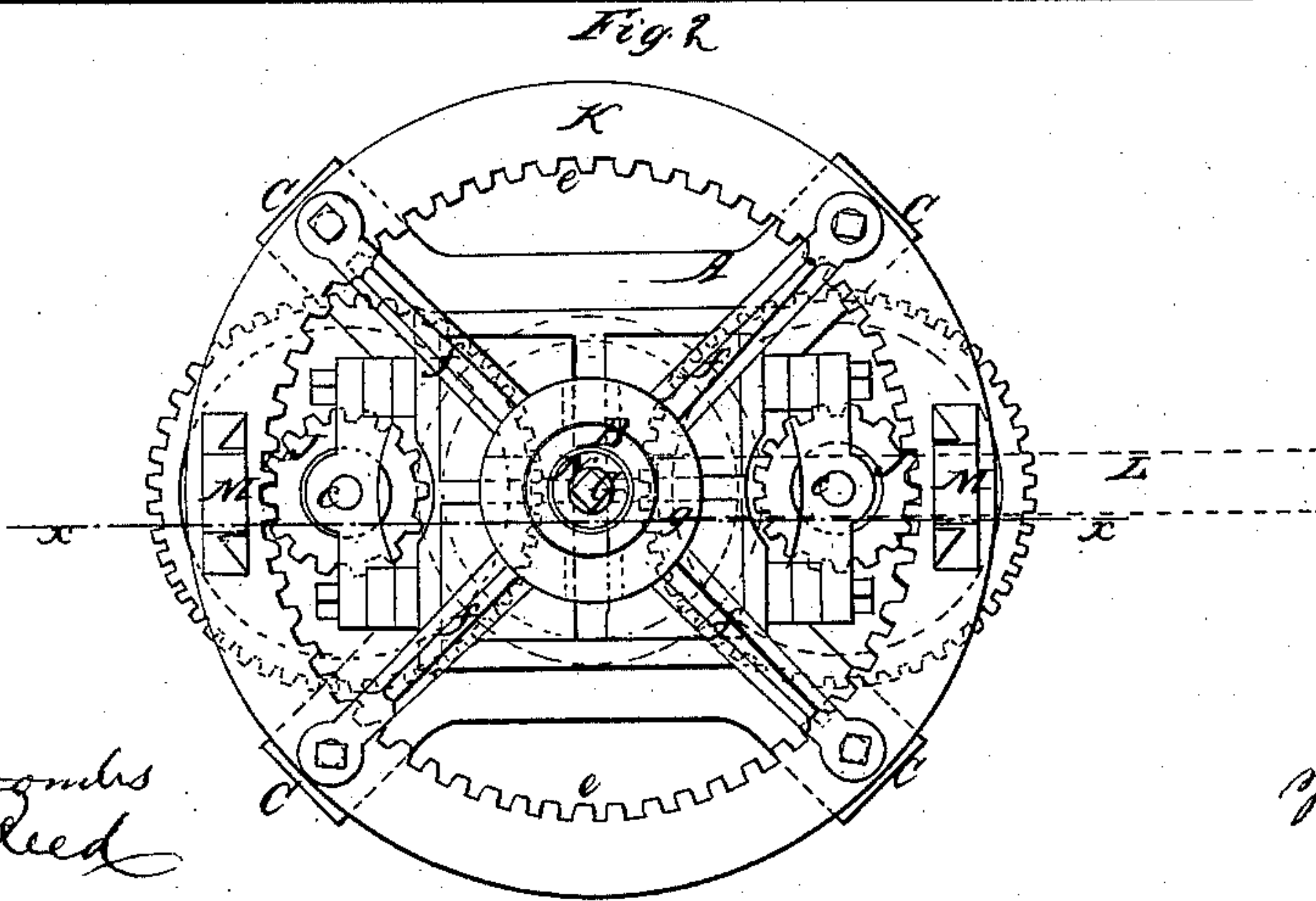
