

J. T. H. DRAKE.  
MOTOR FOR HAND CARS.  
APPLICATION FILED FEB. 7, 1905.

Fig. 1.

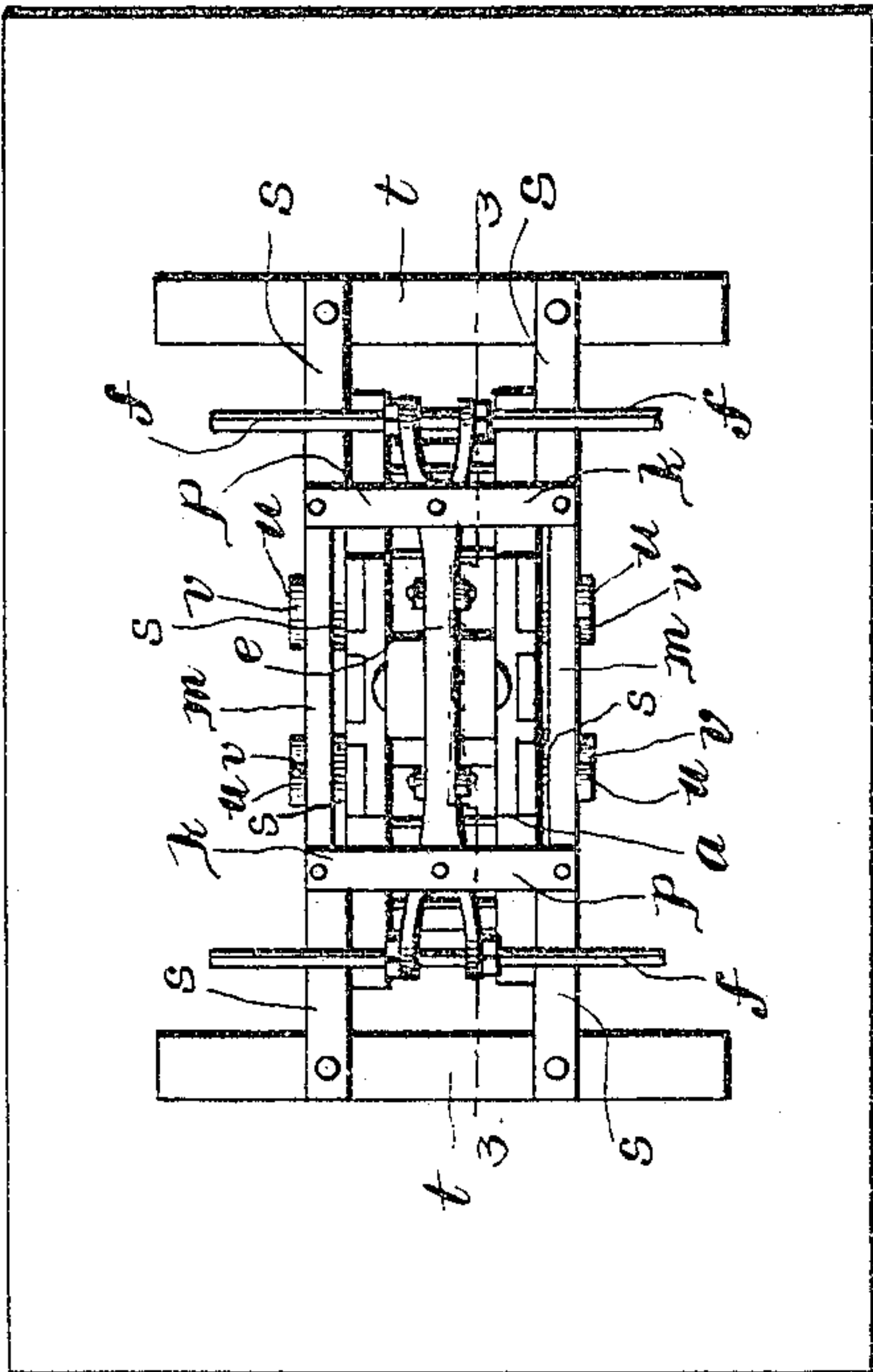


Fig. 4.

