

(No Model.)

J. M. DICKSON.
MECHANICAL MOTOR.

No. 557,774.

Patented Apr. 7, 1896.

Fig. 1

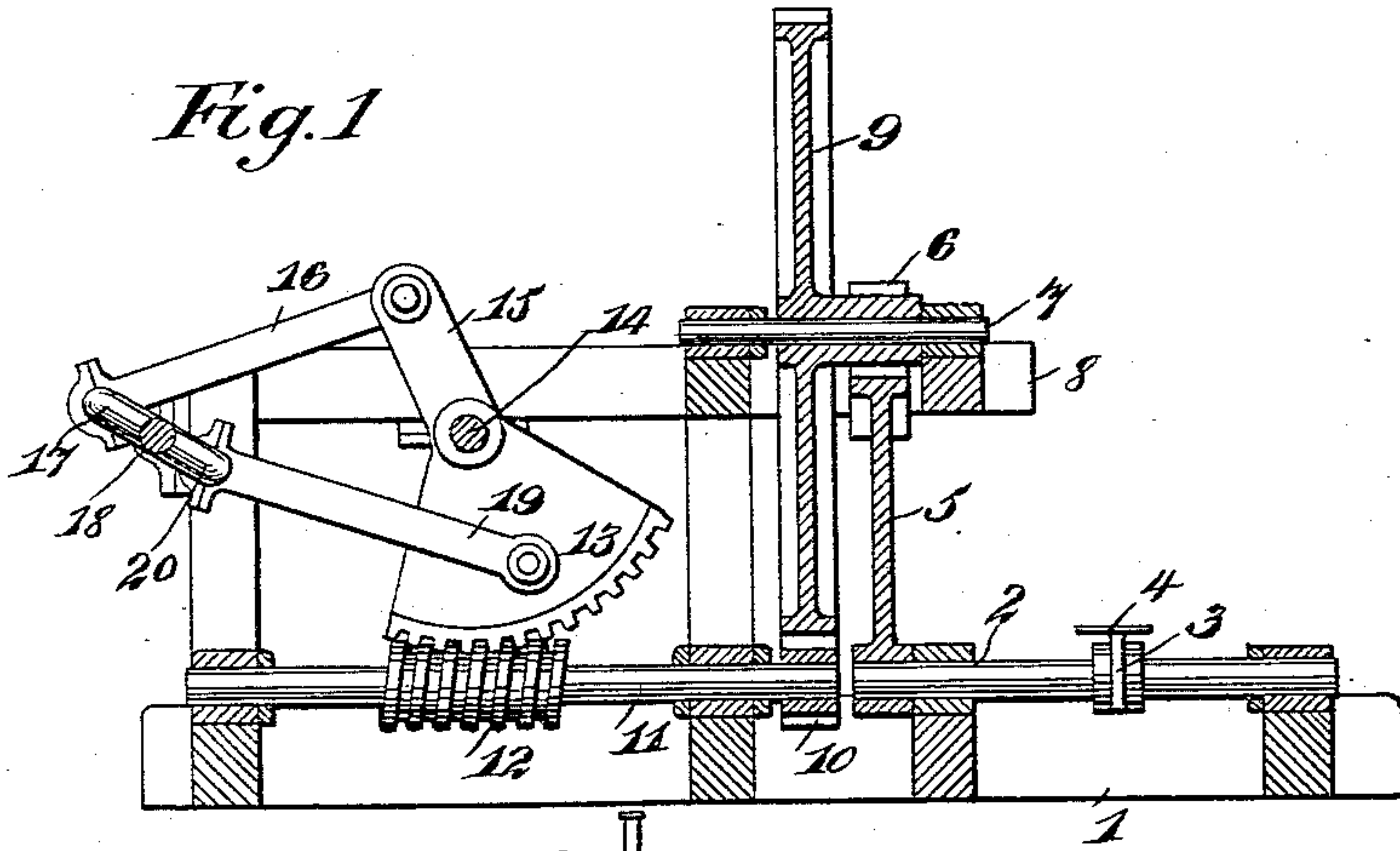


Fig. 2

