

No. 633,426.

Patented Sept. 19, 1899.

G. CODE & H. KNUDSEN.
ADJUSTABLE PULLEY GEAR.

(Application filed July 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

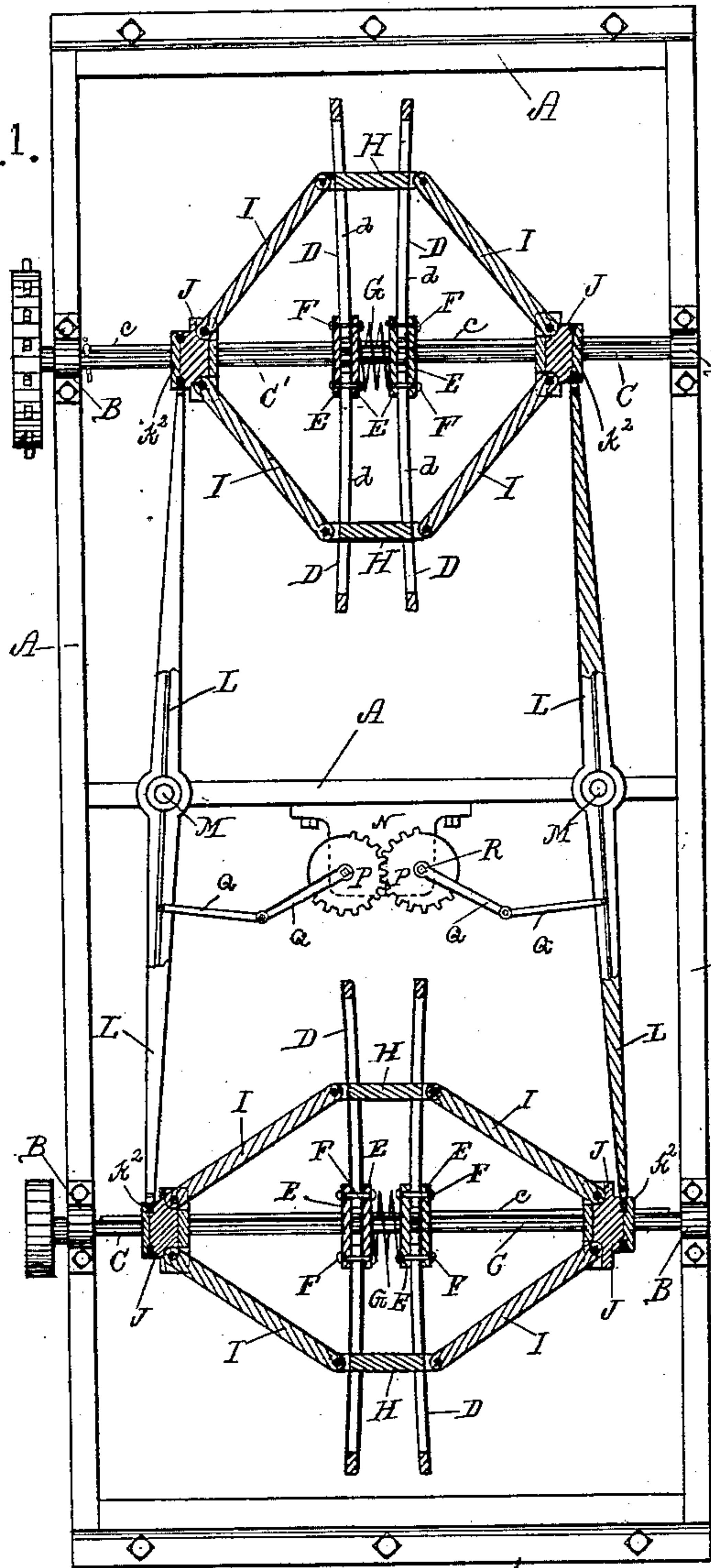


Fig. 2.

