

(No Model.)

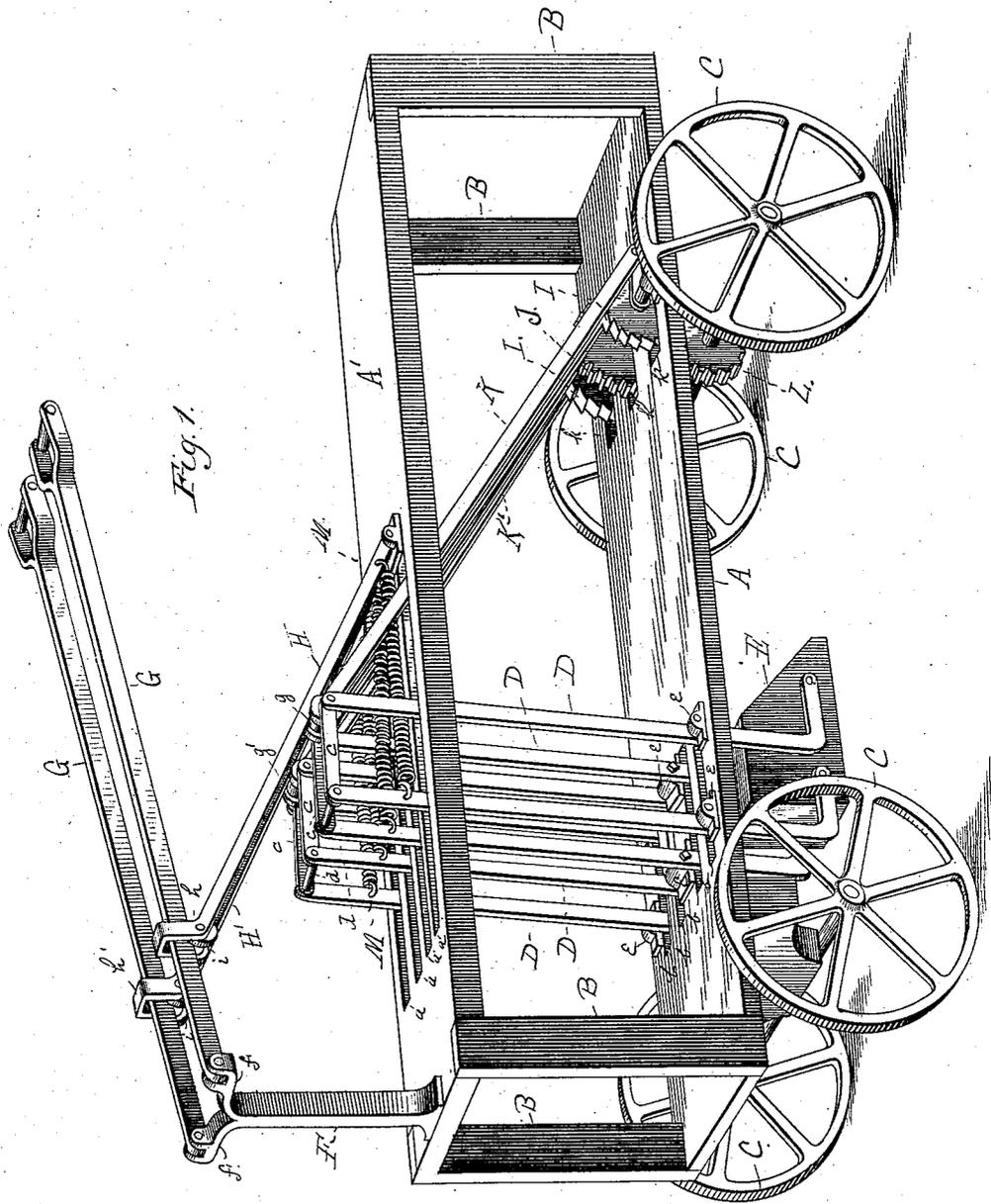
2 Sheets—Sheet 1.

N. MIKKELSEN.

MOTOR.

No. 291,069.

Patented Jan. 1, 1884.



Witnesses.