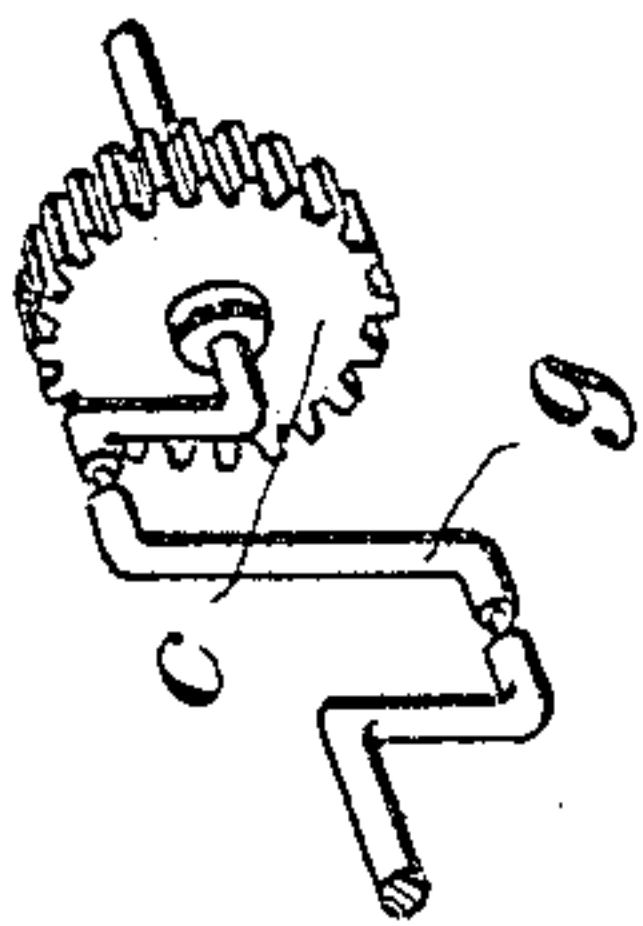


Fig. 3.

