in bearings in the frames A A and set in rotary motion preferably by belt-power applied to a pulley C on its shaft or in any other well-known or suitable manner.

D is the staking-tool-carrying shaft, which is journaled in bearings in the frames A A and has preferably secured to it a chain-pulley *d*, to which a rotary motion is imparted by means of an endless chain E, leading from a chain-pulley *b* on the rotary driving-shaft B, as shown.

On the rotary shaft D are secured radially slotted or grooved arms F F, in which the staking-tool-carrying slide G is radially movable, being moved outward by means of pins or rolls *g g* on said slide G, contacting with

stationary cams H H, secured to the frames A A or otherwise held in stationary positions. In the drawings I have only shown one rotary and radially-movable slide G; but two or more may be used without departing from the essence of my invention. When the rolls *g g* on the said slide G are released from the highest portions *h h* of the cams H H, the said slide G is automatically moved toward the shaft D by the influence of a spring or springs *g' g'*, attached in one end to the slide G and in the other end to the inner or central portions of the arms F F, as shown.

To the outer end of the radially-movable slide G are attached a flexible staking member G' and a rigid staking-blade G'', as shown in Figs. 2 and 4.

To the upper portion of the frames A A are attached a pair of segmental arms I I, having toothed surfaces *i i* on their inner portions, as shown.

Upon the shaft D is journaled a preferably-forked frame K' K', to which is secured a segmental arm K, in the outer free end of which is journaled the spreader-roll L, having a shaft *l*, to the ends of which are secured the pinions *l' l'*, which engage the teeth *i i* on the interior of the stationary segmental arms I I, as shown. The segmental arm K is loosely journaled on the shaft D and is oscillated by any suitable mechanism from the rotary driving-shaft B. In the drawings I have for this purpose shown grooved cams M M, secured to the shaft B, which actuate slotted rods or levers N N, pivotally connected to projections on the frames K' K' of the segmental arm K, as shown in dotted lines at *k* in Fig. 2. In practice I make grooves *m* on the cams M, adapted to engage rolls *n*, pivotally connected to the levers N, as shown.

In Fig. 2 I have shown coiled springs O, secured in one end to the frame A and in the other end to projections on the frames K', for the purpose of aiding in moving the segmental arm K in the direction of the arrow shown in Fig. 2.

I wish to state that I do not desire to limit myself to any particular mechanism for imparting an oscillating motion to the segmental arm K, as this may be done by means of

any desired suitable or well-known mechanism without departing from the essence of my invention.

The rotary spreader-roll L is provided with a series of inclined or curved peripheral ribs $l'' l''$, oppositely inclined or curved from the center outward, as shown in the drawings, which ribs serve to spread out the skin from the middle portion of the roll outward during the staking operation.

The operation of the machine is as follows: Previous to the engagement of the spreader-roll L with the yielding staking-tool G' the hide or skin P is introduced between said yielding staking-tool and the rotary spreader-roll L, after which the rotating slide G is automatically moved outward by contacting with the cams H H, causing the yielding staking part G' to hold the skin or hide P with proper tension in contact with the rotating spreader-roll L. During the rotary motion of the slide G the segmental arm K is moved simultaneously in the same direction until the rolls or projections $g g$ on the slide G pass by the extremities $h h$ on the cams H H, when the slide G and its staking-tools are automatically moved inward by the influence of the springs g' , so as to permit the roller L to return in an opposite direction without coming in contact with the staking-tools on the slide G. During the staking operation the operator holds the skin or hide with a proper tension, causing the peculiarly-grooved spreader-roll L to spread out, soften, and stretch the skin or hide which is being operated on by contact with the flexible member G' and coincidentally acted on by the rigid staking-blade G'' , causing the skin to be kneaded and made soft and pliable.

It will thus be seen that the device consists of an oscillating rotary roller-carrying arm provided with a grooved roller, as described, which is rotated alternately in opposite directions during the oscillating motion of the arm in which it is journaled. In connection with such device is used a rotating and radially-movable staking-slide provided with flexible and rigid staking-tools adapted to hold the skin in contact with the rotary spreader-roll during the staking operation and to disengage the skin from between the staking devices before the oscillating arm K and its roller L commence to move forward. Previous to the staking-tool G' coming in contact with the rotary roller L the operator adjusts the position of the skin or hide so as to engage a new portion thereof with the staking devices, and thereby to gradually soften, spread out, stretch, and smooth the entire portion of the skin or hide.

What I wish to secure by Letters Patent and claim is—

1. In a leather-staking machine, in combination, a rotary spreader-roll L, having a series of inclined or curved peripheral ribs $l'' l''$, and a staking device, consisting of a rotary and radially-movable staking-tool carrier, means for imparting radial movement to the carrier, and means for imparting rotary movement to the carrier, substantially as and for the purpose set forth.

2. In a leather-staking machine, in combination, an oscillating carrier K, a grooved roller journaled therein, and geared to stationary segmental toothed arms I, I, a rotary and radially-movable slide G, provided with staking devices, adapted to engage the rotary grooved roll, means for imparting a radial movement to said slide, and means for imparting a rotary movement to said slide, substantially as and for the purpose set forth.

3. In a leather-staking machine, in combination, an oscillating arm K, having journaled to its end, a grooved spreader-roll L, stationary segmental toothed arms I, I, adapted to engage pinions on said roll L, and a rotary and radially-movable staking-slide G, having staking devices adapted to engage the said rotary spreader-roll, means for imparting radial movement to said slide, and means for imparting rotary movement to said slide, substantially as and for the purpose set forth.

4. In a leather-staking machine, in combination, a continuously-rotating and radially-movable staking carrying-slide, provided with yielding and fixed staking devices, an oscillating arm, having journaled on it, a grooved spreader-roll, adapted to engage with toothed segmental arms, secured stationary to the frame of the machine, means for imparting a radial movement to said slide, and means for imparting a rotary movement to said slide, substantially as set forth and described.

5. In a leather-staking machine, in combination, stationary segmental toothed arms I, I, an oscillating segmental roller-carrier K, a grooved spreader-roll, journaled in said carrier K, and geared to said toothed segmental arms I, I, and a rotatable slide G, radially movable relative to the spreader-roll, and having attached to it staking devices for holding the skin or hide in contact with the rotary grooved spreader-roll, means for imparting a rotary movement to said slide, and means for imparting a radial movement to said slide, substantially as and for the purpose set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANK C. KIMBALL.

Witnesses:

ALBAN ANDRÉN,
CHARLES H. BRADSHAW.