

No. 607,616.

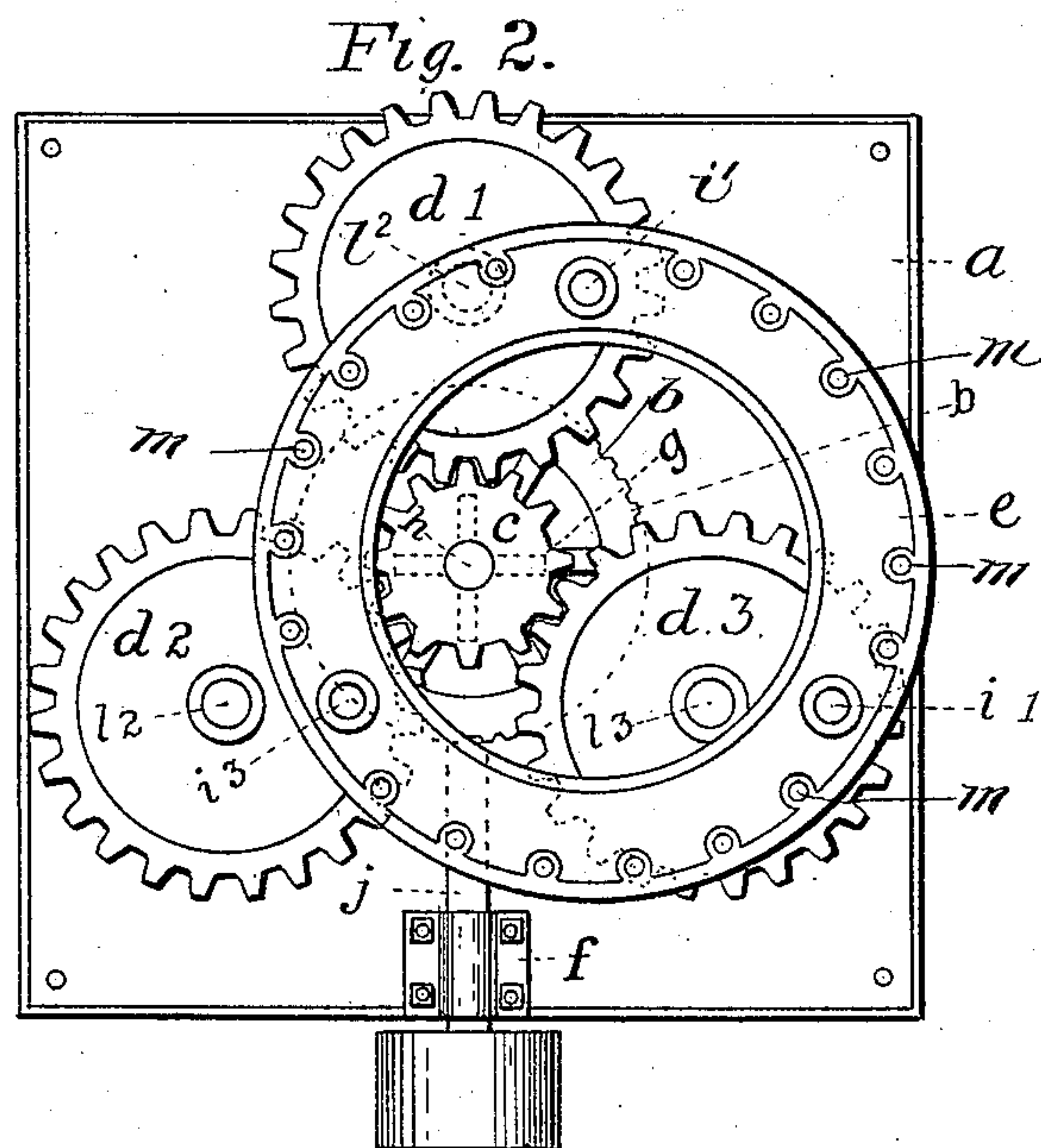
