

No. 612,442.

Patented Oct. 18, 1898.

F. C. THOMPSON.
MECHANISM FOR CONVERTING MOTION.

(Application filed July 10, 1896.)

(No Model.)

Fig. 1.

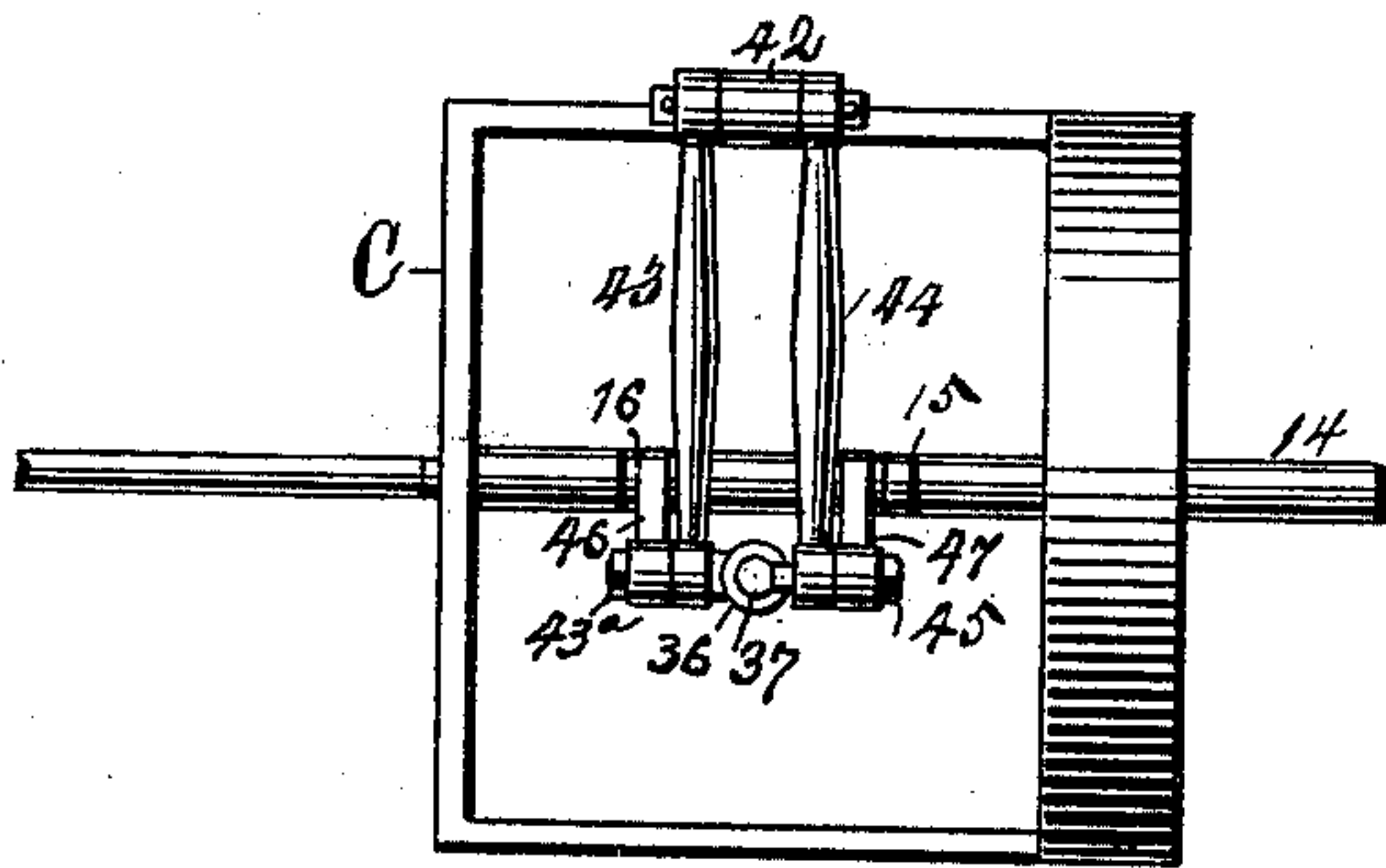
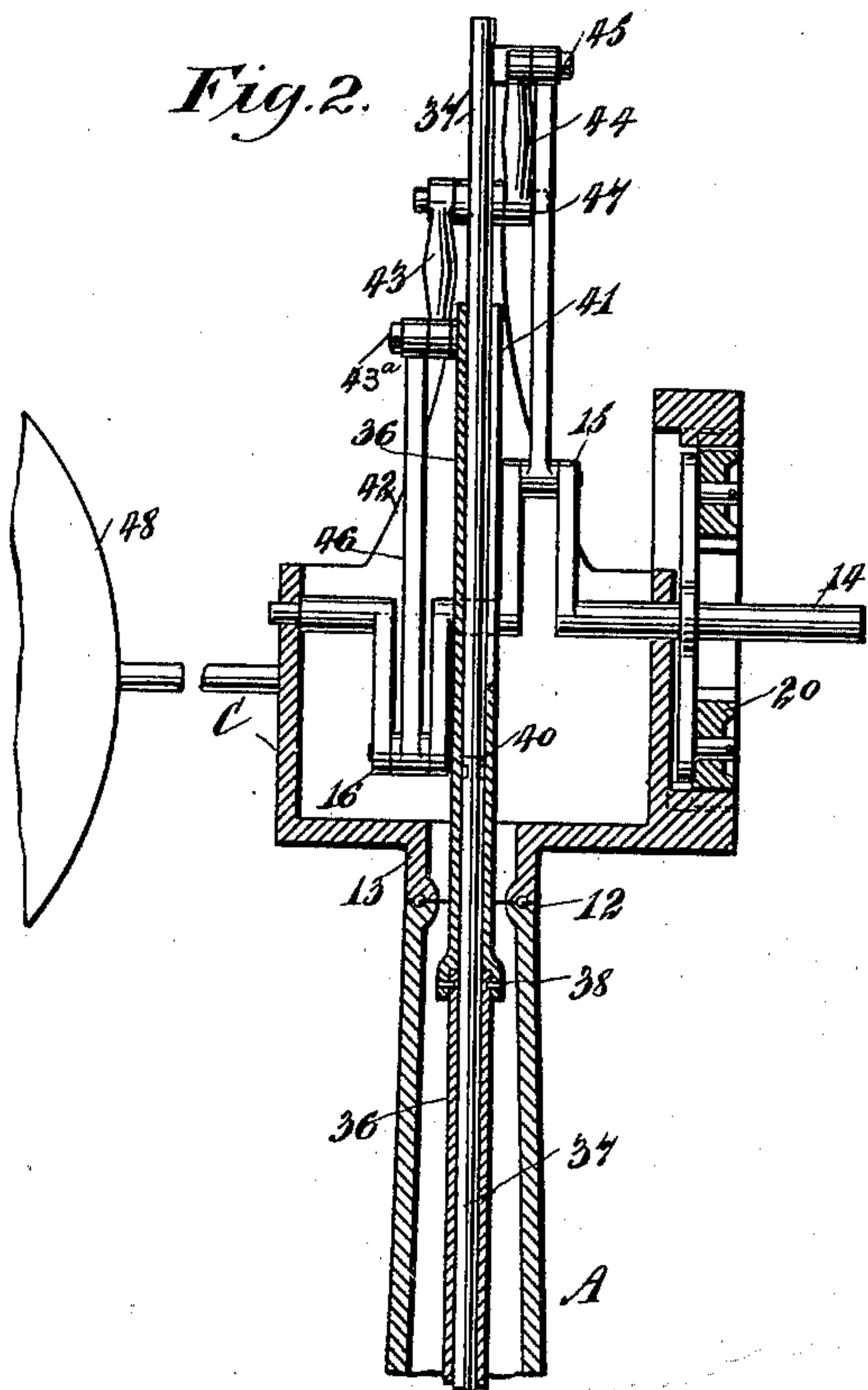