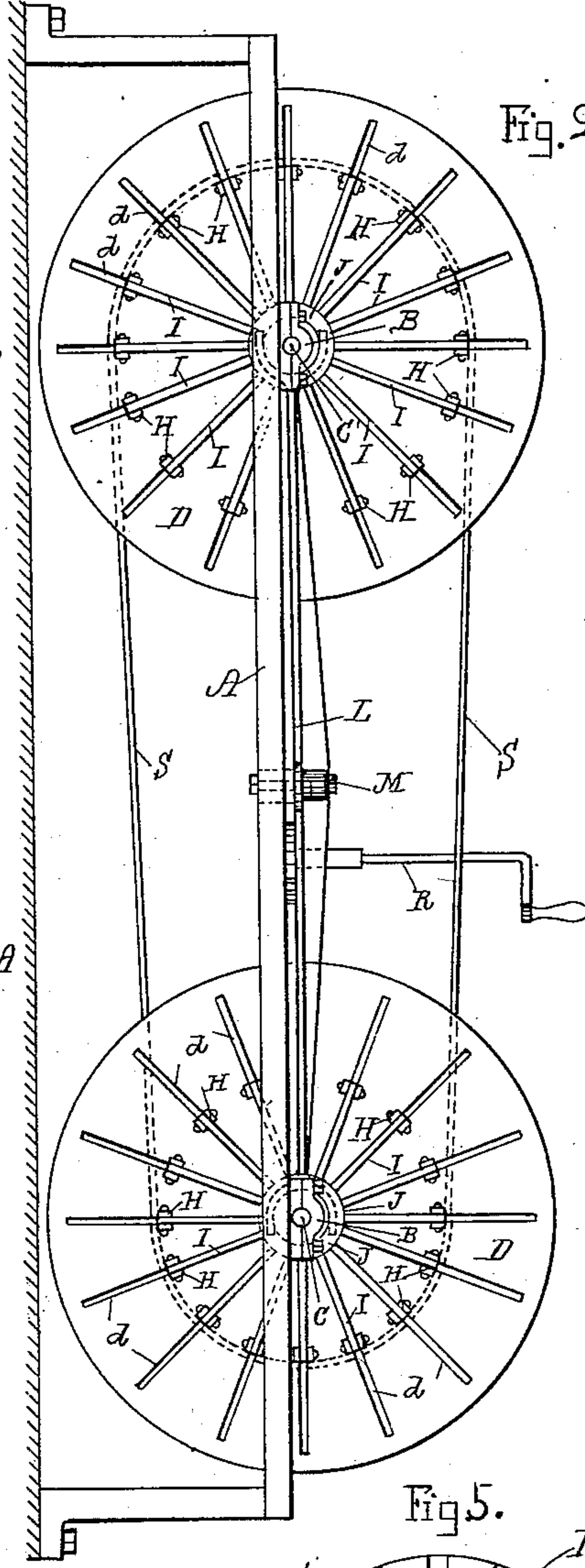
