

L. BRONSON.

Horse-Powers.

No. 134,511.

Patented Jan. 7, 1873.

FIG. I

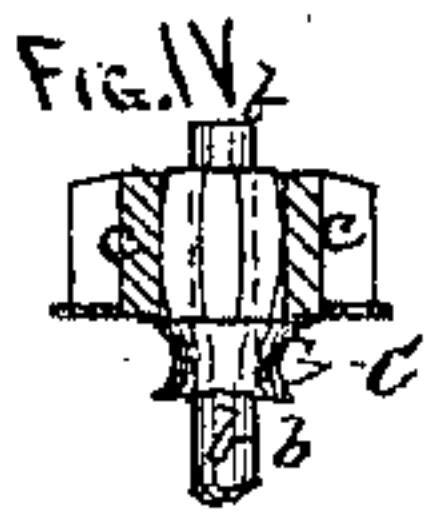
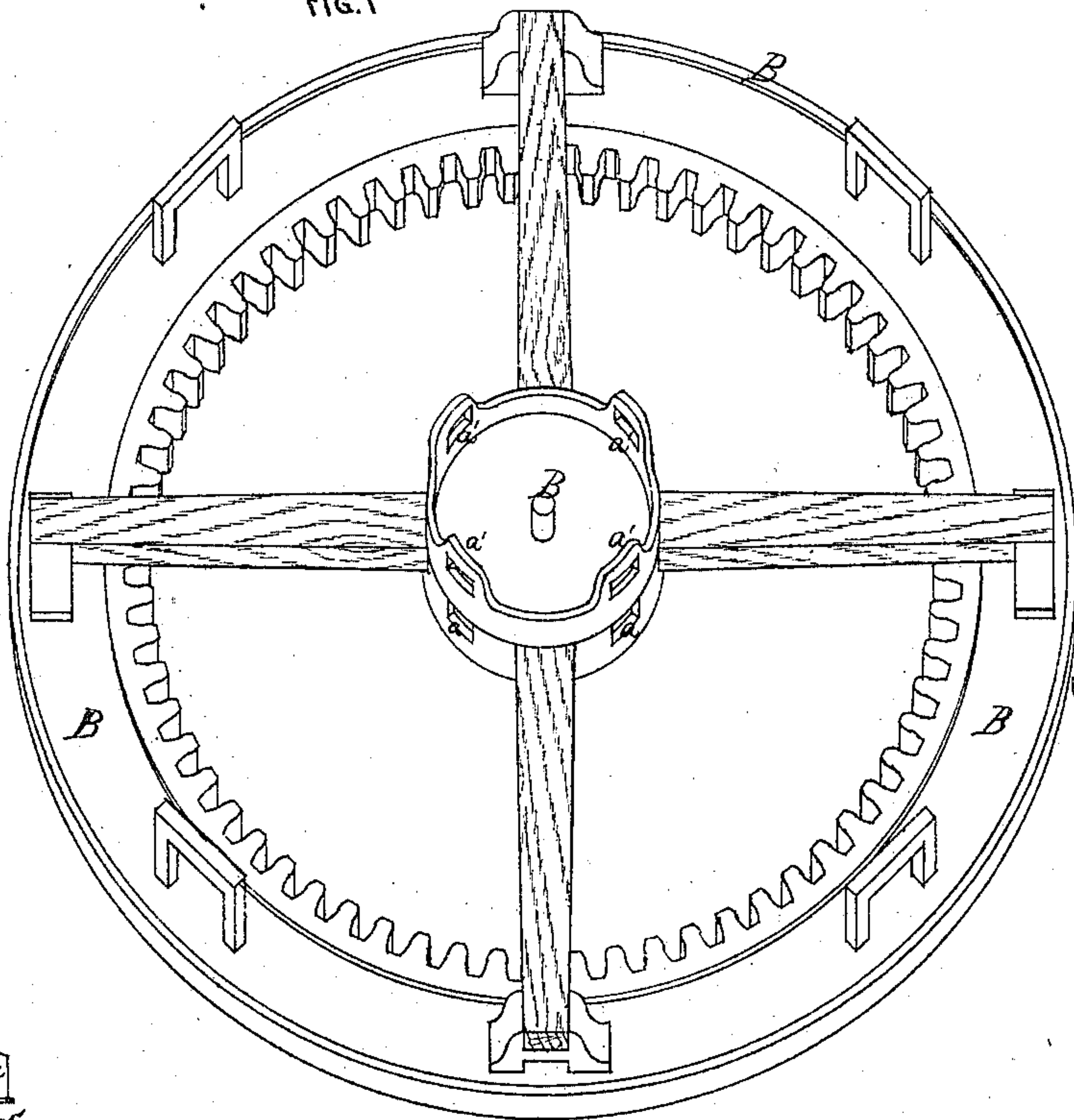