Fig. 2.



WITNESSES.

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Fig. 3.

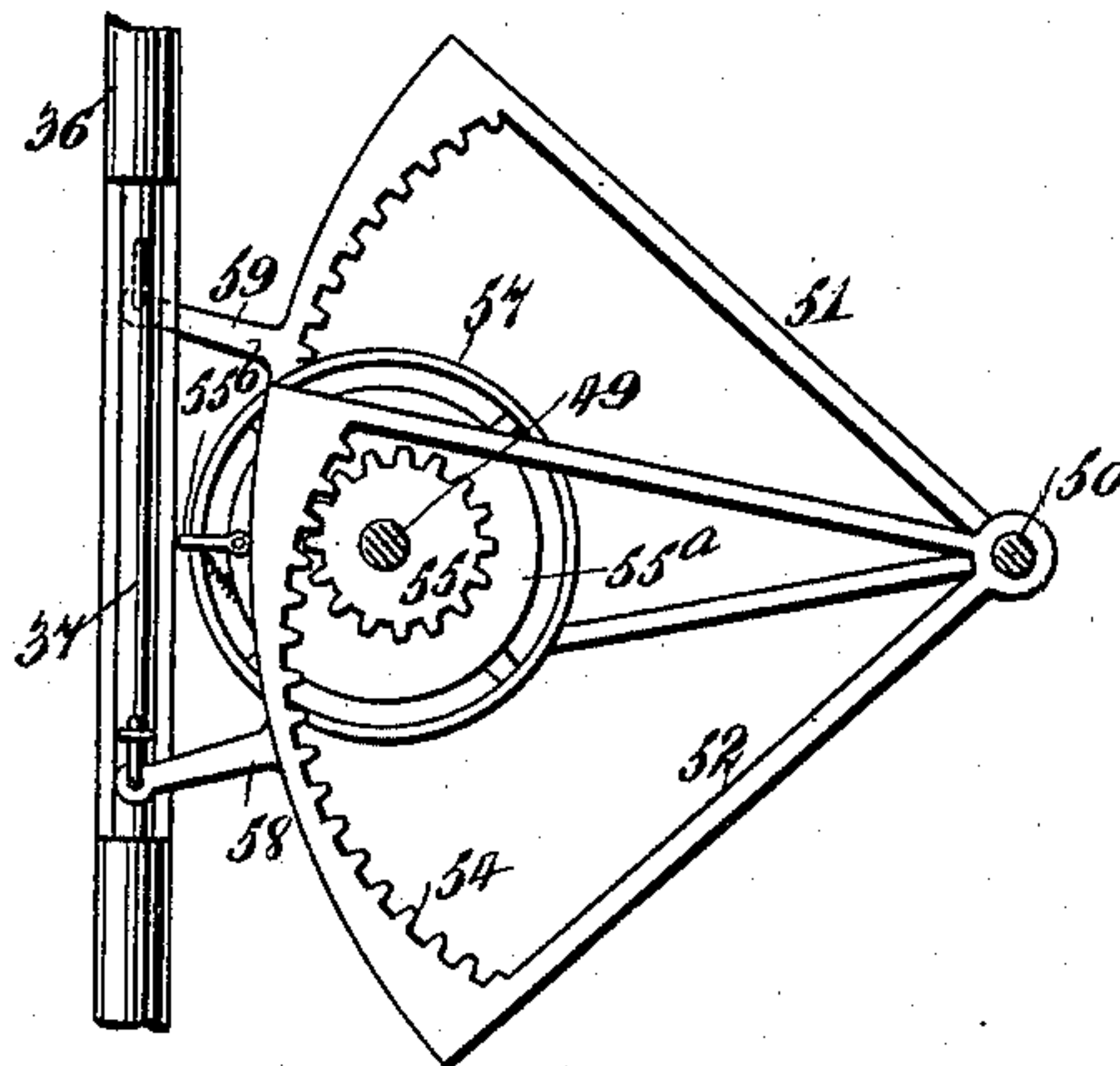
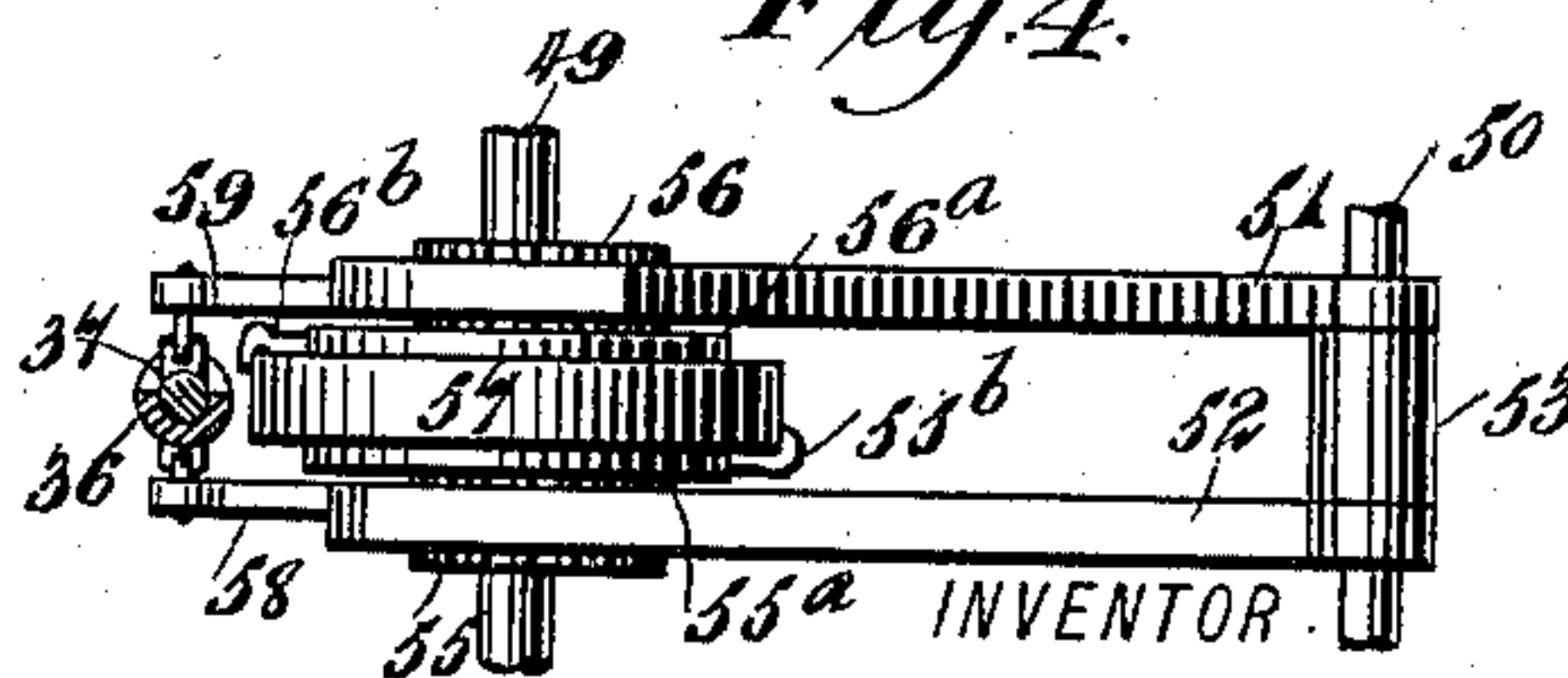