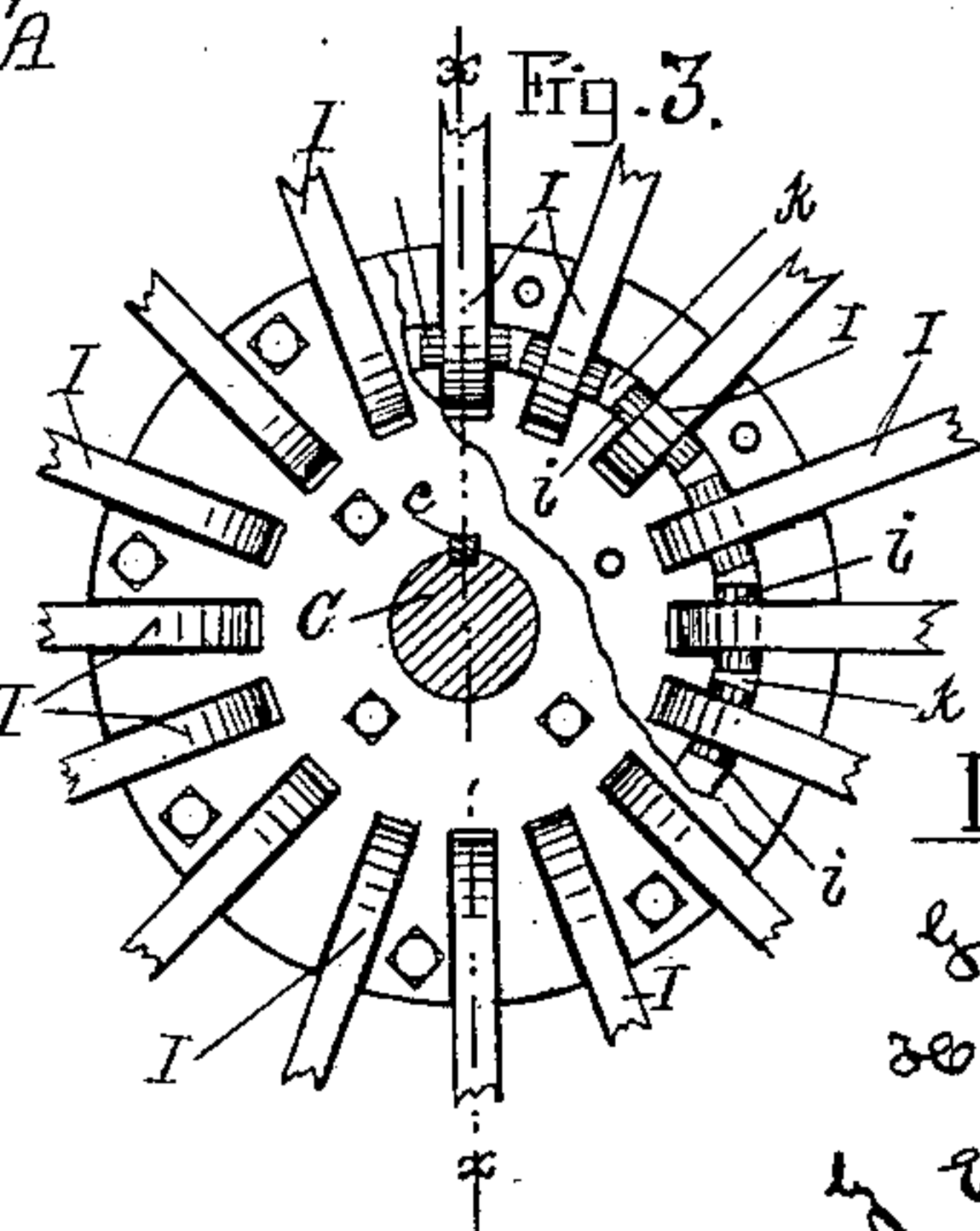
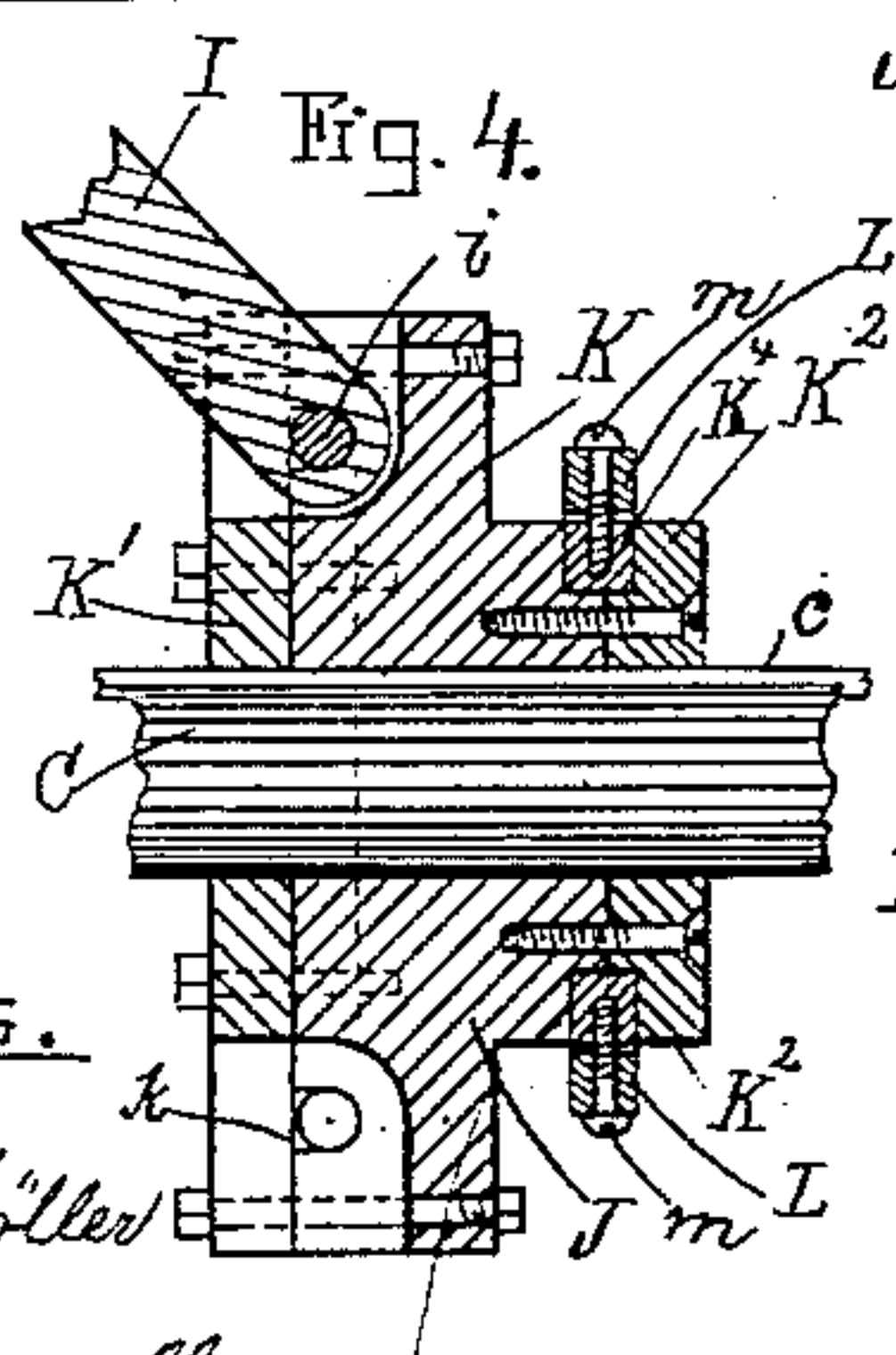