Will B. Quimby
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UNITED STATES PATENT OFFICE.

NIELS MIKKELSEN, OF CHICAGO, ILLINOIS.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 291,069, dated January 1, 1884.

Application filed October 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, NIELS MIKKELSEN, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved motor; and it consists of the novel devices and combination of devices, as will be described and claimed.

In the accompanying drawings, Figure 1 is a view in perspective of the device complete; Fig. 2, a side elevation of the same, and Fig. 3 a plan of parts thereof.

Like letters refer to like parts in each view.

The frame or body of the vehicle consists of the base A, top board, A', and uprights B, all of which are supported on suitable axles, carrying wheels C.

In top board, A', are formed four slots or openings, *a*, which are considerably longer than similar slots, *b*, formed in base A.

Passed through each slot *a* and *b* are two L-shaped bars, D, each pair of such bars being connected at their upper ends by cross-bars *c*, while suitable cross-pieces, *d*, connect the rear and front bars of different slots in pairs. By this arrangement four of said bars are joined together and move simultaneously. Each bar D is pivoted at *e* to base A, and the lower bent ends of the four that are joined together are pivotally secured to a weight, E, for the purpose hereinafter described.

Situated at the front end of top board, A', is a standard, F, with radiating arms *f*, to each of which is pivoted a lever, G.

Pivoted to top board, A', at points to the rear of slots *a*, are bars H H', which rest on rollers *g g*, respectively, said rollers being mounted on the rear cross-pieces, which connect the L-shaped bars D in pairs. At their upper or free ends bars H H' are bent at an angle, as at *h h'*, overlapping and resting upon levers G, said levers resting upon rollers *i*, suitably mounted between the sides of said bars.

At suitable points near the rear end of the vehicle, base A is provided with slots *k k'*, those *k k'* to accommodate ratchets I, and the

center, *k'*, to accommodate cog J, all of which are mounted on a suitable shaft. Loosely mounted on the same shaft with the above-named wheels are yokes *l l'*, the arms of which are situated on opposite sides of the ratchets I, and the cross-bars *m m'* of which carry pawls *n n'*, which engage with the teeth of such ratchets. Secured to these cross-bars *m m'* are bars K K', which at their upper ends are connected to the rear cross-bars, which connect the L-shaped bars D, before referred to.

Mounted upon the rear axle of the vehicle is a cog, L, situated and adapted to mesh with the cog J. The bars H H' are connected by coil-springs M with each of front L-shaped bars D.

The operation is as follows: Pressure being applied to one of the levers G, by means of the several connections described, the bars D, upon the rollers of which the lever H rests, are carried forward, the weights connected therewith raised, and the bars K, with the pawl of yoke *l* drawn forward, the position of the several parts being shown in dotted lines, Fig. 2. The other lever G is then lowered, whereby the same change of position of the parts connected therewith is accomplished, the first lever at the same time being raised to its normal position, whereby the pawl connected therewith engaging with the teeth of its ratchet revolves the same, and with it the cog J, mounted on the same shaft, and said cog meshing with cog L, mounted on the rear axle, revolves the wheels of the vehicle, and motion is thereby imparted thereto.

It will be understood that the parts can be operated either by hand or foot power.

The use of the weights and springs, together with the novel arrangement of the parts, as herein described, decreases to a considerable extent the amount of power necessary to move the vehicle.

What I claim is—

1. In the apparatus described, the L-shaped bars D, arranged in groups of four, pivoted to base A, and carrying weights E, in combination with levers G H H' K K' and intermediate gearing for imparting motion to said vehicle, as described and shown.

2. In the apparatus described, the L-shaped

bars D, pivoted to base A, and carrying weights E, in combination with levers G H H' K K', springs M, and intermediate gearing for imparting motion to said vehicle, as described and shown.

5 3. The L-shaped bars D, carrying weights E, and rollers *g g'*, in combination with levers H H', carrying rollers *i*, levers G and K K', springs M, and intermediate gearing for im-

parting motion to the vehicle, as described and shown. 10

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

NIELS MIKKELSEN.

Witnesses:

M. J. CLAGETT,
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