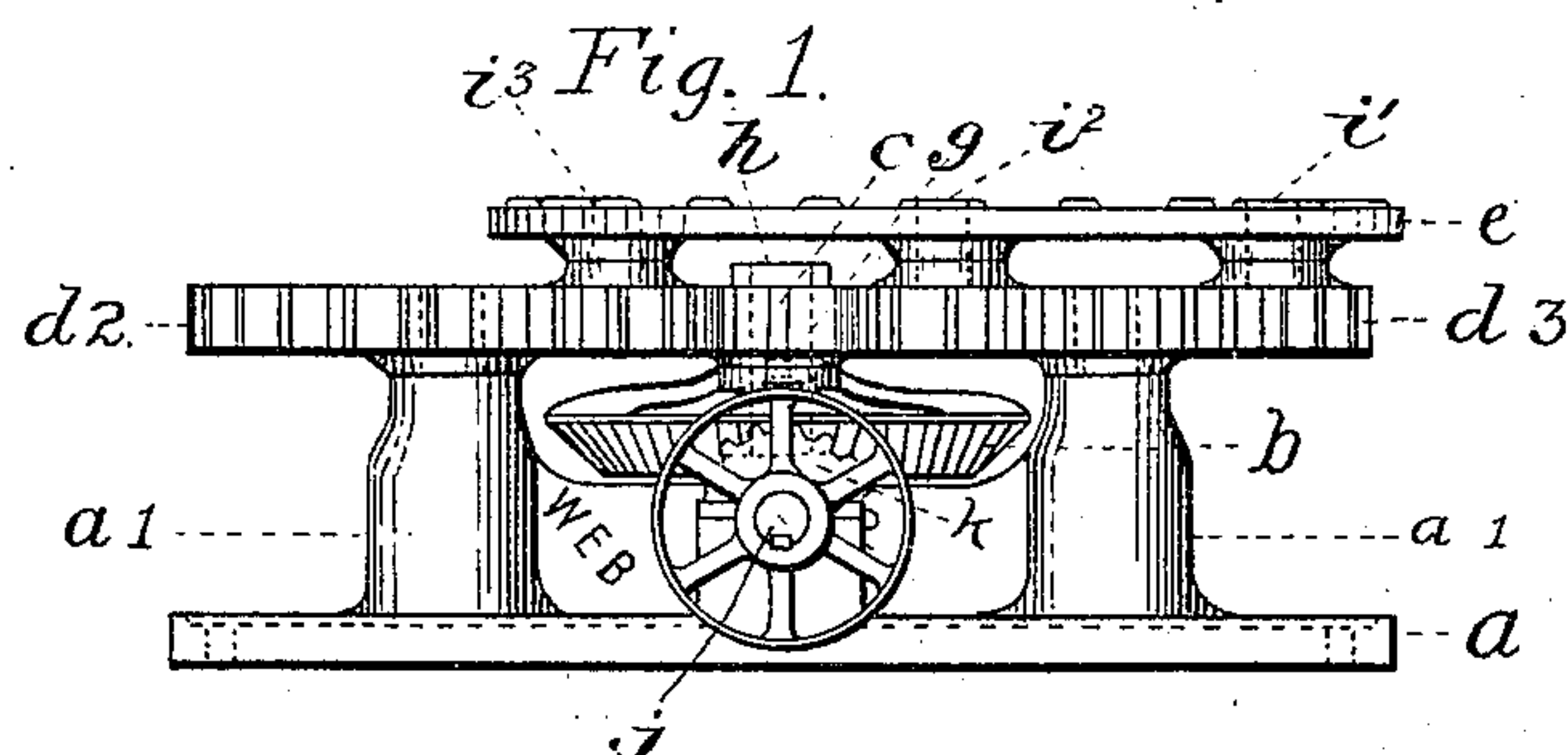
Patented July 19, 1898.