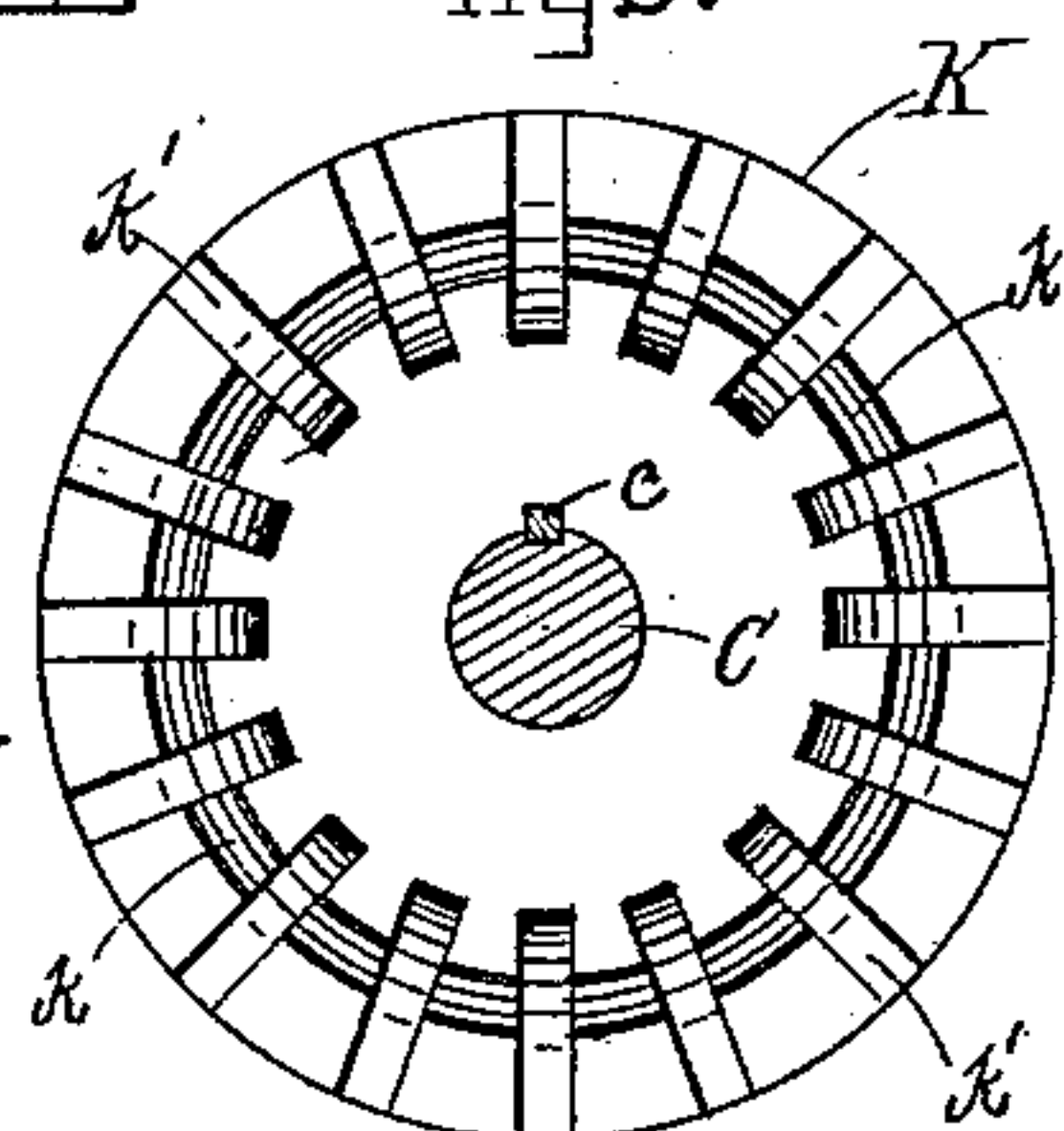


