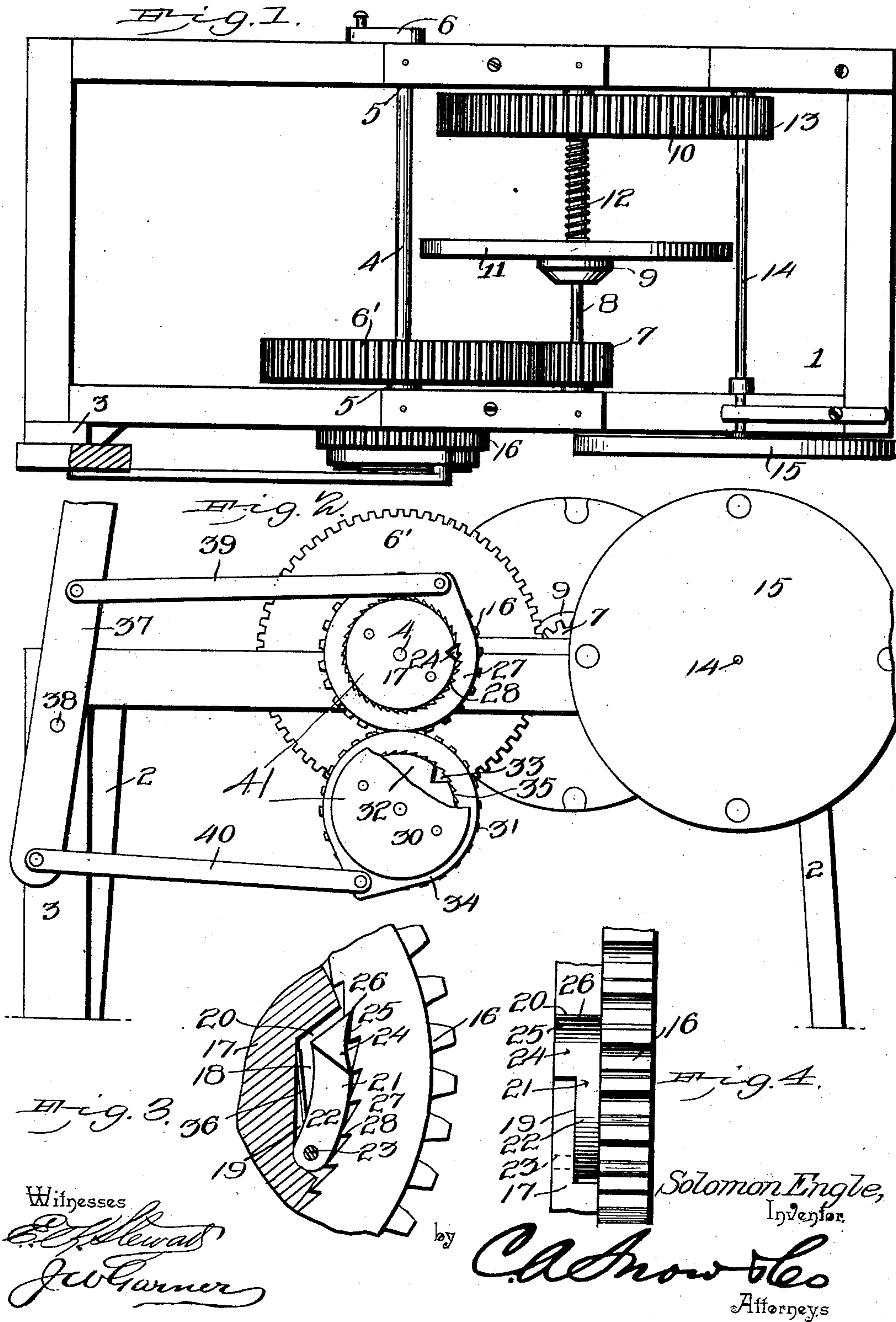


No. 711,201.

Patented Oct. 14, 1902.

S. ENGLE.
POWER TRANSMITTER.
(Application filed June 19, 1902.)

(No Model.)



UNITED STATES PATENT OFFICE.

SOLOMON ENGLE, OF PRESTON, MINNESOTA.

POWER-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 711,201, dated October 14, 1902.

Application filed June 19, 1902. Serial No. 112,387. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON ENGLE, a citizen of the United States, residing at Preston, in the county of Fillmore and State of Minnesota, have invented a new and useful Power-Transmitter, of which the following is a specification.

My invention is an improved power-transmitter especially adapted for use as a hand-motor for running light machinery, such as a milk-separator, a churn, or the like; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a power-transmitter embodying my improvements. Fig. 2 is a side elevation of the same. Figs. 3 and 4 are detail views showing the construction of the power-gears and the collars which revolve thereon.