K. CHICKERING.
MECHANICAL MOVEMENT.

(Application filed Dec. 30, 1897.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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No. 607,616.

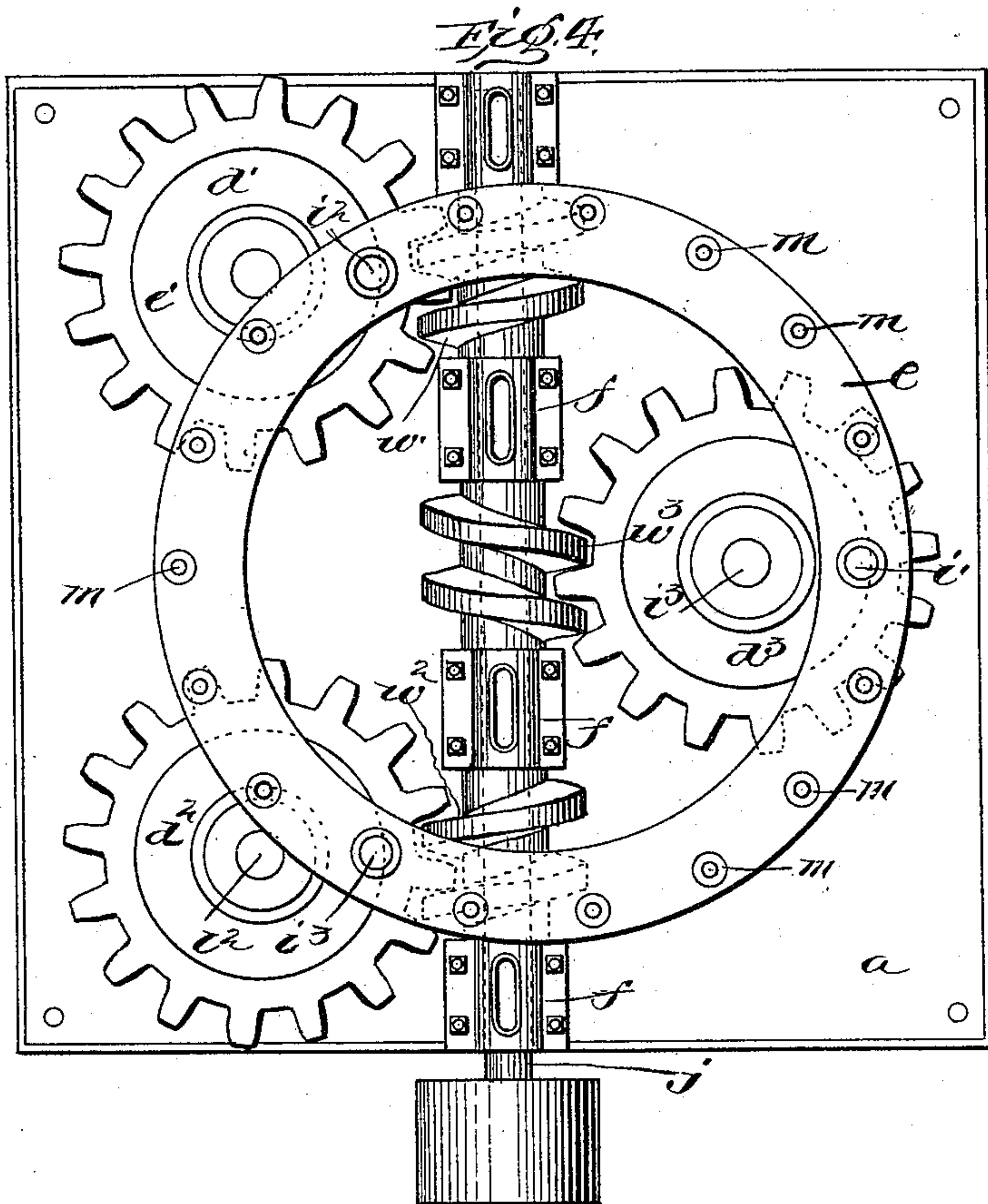
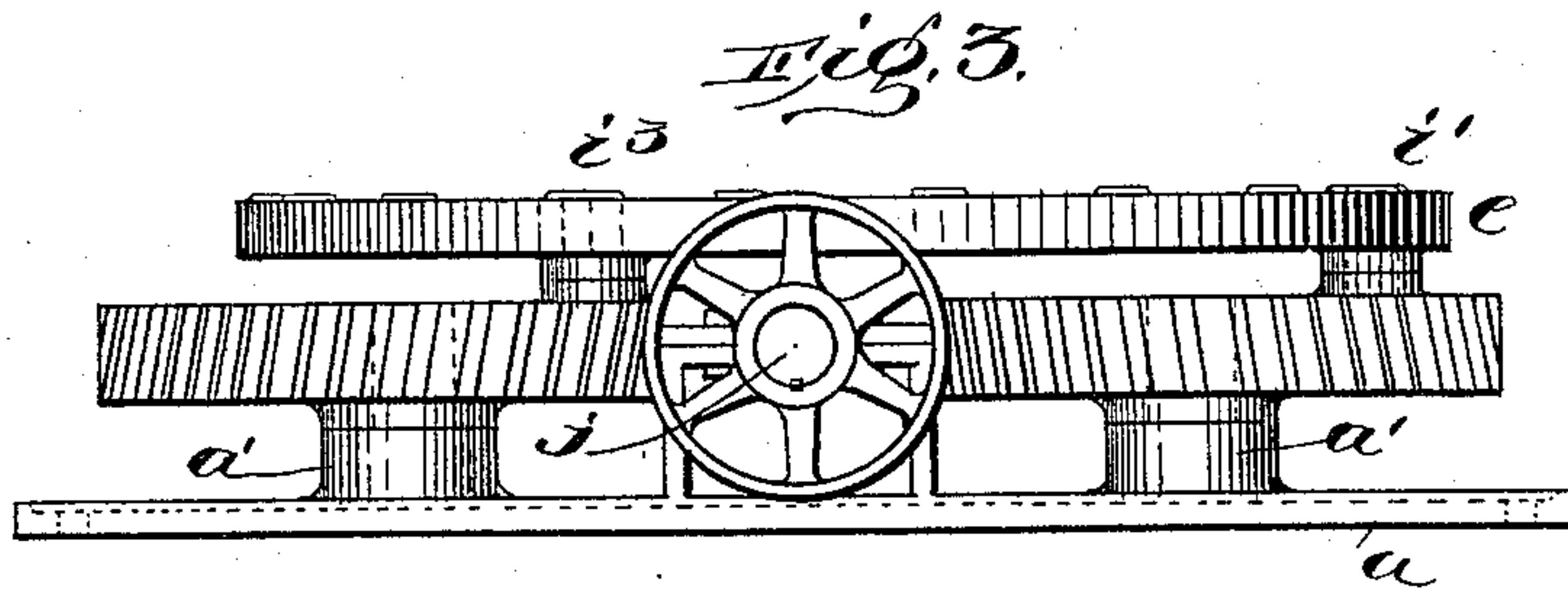
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(No Model.)