FIG. II

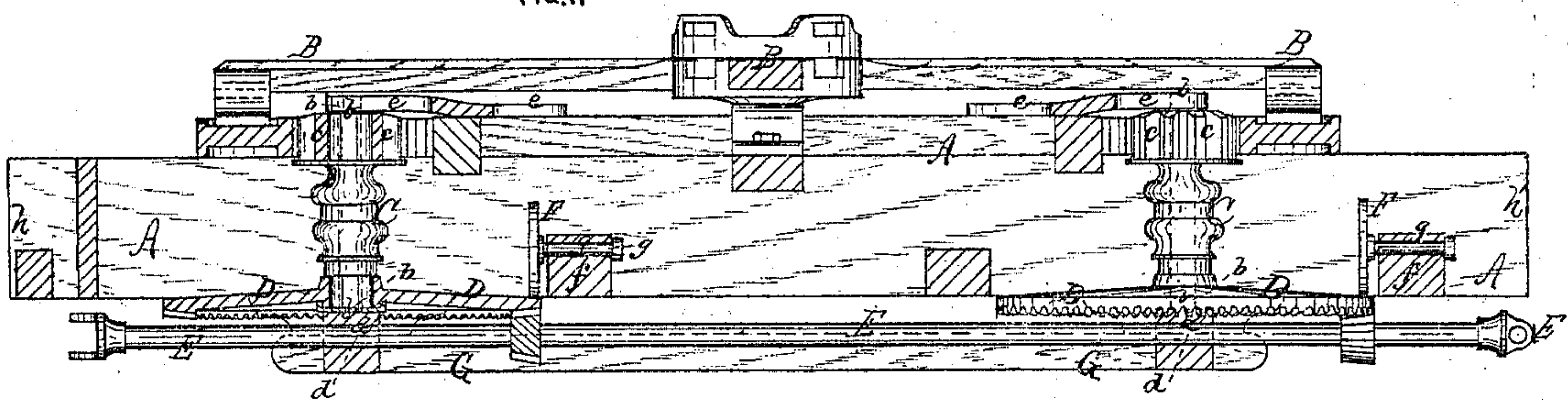
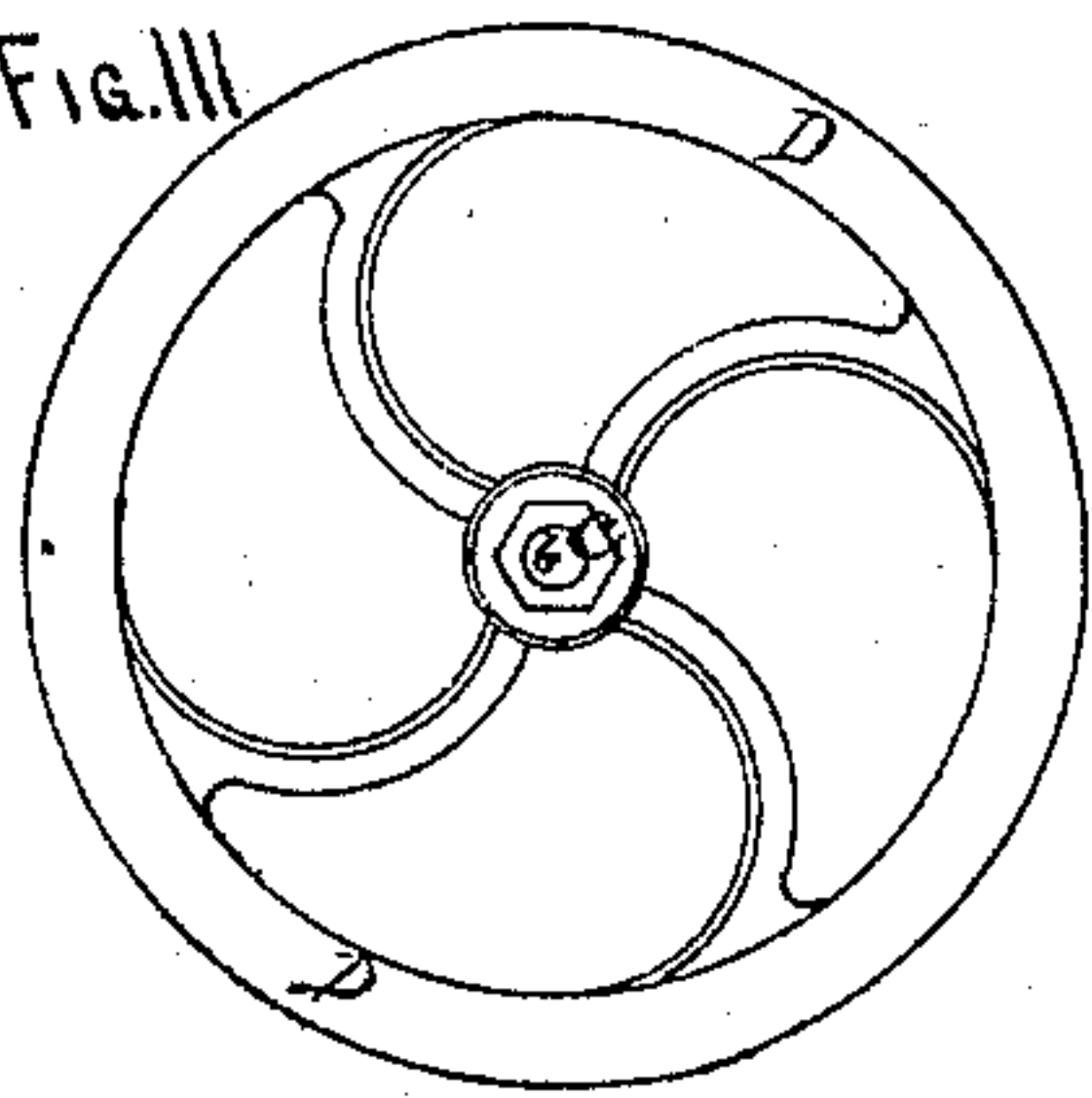