Fig. 5.



Witnesses.

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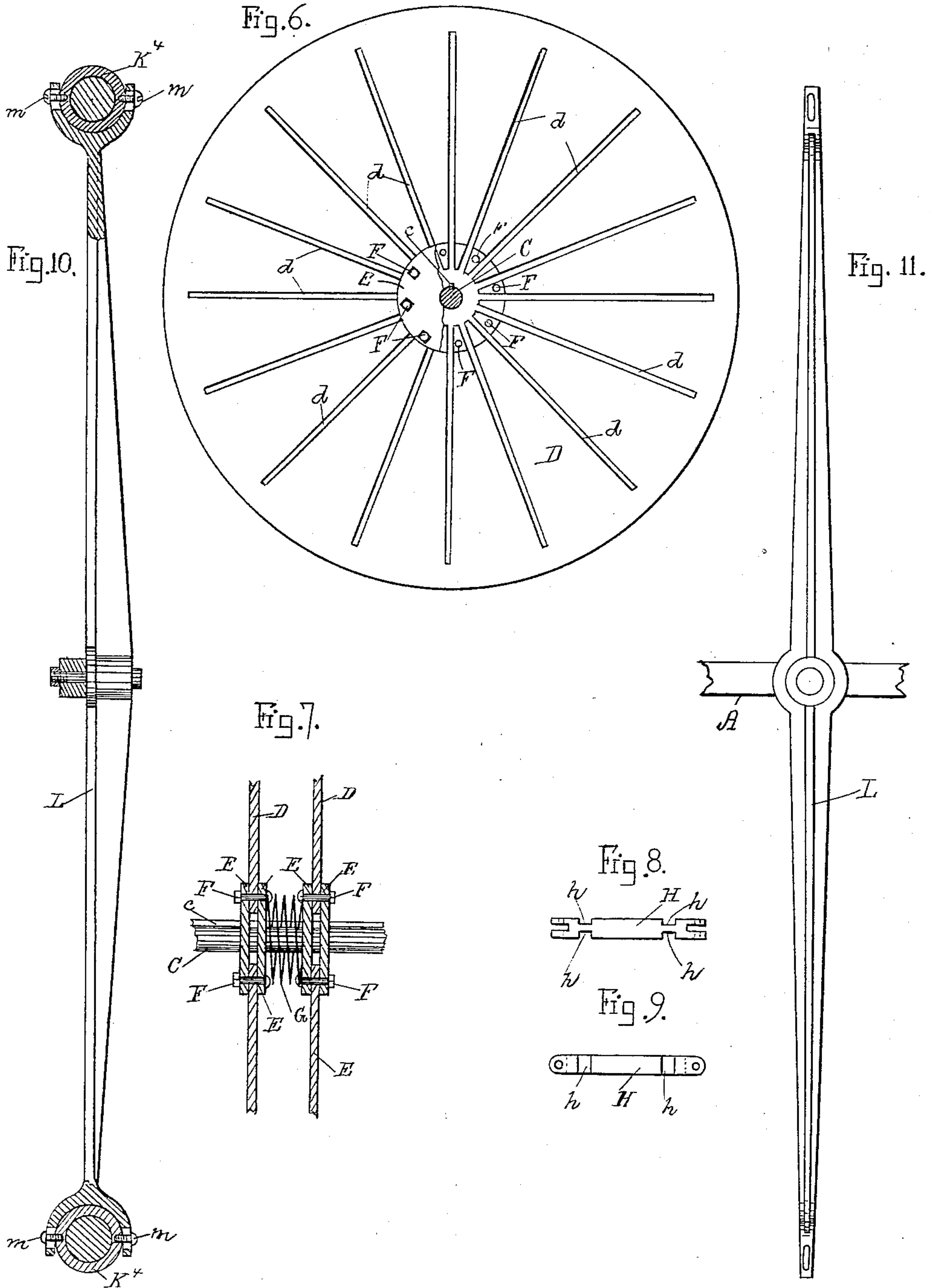
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2 Sheets—Sheet 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE CODE AND HANS KNUDSEN, OF BOSTON, MASSACHUSETTS, ASSIGN-
ORS TO THE LIQUID AIR, POWER AND AUTOMOBILE COMPANY, OF WEST
VIRGINIA.

