

WILLIAM S. REEDER.

Improvement in Motive-Power.

No. 127,368.

Patented May 28, 1872.

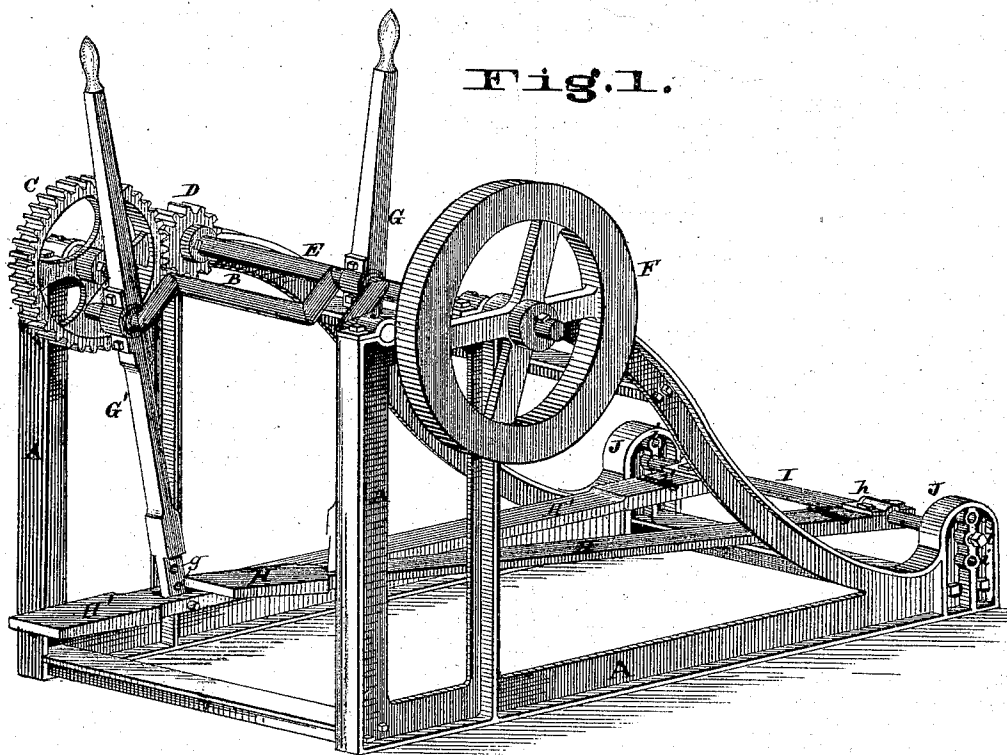
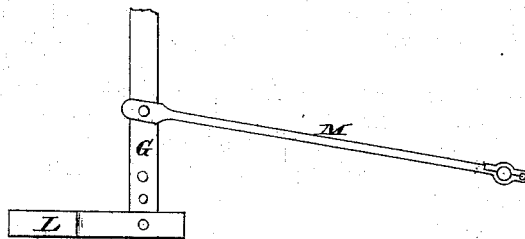
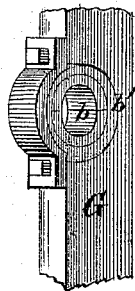


Fig. 1.

Fig. 2.

Fig. 3.



ATTEST,
Charles Pickles
Walter Allen

Scale of Fig. 3.

INVENTOR.
William S. Reeder
By *Wright Bro. Atty.*

UNITED STATES PATENT OFFICE.

WILLIAM S. REEDER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF
AND PASCAL P. CHILD, OF SAME PLACE.

IMPROVEMENT IN MOTIVE POWERS.

Specification forming part of Letters Patent No. 127,368, dated May 28, 1872.

Specification describing a certain Hand and Foot Power, invented by WILLIAM S. REEDER, of the city and county of St. Louis and State of Missouri.

This improvement relates to an apparatus in which the whole weight of the operator is upon the treadles, and the crank-shaft is carried over the "dead centers" by the combined action of the treadles and the levers, which latter are continuations or upward extensions of the pitmen.

Figure 1 is a perspective view of my improvement. Fig. 2 is an enlarged perspective view of one of the crank-boxes. Fig. 3 shows in elevation a modification of my improvement.

A is a frame. B is a two-crank shaft, carrying a spur-wheel, C, that engages a pinion, D, upon a shaft, E, carrying a fly-wheel, F. G G' are pitman-levers boxed to the crank-wrists, and pivoted at their lower ends to the treadles H H', whose rear ends are pivoted at *h* or *h'* to a pivot-bar, I, vertically adjustable by means of holes *i* in standards J. The pitman-levers have a number of pivot-pin holes, *g*, to allow the treadles to be raised or lowered upon them to suit them to persons of different sizes or height; and the rear ends of the treadles may be also raised, as before stated, by changing the pivot-rod in the holes *i*. The mean inclination of the lever pitmen is adjusted by changing the pivot-rod from *h* to *h'*, or vice versa. The boxes or bushings *b* of the crank-wrists may be surrounded by a cushion or cushions, *b'*, of India rubber or other springs, to make the movement more easy and regular.

In Fig. 3 is shown a modification in which a foot-block or stirrup, L, is adjustably connected to the lower end of the lever G, and the lever is connected by a guide-rod, M, to the frame.

The operation is as follows: A foot is placed on each of the treadles, and the hands applied to the levers, and by the reciprocation of these parts the shaft B has rotation.

I am aware that a four-crank shaft has been used for a velocipede—two of the cranks being connected to treadles, and the wrist-pins of the other cranks playing in slots in the hand-levers, and the levers having fixed pivots. This device is shown in the patent of J. Reynolds, No. 90,579; but in this the levers are not boxed to the cranks, and do not accompany the treadles in their vertical movements; and the movement of the crank-wrists in the slots is accompanied with much wear and friction.

My device can be cheaply constructed, requiring but two cranks, whose wrists are closely boxed so as to exclude the dust and retain the oil, and the levers are mere prolongations of the pitmen, thereby gaining all the advantages of a four-crank shaft in doing away with the dead-centers.

With my arrangement almost all the muscles of the body are brought into play, and consequently more power can be obtained than in a machine where a part only of the muscles are used.

I claim as my invention—

1. As an improvement in motive powers, the pitmen G G', connected to the treadles and crank-wrists by close boxes, and extended to form hand-levers, all as specified.

2. The spring cushions *b'*, in combination with the levers G G' and boxes *b*, as set forth.

In testimony of which invention I have hereto set my hand.

WILLIAM S. REEDER.

Witnesses:

SAML. KNIGHT,
CHARLES PICKLES.