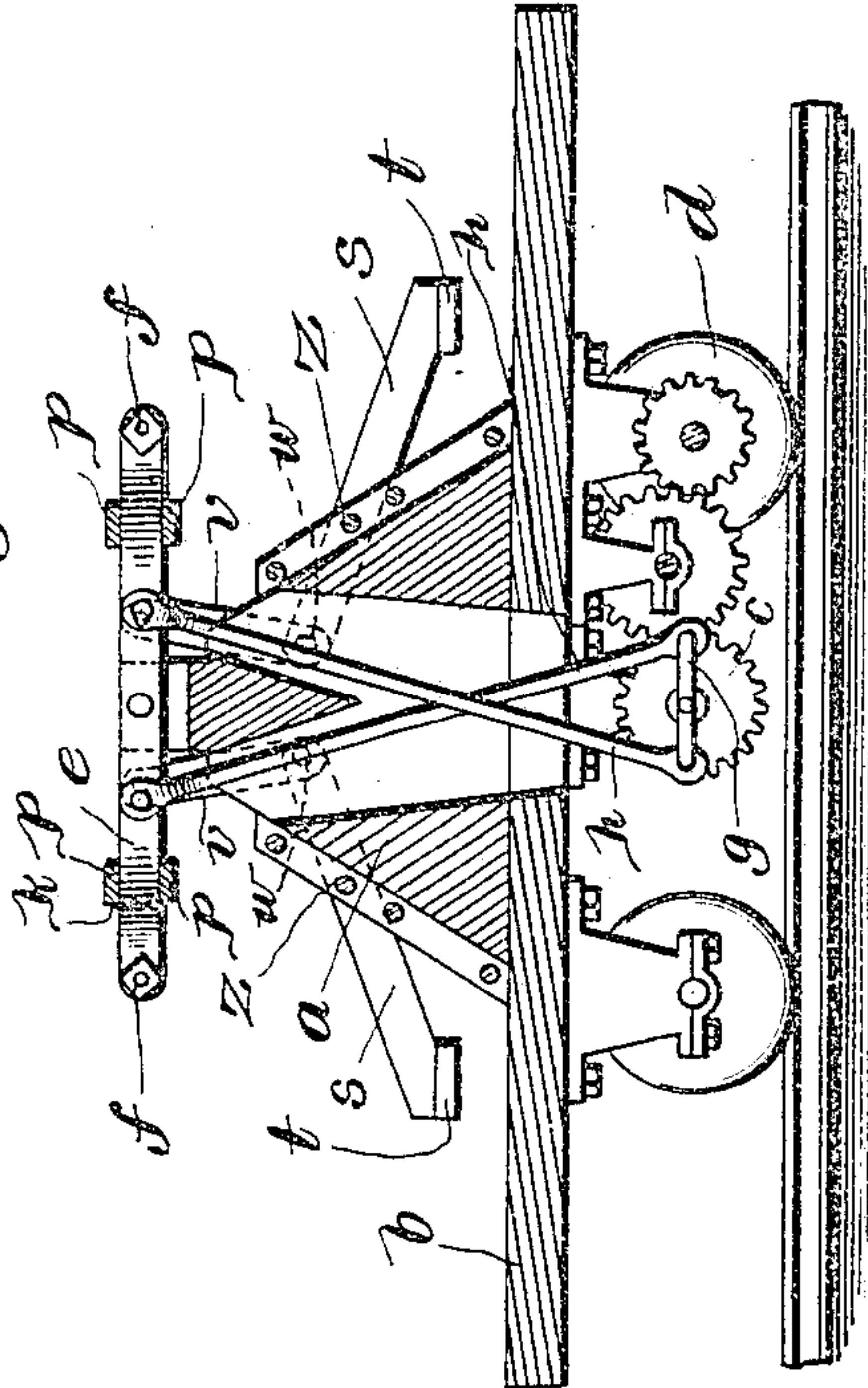
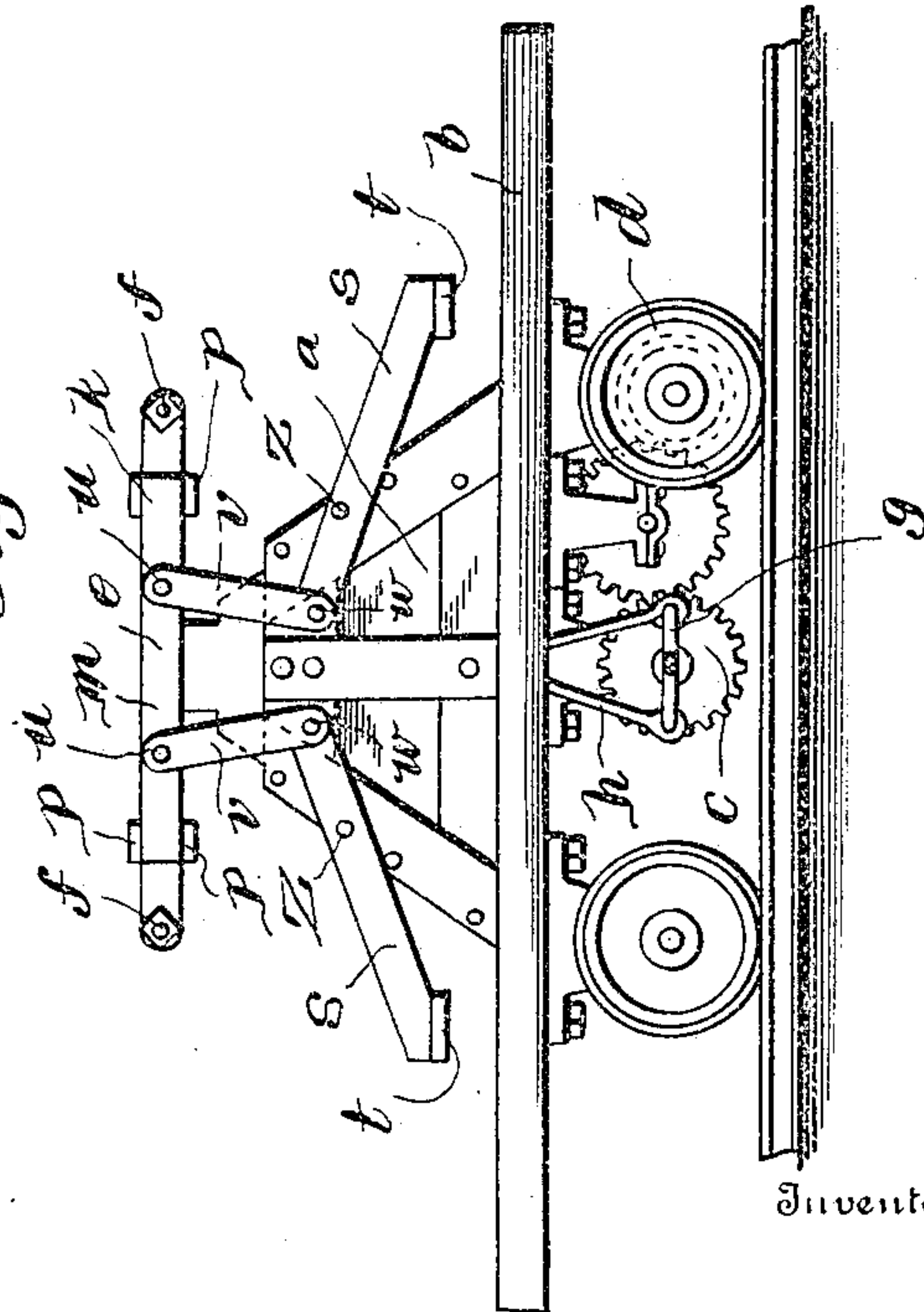


Fig. 2.