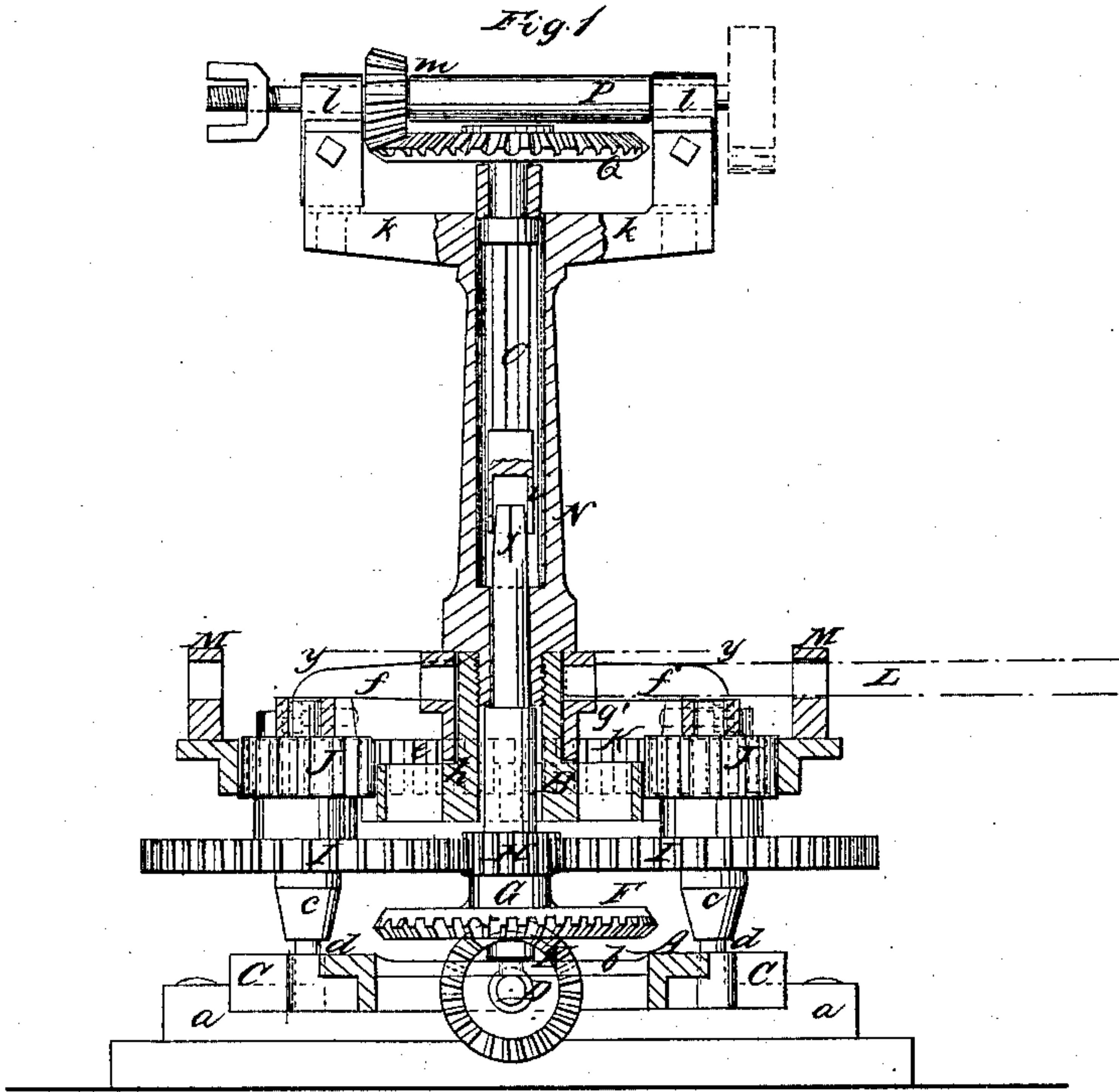