3 Sheets—Sheet 2.



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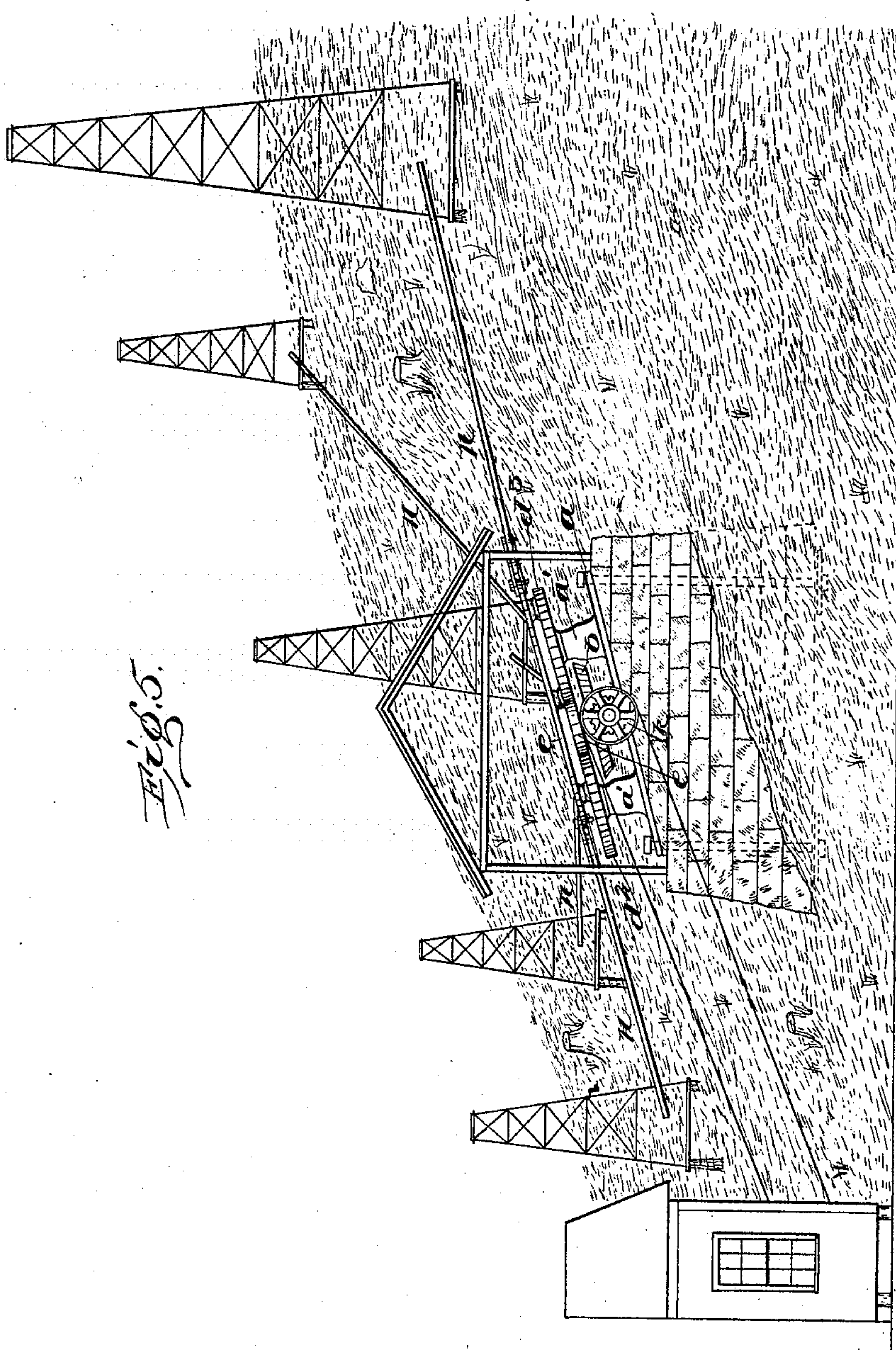
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

