(No Model.)

F. W. RANDALL.

MOTOR.

No. 300,894. Patented June 24, 1884.

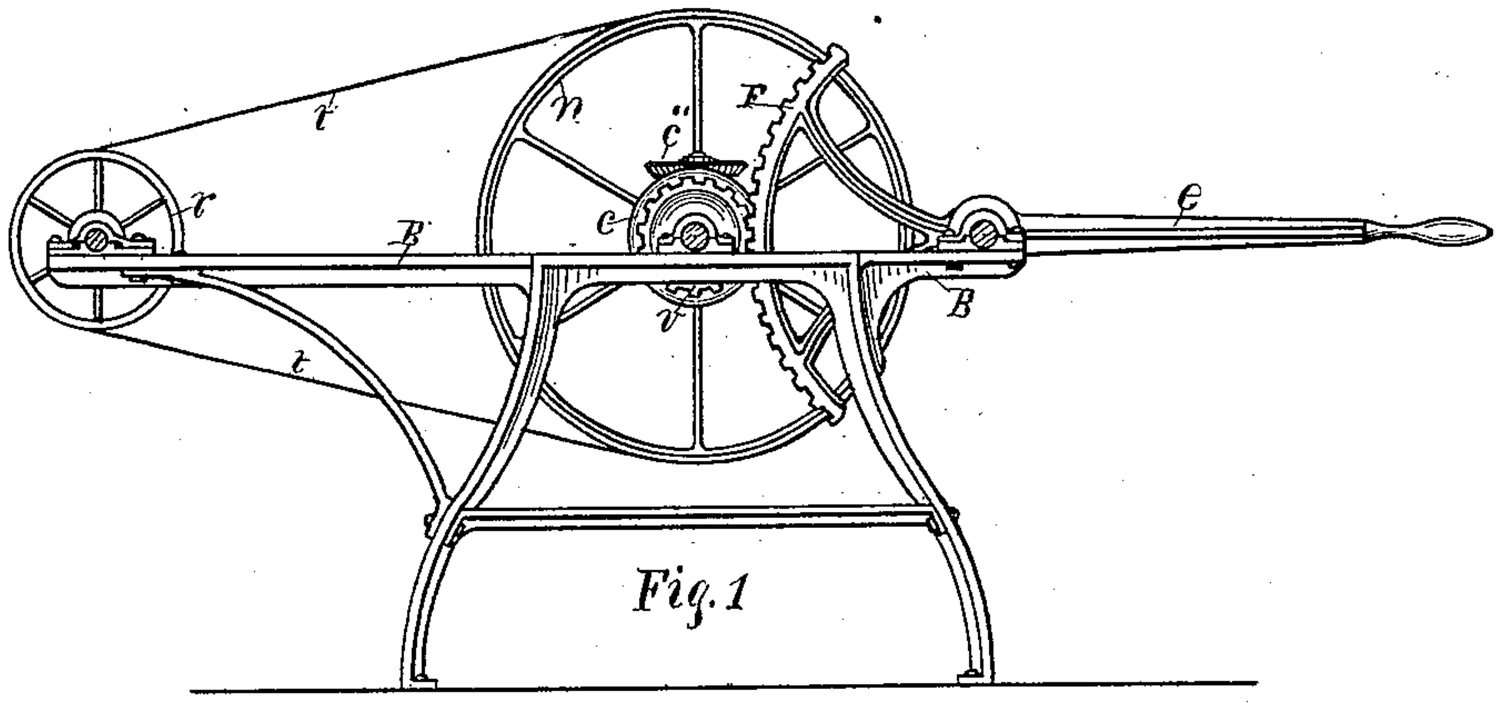


Fig. 1

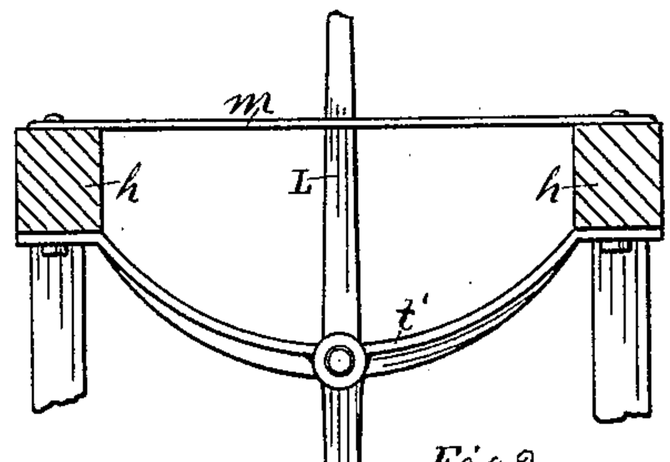
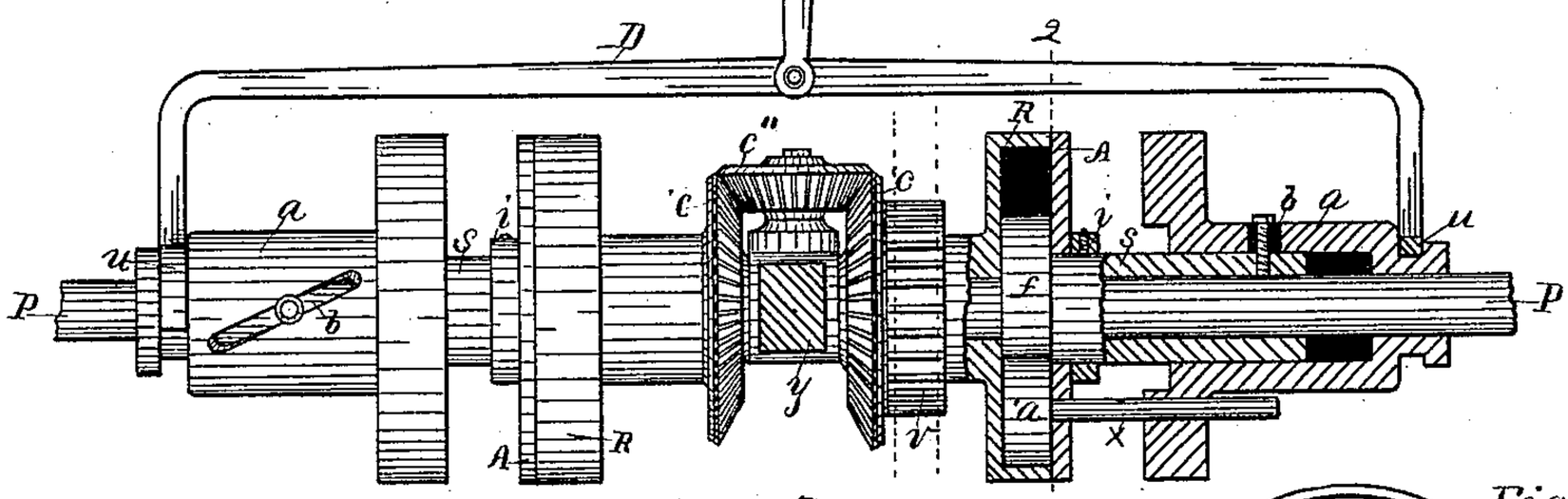


Fig. 2



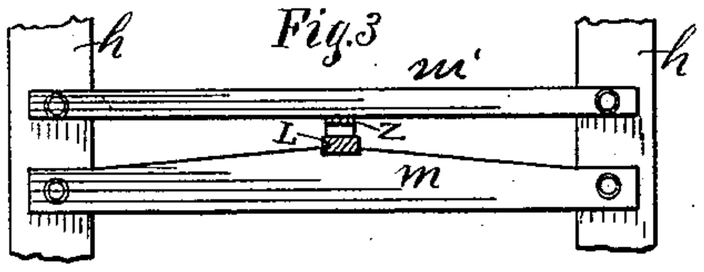


Fig. 3

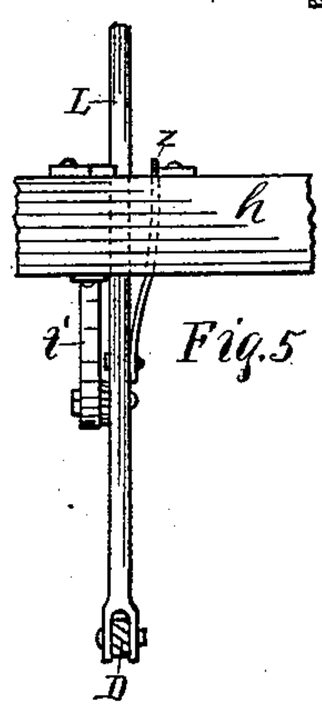


Fig. 5

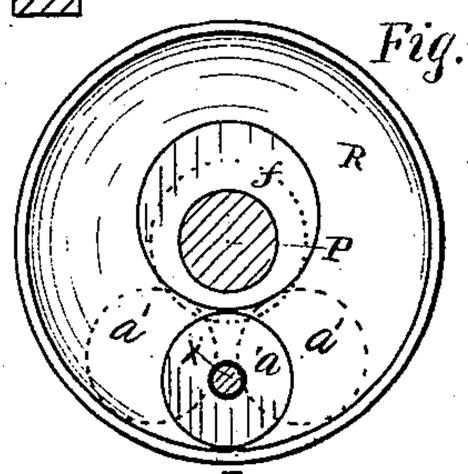


Fig. 4

Witnesses.
John C. Perkins
John H. Chase

Inventor.
Francis W. Randall
By Lucius C. West
Atty.

UNITED STATES PATENT OFFICE.

FRANCIS W. RANDALL, OF TEKONSHA, MICHIGAN, ASSIGNOR TO WILLIAM S. LAWRENCE AND LEBEUS C. CHAPIN, BOTH OF KALAMAZOO, MICHIGAN.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 300,894, dated June 24, 1884.