*W. Rider,
Horse Power.*

N^o 35,780.

Patented July 1, 1862.



Witnesses
J. W. Coombs
G. W. Reed

Inventor.
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Atty's.

UNITED STATES PATENT OFFICE.

WILLIAM RIDER, OF ALMONT, MICHIGAN.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. 35,780, dated July 1, 1862.

To all whom it may concern:

Be it known that I, WILLIAM RIDER, of Almont, in the county of Lapeer and State of Michigan, have invented a new and Improved Horse-Power; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in a novel arrangement of gearing, as hereinafter fully shown and described, whereby the power of horses and other draft-animals may be advantageously applied to the driving of machinery, and the power taken from various points, as convenience may require.

The invention, it is believed, is an improvement on the planet-wheel horse-power, several forms of which have been devised; but all hitherto arranged work with considerable friction and a consequent unnecessary consumption of power.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing which supports the working parts of the horse-power. This framing has a vertical tube, B, at its center and four radial sockets, C, at its lower part, which sockets receive wooden beams *a*, by means of which the framing is securely fastened to the ground or flooring.

D is a shaft which is placed horizontally underneath the framing A, and is fitted in suitable bearings attached thereto. This shaft D has a bevel-pinion, E, upon it, into which a horizontal bevel-wheel, F, gears, the latter being on a vertical shaft, G, which is stepped at the center of a cross-piece, *b*, of the framing and extends upward through the center of the tube B, as shown clearly in Fig. 1.

On the shaft G, just above the wheel F, there is a pinion, H, into which, at opposite sides, two wheels, I I, of equal diameter, gear. The lower ends of the axes or shafts *c c* of the wheels I I are stepped in the framing A, as

shown at *d d*, and the upper ends of said axes or shafts are fitted in bearing *d d* on the upper part of the framing. On the upper parts of the axes or shafts *c c* there are placed pinions J J, one on each shaft. These pinions are of equal diameter, and they gear into a wheel, K, which has its teeth *e* at the inner side of its periphery. The wheel K has its arm *f* bolted to it, and the hub *g* of said wheel is fitted on the upper part of the tube B, the lower end of the hub resting on a shoulder, *h*, on the tube, as shown clearly in Fig. 1. This tube B firmly supports the wheel K in proper position and causes it to run or work with but little friction. The hub *g* of the wheel K is perforated to receive the inner ends of sweeps L, to which the draft-animals are attached, said sweeps passing through loops or guides M on the outer part of the wheel K.

N is an upright tube, which is screwed into the upper end of the tube B, and serves as a case for a vertical shaft, O, the lower end of which is connected to the upper end of the shaft G, as shown in Fig. 1. This connection may be made by having the lower end of the shaft O provided with a square socket, *i*, to fit over a square, *j*, on shaft G. This mode of connection admits of the shaft G being readily detached when necessary.

The upper end of the tube or case N is provided with two horizontal arms, *k k*, having bearings *l l* at their outer ends to receive the journals of a horizontal shaft, P, which has a pinion, *m*, upon it, which gears into a horizontal wheel, Q, on the top of the shaft O.

The operation is as follows: The animals in moving around rotate the wheel K, from which motion is communicated to the shaft D, through the medium of the gearing J J I I H F E, motion at the same time being communicated to the shafts O and P through the medium of the gearing J J I I H. The power may be taken from either of the shafts D or P, the latter being used when it is most desirable to take the power from a point above the animals, the shaft D being used when it is most desirable to take the power from below. The gearing may be so arranged as regards dimensions or relative proportions that the shafts D P may have the same or different speeds, and the upper shaft, P, may, if necessary, have shafting connected to it and arranged in any

suitable way that may be required to drive machinery.

The advantage of this machine is the ease or smoothness with which it runs, the absence of much friction—a result due to the arrangement or manner of hanging the principal wheel, K. The machine also monopolizes but little space, and the feature which it possesses of admitting the power to be taken from it at different points is also a great advantage, as it renders the machine capable of being applied in all cases where a horse-power is desirable.

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

1. The combination of the central shaft, G, and its gear F H with the wheels I I J J and the master-wheel K, as herein shown and described.

2. Having the master-wheel K supported upon a central tube, B, in the manner herein shown and described.

3. The combination of the tube N and driving shaft O with the tube B and shaft G, as and for the purpose herein shown and described.

WM. RIDER.

Witnesses:

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