KENTON CHICKERING, OF OIL CITY, PENNSYLVANIA.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 607,616, dated July 19, 1898.

Application filed December 30, 1897. Serial No. 664,561. (No model.)

To all whom it may concern:

Be it known that I, KENTON CHICKERING, a citizen of the United States, residing at Oil City, in the county of Venango, State of Pennsylvania, have invented certain new and useful Improvements in Mechanical Movements; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of devices embodying my invention in the preferred form. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of a modification wherein a worm driving-gear is substituted for pinion driving-gear. Fig. 4 is a plan view of the modified form of the device shown in elevation, Fig. 3. Fig. 5 is a view in elevation of the preferred form of the devices, illustrating its utilization in applying the power to the actuating-rods of a series of oil-wells and also the applicability of the devices for use on side hills or inclined surfaces.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of a mechanical movement for transmitting power from a central motor to a series of surrounding mechanisms—as, for instance, from a main power-shaft to a series of actuating rods or ropes for simultaneously pumping a number of contiguous oil or Artesian wells—and has for its object the production of a mechanism adapted for use on inclines, (side hills), as well as in a horizontal position, and which will lessen friction and save power.

In carrying out my invention I combine with the power mechanism a plurality of pinions or gears (not less than three) provided with wrist-pins or equivalent means of imparting to a disk to which the actuating devices are attached a movement in an orbit described by said wrist-pins, whereby the centers of rotation are multiplied and the plane of rotation is changed, and such a combination embodies the main feature of my invention.

Preferably I combine with a center driving-pinion three driven pinions, disposed around the driving-pinion at equal distances from it and provided with eccentrically-placed wrist-pins, which engage a disk with which the ac-

tuating-rods or their equivalents are connected, and such a construction embodies a secondary feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, *a* indicates a suitable bed-plate, upon which is erected a central post or support, in top of which is a short shaft or journal *h* for the reception of a suitable central driving-pinion adapted to engage a series of surrounding pinions (not less than three in number, though more may be used.) Around said central post and at equal distances therefrom are a series of posts *a'*—in the present instance three—which are also equidistant from each other, and each of said posts is provided with a shaft or journal *l'* *l''* *l'''*, on which is journaled a pinion which meshes with and is driven from the central pinion.