Application filed November 13, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. RANDALL, a citizen of the United States, residing at Tekonsha, county of Calhoun, State of Michigan, have invented a new and useful Motor-Power, of which the following is a specification.

My invention relates to power devices in which clutch mechanism is used. It has for its object certain improvements of construction and novel association of old features, below described and claimed.

In the drawings forming a part of this specification, Figure 1 is an elevation; Fig. 2, a plan view of the device with parts broken away and parts in section; Fig. 3, a broken top view of the upper part of Fig. 2; Fig. 4, a view looking against parts at the left of line 2 2 in Fig. 2, parts being in section on said line; and Fig. 5 is a broken side view of the upper part of Fig. 2, looking from the right hand.

Referring to Fig. 2, P is a revoluble shaft having a center bearing in beam *y*. Bevel-gear *c*, gear *v*, and recessed disk R are formed integral with each other and revolubly located on shaft P. A collar, S, terminating in the recess of disk R with an eccentric, *f*, is secured to the shaft P by a set-screw. A disk, A, is revolubly located on collar S and forms an inclosure to the recess of disk R.

i is a collar secured to collars S to hold the disk A in place. A friction-roller, *a'*, is located in the recess of disk R in a manner to engage said disk and the eccentric *f*. This roller *a'* is secured to an adjusting axle or shaft, *x*, which passes out through a hole in the disk A. An adjusting-collar, *a*, is located on the collar S in a manner to be rotated a given distance in either direction, and also to slide laterally on the collar S. Through a hole in the rim of the adjusting-collar *a* the adjusting-shaft *x* of roller *a'* is located. The shaft *x* is of sufficient length to admit of the lateral play of collar *a* and not become disengaged therefrom. Two collars *a* are used and two clutch devices, as in Fig. 2, on the shaft P. These collars *a a* have an oblique slot, *b*, at reverse angles to each other. The screws which secure the collars S S to shaft P are located in the slots *b b*. The construction of the devices at the left of Fig. 2 is the same as those at the right, except but one gear *c'* is used. The bevel-gears *c' c* are connected by a bevel fly-gear, *c''*.

The office of the adjusting-collars *a a* is to change the position of the rollers *a'* in their relation to the eccentrics *f*, when reversing motion. A propelling-lever, *e*, is shown in Fig. 1, having a segmental gear, F, engaging the gear *v* of the shaft P. This lever *e* is pivoted to the frame B. The shaft P may be provided with a belt-pulley, *n*, as in Fig. 1, from which motion may be imparted to other shafts by a belt, *t*. In the operation, both up and down movements of the lever *e* exert a power on shaft P to rotate the same, as the rollers *a'* engage the eccentrics alternately in each clutch device, and motion is transferred from one bevel-gear to the other by gear *c''*. The adjusting-collars are operated by a bar, D, swiveled at each end to the collars at *u u*. The bar D is operated by the pivotally-connected lever L, fulcrumed to support *t'*. The lever L is provided with a spring, *z*, and said lever and spring are located between two bars, *m m'*. The space between these bars widens each way from the center. In Fig. 3 said lever L is centrally located in a notch in bar *m*. When in this position the rollers *a'* are below the eccentrics *f*, as in Fig. 4, and thus are disengaged therefrom. Carrying the lever to the right or left rotates collars *a*, carrying the rollers *a'* to one or the other of the positions shown by dotted rollers in Fig. 4, according to the direction the shaft P was to rotate. As the tendency of the lever L with the spring *z*, when thrown out of the center notch, would be to seek the widest end of the recess between the bars *m m'*, the rollers *a'* would be held in position to engage the eccentrics *f* with a yielding pressure.

h h are beams with which the bars *m m'* and the lever-support *t'* are bolted, as in Figs. 2 and 3.

Having thus described a construction embodying my improvements, what I claim as new is—

1. The combination, with a revoluble shaft and

two clutch devices, both having a bevel-gear connected by a fly-gear, and one having an operating-gear, of the operating-lever having a segmental gear adapted to engage the operating-gear, all substantially as set forth.

2. The combination, with a revoluble shaft provided with the eccentrics, clutch-disks provided with an operating-gear and connected bevel-gears, and the friction-roller, of the adjusting-collars adapted to rotate and move laterally at the same time, means for operating them, and means connecting said collars and rollers, substantially as specified and shown.

3. The combination, with the clutch devices, of the adjusting-collars adapted to operate as set forth, and the means for operating said collars, consisting of the swiveled connecting-bar, the pivoted lever provided with the spring, and the bars having the recess with central notch and widening end, substantially as described.

4. A clutch consisting of a recessed disk having a periphery wall, an eccentric, a friction-roller between said eccentric and wall, a revoluble disk forming one inclosure of the recessed disk, and an operating-shaft connecting with the friction-roller and located through a hole in the revoluble disk, substantially as described and shown.

In testimony of the foregoing I have hereunto subscribed my name in the presence of two witnesses.

FRANCIS W. RANDALL.

Witnesses:
FRANK C. GIBBS,
ASEH W. ROWLEY.