Inventor

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By

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Witnesses

R. A. Boswell.  
George M. Anderson.



# UNITED STATES PATENT OFFICE.

JOHN T. H. DRAKE, OF ALTAVISTA, MISSOURI.

## MOTOR FOR HAND-CARS.

SPECIFICATION forming part of Letters Patent No. 787,283, dated April 11, 1905.

Application filed February 7, 1905. Serial No. 244,537.

*To all whom it may concern:*

Be it known that I, JOHN T. H. DRAKE, a citizen of the United States, and a resident of Altavista, in the county of Daviess and State of Missouri, have made a certain new and useful Invention in Motors for Hand-Cars; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a plan view of the invention as applied. Fig. 2 is a side elevation of the same. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a detail view.

This invention relates to motors for operating the driving-gear of hand-cars; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

The object of the invention is to provide an efficient arrangement of hand and foot levers combined for operation by the weight of the operators.

In the accompanying drawings the letter *a* designates a frame on a platform *b*, such frame inclosing the crank-operated gearing *c*, whereby the shaft of the drive-wheels *d* is turned when the crank-gearing is operated by means of the combined hand and foot levers of the motor device.

The letter *e* indicates the center lever, which is pivoted by its middle portion to the frame *a* at its upper part and is provided at each end with a transverse handle-bar *f*. This lever is connected to the crank *g* of the driving-gearing *c* by means of a pitman *h*. This central lever carries a lateral extension in the form of a rectangular lever-frame *k*, having side bars *m* parallel to each other and connected by end bars *p*, which are secured to the central lever. This lateral extension is connected by links at each end of the frame *a* to a treadle-lever located below and pivoted by its arms to the end portions of said frame *a*, as hereinafter described.

Pivoted to the frame *a*, at the sides of its end portions and under the end portions of the

side bars *m*, as indicated at *z*, are the inclined 50  
lever-arms *s* of the treadle-bars *t*, which extend transversely of the lever-arms, to the lower and outer ends of which said treadle-bars are secured. These treadle-bars are located farther from the vertical central portion 55  
of the frame *a* than the handle-bars, so that the operators standing on said treadle-bars can easily take hold of and operate the handle-bars. The inner and upper ends of the lever-arms *s* are connected to the side bars *m* 60  
of the hand-lever frame *k* by means of links *v*. These links *v* are inclined downward and inward from the upper pivots *u*, whereby they are connected to the hand-lever frame to the lower pivots *w*, whereby they are connected 65  
to the treadle-lever arms.

The distance from the upper pivots *u* to the handle-bars *f* is greater than the distance from said pivots to the central vertical portion of the frame *a*, and the distance from the lower 70  
pivots *w* to the fulcrum-pivots *z* of the treadle-lever arms is less than the distance from said fulcrum-pivots to the treadle-bars. This arrangement is designed to facilitate the leverage in operating the motor. 75

The operators, one at each end of frame *a*, stand on the treadle-bars and grasp the handle-bars. When one of these operators bears down on the handle-bar, the other relieves his handle-bar from his weight, transferring it to 80  
the treadle-bar, these actions causing the central lever to incline downward toward the depressed handle-bar, to which it is connected. The operators now changing their action, so as to transfer their weights to the other handle- 85  
bar and to the other treadle-bar, cause the central lever to reverse its plane of inclination, and these actions, by alternately shifting the weight of the operators from one handle-bar and its opposite treadle-bar to the other handle-bar 90  
and its opposite treadle-bar, keep up the movement of the central lever, and thereby operate the crank-gearing. In this arrangement not only is the weight of the operators utilized, but also the power of muscular extension on 95  
the part of the operator who is at the time acting by pressure on the treadle.

Having described the invention, what I

claim, and desire to secure by Letters Patent,  
is—

A motor comprising a supporting-frame, a  
central lever centrally pivoted thereto, and  
5 having transverse handle-bars at its ends, a  
laterally-extended lever-frame carried by said  
lever, treadle-lever arms pivoted to said  
frame at its end portions and having transverse  
treadle-bars secured to their outer ends, links  
10 connecting said lever-frame to said lever-

arms, driving-gear, and a pitman connecting  
said driving-gear to said central lever, sub-  
stantially as specified.

In testimony whereof I affix my signature in  
presence of two witnesses.

JOHN T. H. DRAKE.

Witnesses:

T. H. BLACK,  
C. A. CALHOUN.