FIG. III



WITNESSES.

J. R. Drake.
C. N. Woodward.
"

Levi Bronson

INVENTOR, BY

Durke Fraser & Co.
Attys.

UNITED STATES PATENT OFFICE.

LEVI BRONSON, OF BUFFALO, NEW YORK, ASSIGNOR TO JAMES BRAYLEY,
OF SAME PLACE.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. 134,511, dated January 7, 1873.

To all whom it may concern:

Be it known that I, LEVI BRONSON, of Buffalo, in the county of Erie and State of New York, (assignor to JAMES BRAYLEY, of same place,) have invented certain new and useful Improvements in Horse-Powers, of which the following is a specification:

Nature and Object of the Invention.

The invention relates to mounted and "down" horse-powers; and the invention consists in forming a double set of sockets in the cap or hub of the master-wheel, to adjust the levers or "sweep" higher for mounted and lower for down powers; and it furthermore consists in providing a supplementary frame to aid in bringing the driving-shaft lower down, all to be hereinafter fully explained.

In the drawing, Figure 1 is a perspective of the master-wheel detached, showing the double holes for the levers; Fig. 2 is a sectional side elevation; Fig. 3 is a plan of a wheel, showing the form of the hub where it enters the wheel; and Fig. 4 shows the construction of one end of the hub.