Fig. 4.



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MECHANISM FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 612,442, dated October 18, 1898.

Application filed July 10, 1896. Serial No. 598,714. (No model.)

To all whom it may concern:

Be it known that I, FRED C. THOMPSON, of Burton, in the county of King and State of Washington, have invented a new and useful
5 Improvement in Mechanism for Converting Motion, of which the following is a full, clear, and exact description.

This invention is an apparatus by which movement may be transmitted between two
10 rotary shafts through the medium of intervening reciprocal rods; and the invention also comprises means by which the movement of the reciprocal rods may be transmitted to a rotary shaft.

15 This specification is the disclosure of one form of my invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification,
20 in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the portion of the invention by which movement is transmitted from the rotary shaft to the reciprocal rods.
25 Fig. 2 is a vertical section of the same. Fig. 3 is a side elevation of the mechanism for transmitting the movement of the reciprocal rods to the rotary shaft, and Fig. 4 is a plan view thereof.

30 The invention is particularly adapted to windmills, and in the drawings is shown in this connection. The tower A carries a head C, which has a downwardly-extending neck 13, mounted with ball-bearings 12 upon the top of the tower. Revolvably mounted within the head C is a shaft 14, which carries the wind-wheel and which may be driven thereby through the medium of any suitable or desired devices. Mounted in the tower A is an
40 inner pump-rod 37 and an outer tubular pump-rod 36, the two rods being reciprocal independently and the rod 37 having a joint 40, permitting the upper portion of the rod to turn independently of the lower portion, and
45 the rod 36 having a joint 38, also permitting the upper portion of the rod to turn independently of the lower portion. This turning of the upper portions of the rods 36 and 37 is in unison with the turning of the head C on the
50 bearings 12, which it will be understood is brought about by the adjustment of the wind-wheel. (Not shown.) This adjustment of

the wind-wheel is effected by the vane 48, that is attached to the head C.

The shaft 14 is provided with two double
55 cranks, (respectively designated 15 and 16.) To these cranks the links 46 and 47 are respectively pivoted. The links 46 and 47 are respectively pivoted to the pins 43^a and 45, carried, respectively, on the rods 36 and 37. Also
60 pivoted to the pins 43^a and 45 are links 43 and 44, the remaining ends of which are pivoted to a bracket 42, standing on the head C. As the shaft 14 is revolved under the influence of the wind-wheel the links 46 and 47 transmit reciprocal movement to the rods 36 and
65 37 and cause the same to reciprocate oppositely the one within the other.

The device for transmitting the reciprocal movement of the rods 36 and 37 into rotary
70 movement is shown in Figs. 3 and 4. This consists of a power-shaft 49, revolvably mounted at a suitable point in the tower A. Fixed to the shaft 49 is a wheel 57, with which clutches 55^b and 56^b, respectively, engage.
75 The clutches 55^b and 56^b are respectively carried on disks 55^a and 56^a, that are loose on the shaft 49. Eccentric pinions 55 and 56 are carried fixedly by the disks 55^a and 56^a and are loose on the shaft 49. These pinions mesh with
80 eccentric internal sectors 54, respectively carried on frames 51 and 52, which swing on a pivotal shaft 50. The sectors 54 respectively have arms 58 and 59 in connection, respectively, with the rods 36 and 37. The recipro-
85 cation of the rods 36 and 37 causes the eccentric sectors 54 to be moved oppositely on the pivot 50. This imparts a rolling movement to the eccentric pinions 55 and 56, which also drives the disks 55^a and 56^a, and through
90 the medium of the clutches 55^b and 56^b the wheel 57 is continuously driven, and the shaft 49 is driven through the medium of the wheel 57. Power for any purpose may be taken
95 from the shaft 49.

The invention is useful in connections other
95 than that shown, but, as will be understood, is particularly adapted to windmills.

Having thus described my invention, I claim as new and desire to secure by Letters
100 Patent—

1. The combination, with the rods of a wind-mill, held to slide one in the other, a driving-shaft having oppositely-disposed crank-arms,

and link connections between the said arms and the said rods, of a power-shaft, segments having toothed surfaces eccentric to the power-shaft, which shaft passes through the said segments, and a connection between each segment and one of the said rods, pinions eccentrically mounted on the power-shaft and engaging with the teeth of the segments, disks secured to the said pinions, a pulley secured on the power-shaft between the said disks, and clutch-arms oppositely disposed and pivotally connected one to each disk, the said arms being spring-controlled and adapted for engagement with the peripheral surface of the pulley at opposite sides, as and for the purpose specified.

2. The combination of a shaft, a wheel fixed to the shaft, two disks loose on the shaft and arranged one on each side of the wheel, a clutch carried by each disk, the clutches respectively engaging the wheel and imparting movement to the wheel when the disks move

each in a certain direction, a gear-wheel in connection with each disk, and two sectors swinging independently on a common axis and respectively engaging the gear-wheels, said sectors being capable of oscillating movement in a plane transverse to the shaft whereby to continuously drive the shaft and independently reciprocal rods connected respectively with the sectors to swing the same.

3. The combination of two independent reciprocal rods, an independent sector connected with and driven by each rod, a shaft, a wheel fixed to the shaft, two gears loose on the shaft and respectively meshed with and driven by the sectors and a clutch carried by each gear, the clutches being respectively engaged with the wheel to impart movement thereto.

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Witnesses:

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