In suitable bearings *f* upon the bed *a* is journaled the main power-shaft *j*, carrying a small bevel-pinion *k*, which meshes with a larger bevel-pinion *b*, journaled on the shaft *h* of the central post; also journaled on said shaft or journal *h* and keyed or otherwise connected with bevel-pinion *b*, so as to move therewith, is a small pinion *c*, with which mesh a plurality of surrounding pinions *d'* *d''* *d'''* of greater diameter, said pinions being journaled on the shafts or journals *l'* *l''* *l'''* of the posts *a'*, and each of said pinions is provided with a wrist-pin *i'* *i''* *i'''* or equivalent means for engaging a plate, disk, or annulus *e*, said wrist-pins being placed at equal distances from the shafts of their respective pinions.

e indicates a plate or disk, preferably an annulus, as shown, provided with holes for the reception of the wrist-pins *i'* *i''* *i'''*, so that the movement of the wrist-pins cause the disk to travel in a circular path or orbit of its own, but without rotation, so that each point upon the plate *e* moves around a center of its own, thus multiplying the centers of rotation.

At suitable intervals around the periphery of the disk or plate *e* are provided holes *m m*

for pivot-pins, yokes, or equivalent means for connecting with actuating-rods $n\ n$ (see Fig. 5) or equivalent means for transmitting power from the disk e to the series of mechanisms to be operated therefrom.

When the movement is constructed as set forth in the foregoing description and illustrated in Fig. 1 of the drawings, the devices will operate as follows: Power from main shaft j is transmitted through the intermediate devices—viz., bevel-gears $k\ b$ and pinion c —to the plurality of pinions or gearing $d'\ d^2\ d^3$, causing the same to rotate in unison and the wrist-pins $i'\ i^2\ i^3$ thereof to actuate the plate or disk e , causing said disk to travel in a circular orbit, whereupon each point m thereon will travel in a circular orbit, causing the reciprocation of the actuating-rod n , jerk-rope, or equivalent device, which may be connected with the disk e at said point.

In the modification shown in Figs. 3 and 4 the plurality of the gear-wheels and their wrist-pins and their combination with the disk e remains unchanged; but in lieu of the intermediate devices for transmitting the power from shaft j and changing the plane of rotation—viz., the bevel-gearing $k\ b$ and pinion c —I have substituted the well-known right and left hand worm-gearing $w'\ w^2\ w^3$, the principle and operation of the devices, however, remaining the same as hereinbefore set forth.

If less than three driven pinions or gears are used, there will be a tendency of the disk e to wobble and bind on the wrist-pins and there will be an irregular movement of the disk, which will not only affect the durability of the entire mechanism, but which will result in loss of power, while if three or more driven pinions or gears are combined with the disk which actuates the pumps the mechanism will be so balanced that all parts thereof will be relieved of strain, will be equally loaded, and less power will be required for a given load or work.

Among the advantages incident to my invention are their adaptability for use on side hills or in like inclined positions, the securing of a uniform and positive action of the driven mechanism with a reduction of friction and required power, greater durability

of the transmitting mechanism, and an advantageous distribution of the load on the engine which supplies the power.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mechanical movement the combination with a plate or disk, of a plurality of gears, not less than three, arranged around and equidistant from a common center eccentrically connected with said disk, means for imparting uniform rotary motion to said gears, and means for transmitting power from said disk, substantially as and for the purposes specified.

2. In a mechanical movement, the combination of three equidistant gear-wheels provided with wrist-pins equidistant from the centers of their respective gear-wheels, a disk with which said wrist-pins are connected, means for driving said gear-wheels, and means for transmitting power from said disk, substantially as and for the purposes specified.

3. In a mechanical movement the combination with a central driving-pinion, of a plurality of driven pinions not less than three arranged around and meshing with said central pinion, each of said driven pinions having a wrist-pin, a disk or plate with which the wrist-pin of each of said driven pinions is connected, and means for transmitting power from said disk; substantially as and for the purposes specified.

4. The combination with a suitable base-plate, of a central pivot-post and a driving-pinion journaled thereon, a series of not less than three pivot-posts arranged around and equidistant from said central post, driven gears journaled on said last-named posts each provided with a wrist-pin, and a disk or plate connected with and operated from the several wrist-pins of the driven gear, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 29th day of December, 1897.

KENTON CHICKERING.

Witnesses:

F. L. ENGLISH,
C. A. MERCHANT.