ADJUSTABLE PULLEY-GEAR.

SPECIFICATION forming part of Letters Patent No. 633,426, dated September 19, 1899.

Application filed July 10, 1899. Serial No. 723,318. (No model.)

To all whom it may concern:

Be it known that we, GEORGE CODE, a sub-
ject of the Queen of Great Britain, and HANS
KNUDSEN, a citizen of the United States, resi-
dents of Boston, in the county of Suffolk and
State of Massachusetts, have invented certain
new and useful Improvements in Adjustable
Pulley-Gears, of which the following is a speci-
fication.

10 The object of our invention is to produce
an adjustable pulley-gear composed of two
sections adjustable in relation to each other,
one pulley being driven from any suitable
source and transmitting motion to the other
15 pulley by means of a flat or straight belt,
said pulleys being adjusted upon their shafts
so that the desired speed is transmitted from
the driving to the driven pulley.

20 The invention consists in the peculiar con-
struction and arrangement of parts as herein-
after set forth, and pointed out in the claims.

Referring to the accompanying drawings,
Figure 1 represents a plan or top view, partly
in section, of an apparatus embodying our in-
25 vention. Fig. 2 is a side view of the appara-
tus. Fig. 3 is a view, partially in elevation and
partially in section, of one of the hubs for the
toggle-joint levers. Fig. 4 is a section taken
on line *xx* of Fig. 3 with the lower toggle-
30 lever removed. Fig. 5 is a face view of one
of the hubs, showing the recess for holding
the pins of the toggle-joint levers in place.
Fig. 6 is a side view of one of the disks or
plates. Fig. 7 is a horizontal section of the
35 central portion of same. Fig. 8 is a plan or
top view of one of the sections of the bearing-
surface of the pulley to work in the slots in
the disk. Fig. 9 is a side view of same. Fig.
10 is a side view, partially in section, of one
40 of the shipper-levers. Fig. 11 is a plan or top
view of same.

A represents the supporting-frame, upon
which are secured bearings B B, in which are
mounted parallel shafts C C', each having a
45 feather *c*. Near the central portion of each
shaft are mounted two disks D D, each having
a number of radial slots *d* and each formed
with a large central opening. On each side
of each of said disks is placed a plate E, said
50 plates and disks being secured together by