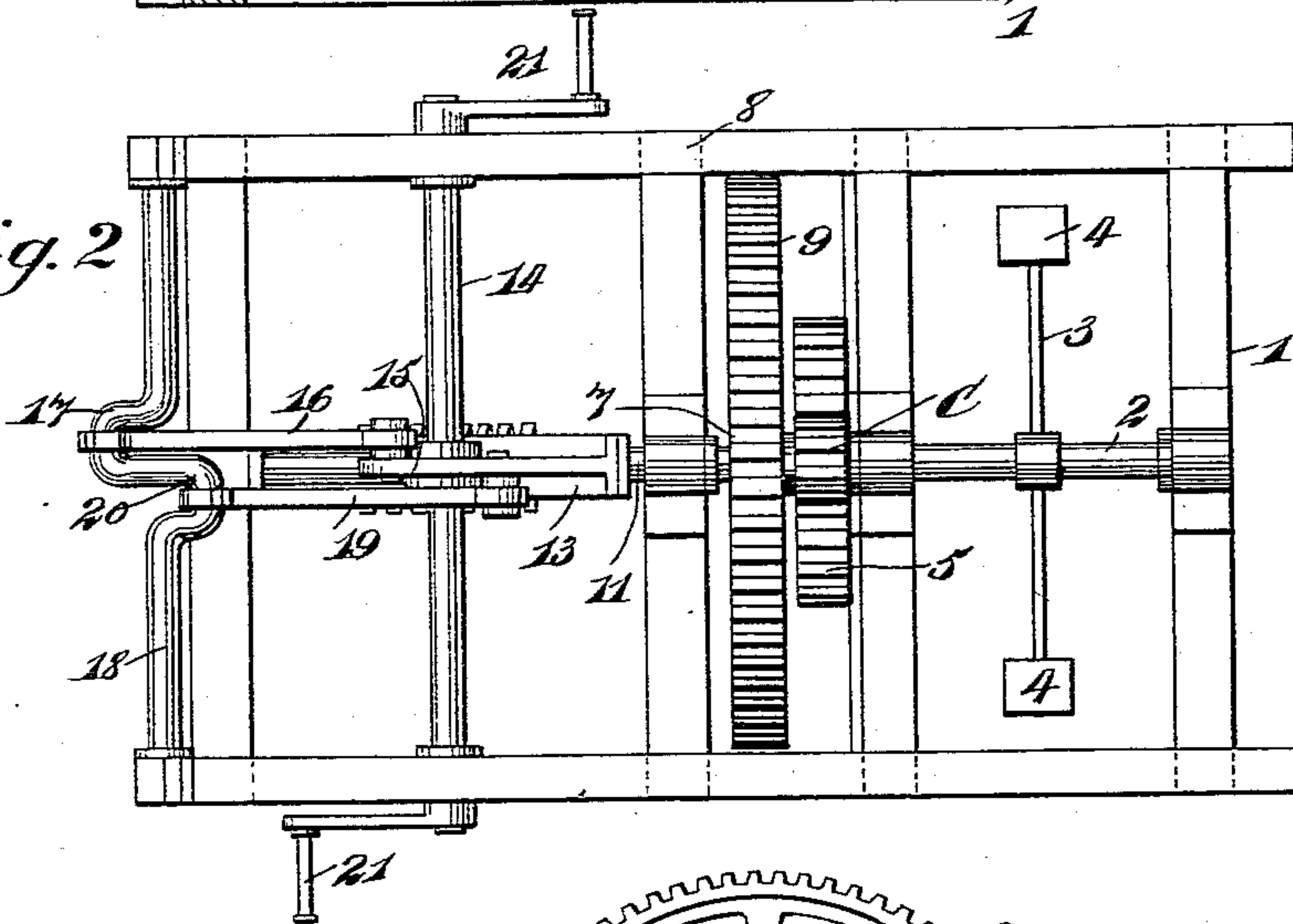
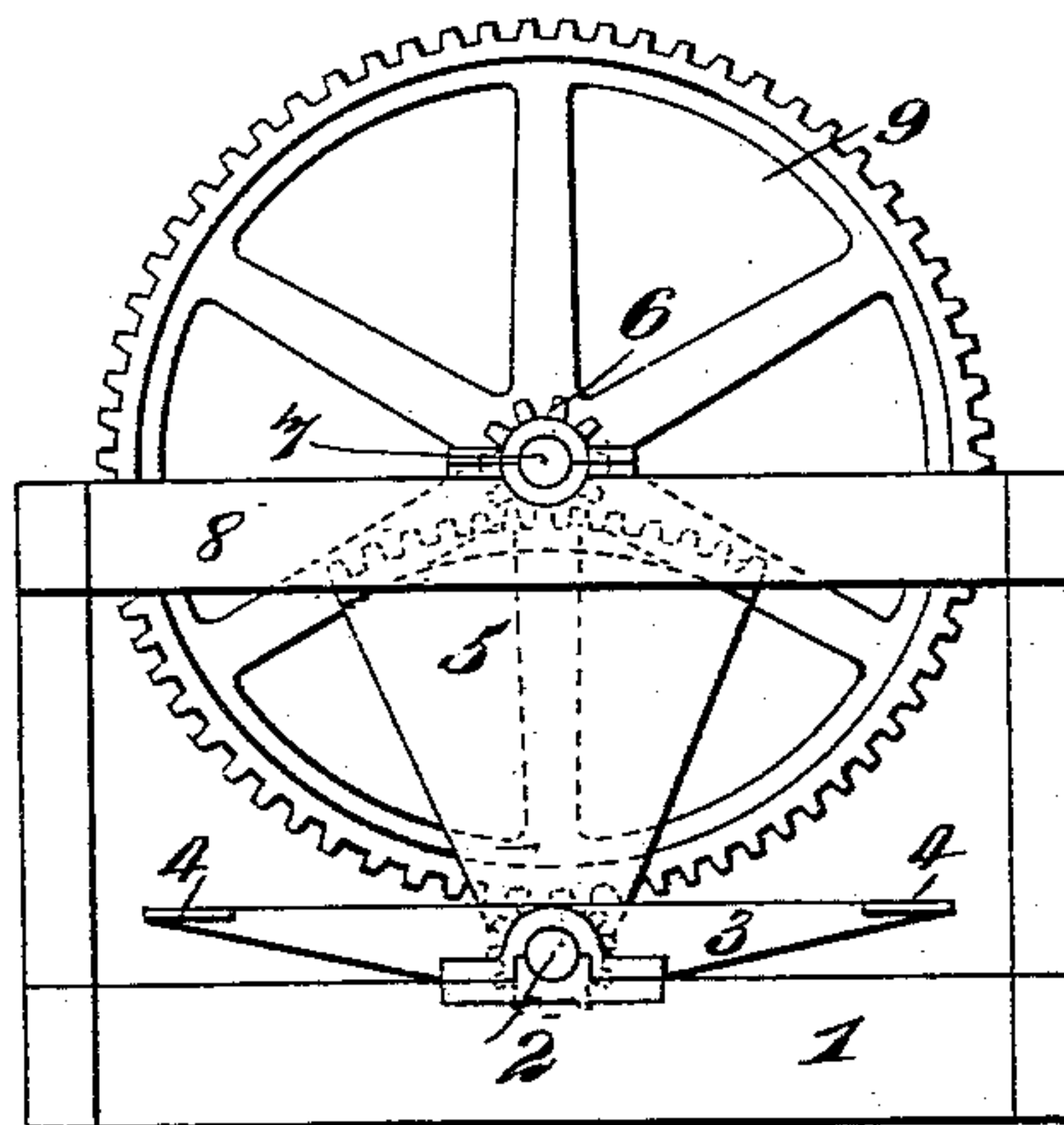