In the embodiment of my invention here shown there is a rectangular frame 1, which is provided at its corners with supporting-legs 2. At one corner of the frame there is also a vertical standard 3. A power-shaft 4 is disposed transversely on the frame, near the center thereof, and is journaled in suitable bearings, as at 5. At one end of the said power-shaft is a crank 6, by means of which motion may be transmitted to the operating part of a milk-separator or other like machine. On the said power-shaft, near and within one side of the frame 1, is a spur-gear 6'. The same engages a pinion 7 on a counter-shaft 8, which counter-shaft has a friction-disk 9 fast thereon and is also provided with a spur-gear 10, which is also fast to the said counter-shaft. A fly-wheel 11 of suitable size and weight is loose on the shaft 8 and is pressed against the disk 9 frictionally by a spring 12, which is here shown as a coiled extensile spring disposed on the shaft 8 and with its opposite ends bearing against the gear 10 and the fly-wheel 11. The gear 10 engages a pinion 13 on a speed-shaft 14. The latter is journaled in suitable bearings on the frame 1 and is provided at one end with a fly-wheel 15. On the projecting end of the shaft 4 is a spur-gear 16, which I term a "power-gear," and the same is provided on its outer side with a circular boss 17, which

is concentric therewith. The said boss is provided with a peripheral recess 18 on one side, which is right-angular in shape, having a relatively long arm 19, which is parallel with the plane of revolution of the gear 16, and a relatively short and broad lateral arm 20, which is at right angles to the plane of revolution of the gear 16 and extends to the face of the boss 17, the arm 19 of the said recess being next to the gear 16. In the said recess 18 is disposed a pawl 21. The arm 22 of the pawl is disposed in the arm 19 of the recess and is pivoted therein, as at 23. The said pawl is formed with a laterally-extending head 24, which is disposed in the lateral arm 20 of the recess. The latter and the head of the pawl are triangular in cross-section, as shown. The outer side of the head of the pawl is concaved, as at 25, the said concavity being reëntrant, and at the outer edge of the head of the pawl is an engaging point 26, which is salient and lies without the radius of the arm 22. On the boss 17 is an annular collar 27, which is adapted for oscillating movement on the boss, while the latter revolves continuously in one direction therein. The said collar is provided with internal ratchet-teeth 28, which are adapted for engagement by the point 26 of the pawl 21.

Meshing with the gear 16 is a gear 31 on a shaft 30, the same having a boss 32, which is identical in construction with the boss 17, and has a pawl 33, which is identical in construction with the pawl 21, but is reversely disposed with reference thereto. On the boss 32 is a collar 34, which is mounted for oscillation thereon, is identical in construction with the collar 27, and has internal ratchet-teeth 35 identical with those of the collar 27, but reversely disposed with reference thereto and engaged by the point of the pawl 33. Each pawl is provided with a spring 36, the function of which is to move the pawl outwardly into engaging position, as shown in detail in Fig. 3.

A hand-lever 37 is pivoted, as at 38, on the standard 3. To the said hand-lever, at points on opposite sides of the fulcrum or pivot 38 thereof, are pivotally connected rods 39 40, which are respectively pivotally connected to the collars 27 34 at opposite sides thereof.

By operating the hand-lever the collars are

caused to move simultaneously in opposite directions and alternately by means of the pawl-and-ratchet connections therewith apply power to the gears 16 31, and hence cause the power-shaft 4 to be continuously rotated in one direction.

The fly-wheels connected by the train of gears 6 7 10 13 to the power-shaft serve to steady the motion thereof, as will be understood.

It will be observed by reference to Fig. 2 of the drawings that the connecting-rods 39 40 are attached to the oscillating collars at points without the radius of the pawl-and-ratchet connections between the latter and the gears 27 31, thereby increasing the leverage and power of the collars and enhancing the efficiency of the machine as a motor. The collars are retained on the bosses of the said gears by circular plates 41, which are detachably secured to the bosses by screws or other suitable devices.

Having thus described my invention, I claim—

1. The combination of a pair of intermeshing gears having circular bosses concentric therewith, spring-pressed pawls carried by the said bosses and having engaging points projected normally beyond the peripheries thereof, the said pawls being reversely disposed on the respective gears, oscillating collars on the said bosses and having internal ratchet-teeth engaged by the said pawls and

reversely disposed in the respective collars, a lever mounted for rocking motion and connecting-rods attached to said lever at points on opposite sides of the fulcrum thereof, said connecting-rods being respectively attached to the respective collars, substantially as described.

2. The combination of a pair of intermeshing gears having circular bosses concentric therewith, spring-pressed pawls carried by the said bosses and having engaging points projected normally beyond the peripheries thereof, the said pawls being reversely disposed on the respective gears, oscillating collars on the said bosses and having internal ratchet-teeth engaged by the said pawls and reversely disposed in the respective collars, a lever mounted for rocking motion, connecting-rods attached to said lever at points on opposite sides of the fulcrum thereof, said connecting-rods being respectively attached to the respective collars, a counter-shaft geared to the power-shaft and having a fly-wheel, and a speed-shaft geared to the counter-shaft and having a fly-wheel, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SOLOMON ENGLE.

Witnesses:

CLYDE E. DAY,
B. F. FOWLER.