means of bolts F, and between the plates is
arranged a spiral spring G to assist in keep-
ing the disks apart the required distance, but
allowing them to approach each other when
required. In each of the slots *d* of the disks 55
D is arranged a section of the bearing-sur-
face of the pulley H, having recesses *h* near
each end, (see Figs. 8 and 9,) so as to embrace
the disk on both sides, and the ends of these
sections H are furcated, to which are ful- 60
crumed toggle-levers I, the outer ends of
which are fulcrumed to hubs J, mounted
upon and free to slide on the shafts C and ro-
tate therewith. The hubs are formed in three
parts K K' K², as shown in Fig. 4, the central 65
portion K being formed with an annular
groove *k*, in which the ends of pins *i* on the
toggle-levers I fit, slot *k'* being also formed in
said central portion for the levers I to work
in, and the inner part or cover K' is also 70
formed with corresponding slots for said le-
vers I to work in, but is flat at its rear side
to hold the pins *i* in the groove *k*. The outer
end of the portion K is formed with an ex-
tended hub having a cover K². The end of 75
the hub and cover is cut out so as to form an
annular recess in which is arranged a ring K⁴.

L L are shipper-levers pivoted at their cen-
ter M to the frame A and formed at each of
their outer ends with a slot in which works a 80
screw *m*, that connects the end of the lever to
the ring K⁴ on the hubs J.

To the frame A, between the shipper-levers
L, is secured a block N, to which are ful-
crumed two cog-wheels P P in gear with each 85
other, and to each of the fulcrums of said
wheels is secured one end of an elbow-joint
Q Q, the outer end of which is attached to the
shipper-levers, as shown. (See Fig. 1.) The
rod R, forming the fulcrum of one of the 90
wheels P, extends upward and is fitted with a
crank-handle, as shown in Fig. 2, so that by
turning said handle a partial revolution is im-
parted to the wheels P P and the shipper-le-
vers drawn closer together or forced farther 95
apart, according to the direction in which the
handle is turned, thus regulating the expan-
sion and contraction of the pulleys and the
speed of the driven pulley.

The operation is as follows: Motion is first 100

transmitted to the driving-shaft C from any suitable source and by means of a belt S, passing over the surface-bearing sections H of the adjustable pulleys, imparts motion to the driven shaft C. Thus if the shipper-levers are parallel both shafts will be rotated at the same speed; but if said shipper-levers are expanded or contracted by means of the lever R, gears P P, and elbow-joints Q Q the position of the shipper-levers will be adjusted so as to expand one of the pulleys and contract the other, and the speed of the driven shaft is thus regulated.

What we claim is—

1. An adjustable pulley-gear comprising two parallel shafts, each having mounted thereon two disks adjustable in relation to each other, and having slots in which are mounted, so as to slide freely, adjustable surface-bearing sections, toggle-levers connected to same and to sliding hubs mounted upon the shaft for regulating the relative diameters of the adjustable surface-bearing sections and the speed of same, as set forth.

2. An adjustable pulley-gear having two parallel shafts, two disks mounted on each of said shafts so as to slide freely, and having a number of radial slots, a surface-bearing section mounted in each of said radial slots, toggle-levers connected to the outer ends of said section and being connected by toggle-levers to mechanism for operating them, substantially as set forth.

3. In an adjustable pulley-gear having two parallel shafts, disks having radial slots, plates free to slide upon the shafts secured to the central portions of said disks, surface-

bearing sections working in the slots in said disks, and means for adjusting same, and a spiral spring interposed between the plates to keep the disks expanded at their central portions to allow for the movement of the surface-bearing sections as they are drawn in or forced out, as set forth.

4. In an adjustable pulley-gear operated by shipper-levers, a hub, the surface of its central portion having an annular recess and radial slots, and an inner part or cover having radial slots, toggle-levers working in said slots, their ends being held in the annular recess as described, the outer or rear surface of the central portion of said hub having an extension and a cover, the said extension and cover having an annular recess, and a shipper-lever for operating same, substantially as set forth.

5. In an adjustable pulley-gear, shipper-levers for operating same, two central cog-wheels an elbow-joint by which each wheel is connected to its shipper-lever and an operating-lever connected to one of said cog-wheels whereby when said lever is moved in one direction, the arms of the shipper-levers to which the cog-wheels are connected, will be expanded or contracted according to the movement of the cog-wheels, as set forth.

In testimony whereof we have affixed our signatures in presence of two witnesses.

GEORGE CODE.
HANS KNUDSEN.

Witnesses:

HUBERT J. McLAUGHLIN,
EDWIN PLANTA.