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES MONROE DICKSON, OF ROSENEATH, MISSISSIPPI.

MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 557,774, dated April 7, 1896.

Application filed August 22, 1895. Serial No. 560,138. (No model.)

To all whom it may concern:

Be it known that I, JAMES MONROE DICKSON, of Roseneath, in the county of Yazoo and State of Mississippi, have invented a new and
5 Improved Mechanical Motor, of which the following is a full, clear, and exact description.

The invention relates to certain improvements in mechanical motors such as are adapted to be operated by hand or foot power
10 for driving machinery of various kinds—as, for example, vehicles, boats, pumps, cotton-gins, &c.; and the object of the invention is to provide a device of this character of a simple and inexpensive nature, and of a compact and strong construction, which shall be
15 adapted to be conveniently operated by foot-power to convert reciprocating into rotary motion and to multiply the movement.

The invention consists in a rock-shaft having treadles connected to and adapted to operate it, gearing for multiplying the movement of the rock-shaft, a screw-shaft driven from said gearing, a power-shaft, and gearing between the screw-shaft and power-shaft,
20 whereby the latter is operated from the former and has continuous rotary movement imparted to it.

The invention also contemplates certain novel features of the construction, combination, and arrangement of the various parts of the improved motor, whereby certain important advantages are attained and the device is made cheaper, simpler, stronger, more durable, and otherwise better adapted and more
30 convenient for use than other mechanical motors heretofore employed, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

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

Figure 1 is a vertical mid-section taken longitudinally through the motor constructed according to my invention. Fig. 2 is a plan view of the motor, and Fig. 3 is an end view of the motor embodying my improvements.

50 The motor is constructed with a frame 1, of suitable strength and form, wherein is journaled a longitudinal rock-shaft 2, having a length equal to substantially half that of the

frame and provided with a treadle-lever 3, fixed on one end, having at opposite ends treadles 4 to receive the feet of the operator, 55 as will be presently described.

At its opposite end the rock-shaft 2 is provided with a segment-rack 5, extending upward, as seen in Fig. 1, and meshing with a pinion 6 on the end of a short shaft 7, journaled on an extension 8 of the frame 1, said shaft 7 being also provided with a large gear-wheel 9, meshing at its lower side with a pinion 10 on one end of a shaft 11, journaled at the lower part of the machine-frame 1, in
60 alinement with the rock-shaft 2.

The shaft 11 carries a screw or worm 12, meshing with a spirally-toothed or helicoidal segment-gear 13, fixed on a shaft 14, journaled transversely of the upper part of the frame 1, 70 and said segment 13 is provided with an arm 15, to the end of which is pivoted one end of a connecting-rod 16, the opposite end of which is coupled to a crank 17, formed in the power-shaft 18, which may be provided with a pulley or the like, wherefrom the machinery may be driven or which may itself constitute the driving or machine shaft. To the segment 13 is pivoted, at a point diametrically opposite the arm 15, a second connecting-rod 19, the
80 opposite end of which is coupled to a second crank 20, formed in the shaft 18 and set opposite or quartering to the crank 17.

In operation when it is desired to use the motor the operator presses on the treadles 4, 85 first with one foot and then with the other, so as to rock the shaft 2 alternately in opposite directions, the movement of said shaft being transmitted and multiplied by the spur-wheel-and-pinion gearing to the screw-shaft 90 11 and transverse shaft 14, which is thereby rocked in such a way as to impart continuous rotative movement to the power-shaft 18 of the motor, as will be readily understood.

As shown in the drawings, the ends of the transverse shaft 14 are provided with cranks 95 21, which may be connected with the pumping devices, &c., when desired.

The motor constructed in accordance with my invention is, as will be readily understood, 100 of an extremely simple and inexpensive construction, is very durable, and not at all liable to be broken or deranged while in use. Furthermore, being actuated by foot-power, it

is specially well adapted for use in cases where it is essential that the hands shall be employed, as in steering a boat, for example.

From the above description it will be apparent that considerable modification may be made in the motor as herein shown and described without material departure from the principles and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form of the device herein set forth.

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

1. A mechanical motor comprising a rock-shaft, a second transverse shaft geared thereto, a power-shaft, connecting-rods coupled at opposite ends to quartered cranks on the power-shaft and on said transverse shaft and the said quartered cranks, substantially as set forth.

2. A mechanical motor comprising a rock-shaft, a screw-shaft geared thereto, a trans-

verse shaft having a segmental helicoidal gear meshing with the screw of the screw-shaft, a power-shaft, connecting-rods coupled at opposite ends to quartered cranks on the respective power and transverse shafts and the said quartered cranks, substantially as set forth.

3. A mechanical motor comprising a rock-shaft, a screw-shaft geared thereto, a transverse shaft having a segmental helicoidal gear meshing with the screw of the screw-shaft, an arm on the transverse shaft, a power-shaft having quartered cranks, and connecting-rods coupled at one end to the respective quartered cranks on the power-shaft, one of said rods having its other end coupled to the arm on the transverse shaft, and the other rod having its other end coupled to the segment-gearing, substantially as set forth.

JAMES MONROE DICKSON.

Witnesses:

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