A is the main frame-work, and B the master-wheel pivoted thereto. This wheel has its cap or hub provided with a series of holes or sockets, *a a'*, upper and lower, and over each other, for the reception of the ends of the levers or sweeps, to which also the horses are attached. These double sockets *a a'* are an important part of my invention, as they permit the adjustment or arrangement of the levers to the proper height for horses when the machine is used as a mounted or "down" power. A down power, if mounted, and having but one set of lever-holes, would bring the sweeps too high for the horses to draw well; therefore mounted and down powers are usually two separate machines. By having an upper cap or arranging another set of holes, *a'*, above the usual ones in the hub B, the levers can be set at a considerable angle, bringing the outer ends down in a suitable position for the horses. When my horse-power is unmounted, or is used as a down power, the levers are merely put in the lower holes *a*. In all other machines with which I am acquainted only one set of holes, *a*, are used. CC represent the elongated hubs or hollow indepen-

dent shafts, through which the pin *b* passes, and rigidly held in the bridge *e* and step *d*. The ends of these hubs are made square, hexagonal, or similarly shaped, and are set loosely into corresponding holes in the pinion *e* and beveled-gear wheel D, the hub moving with the wheels around the set pin *b*. The square part that enters the beveled gear D is constructed somewhat rounding on each face, or made fuller in the center of the square parts where the bearing comes, (see Fig. 4,) so that the movement of the wheel on this part of the hub is thereby made flexible.

This independent hub is one of the features of the greatest importance in my invention, as it aids in transferring the "down" into a mounted power by bringing the line-shaft E down to a position so that the different connections can be made without sharp angles, thus obviating one objection to a mounted power; also, hitherto the beveled-gear wheel D has been cast on a short hub; therefore if either became injured they were thrown away entirely. By the use of my independent hub, if either wheels, pin, or hub get broken or worn out each part can be separately replaced. It also gives a longer bearing, and is therefore more durable. The pinion being so far separated from the beveled wheel, the latter is not so easily affected by any accident to the pinion, bridge, or the natural wear on the pin *b*, which wear is apt to throw it off the perpendicular. It makes of the hub a flexible instead of a rigid shaft, and if the pin *b* should not set exactly vertical it obviates in its movement that trouble. Another great advantage is that the beveled wheel, working flexibly by means of this hub, takes off greatly from the strain on the traveler F, giving it a more even motion, and compensating for any defect or irregularity on the surface of the beveled wheel on which it runs. It prevents the traveler from "cramping," and gives an even strain on all the parts, the traveler also affording that equal pressure on the bevel-wheel D that insures the even meshing of it and the line-shaft pinion.

I propose setting the traveler rigidly on its shaft *g*, so that both move together, the latter having its bearings in a cross-beam, *f*, and coming through on the other side and held

there, thus preventing the traveler from drawing out. The line-shaft E is run in the ordinary manner.

To still further aid in transferring a "down" into a mounted power, and allow the main or line-shaft E to be set sufficiently low to work well, I attach to the bottom of the main frame A a supplementary frame, G G, which is shorter than the main frame, and sets between the forward and hind axles of the wheels, when mounted, the ends *h h'* of the main frame projecting forward and back, the forward ends *h* attached to the bolster, and the rear ends *h'* bolted to the hind axle.

This frame, as before stated, brings the main-line shaft down considerably, so that the necessary connections can be made at a less angle, so that the horses can easily step over them.

To change from a mounted to a down power the wheels are merely removed from the axletrees, which remain above the ground, the machine resting on the supplementary frame G, and the sweeps put into the lower holes *a*.

By these simple means a durable combined mounted or down horse-power is provided, be-

ing changed from one to the other with little or no trouble.

Claims.

1. I claim, in a horse-power, the master-wheel center cap or hub B, when constructed with or having arranged on it the upper and lower sweep-holes *a a'*, combined for the purpose of changing to "down" or mounted power, as hereinbefore fully specified.

2. I claim, in a horse-power, the supplementary bottom pieces G G, suitably attached to the bottom of the main frame A, and setting between the forward and hind wheels and axles of the truck, for the purpose of bringing the line-shaft E lower down and allowing the hub to be elongated, as hereinbefore fully set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LEVI BRONSON.

Witnesses:

J. R. DRAKE,
C. N. WOODWARD,