S. Perry,

Horse Power.

No. 35,567. Patented June 10, 1862.

Fig. 1.

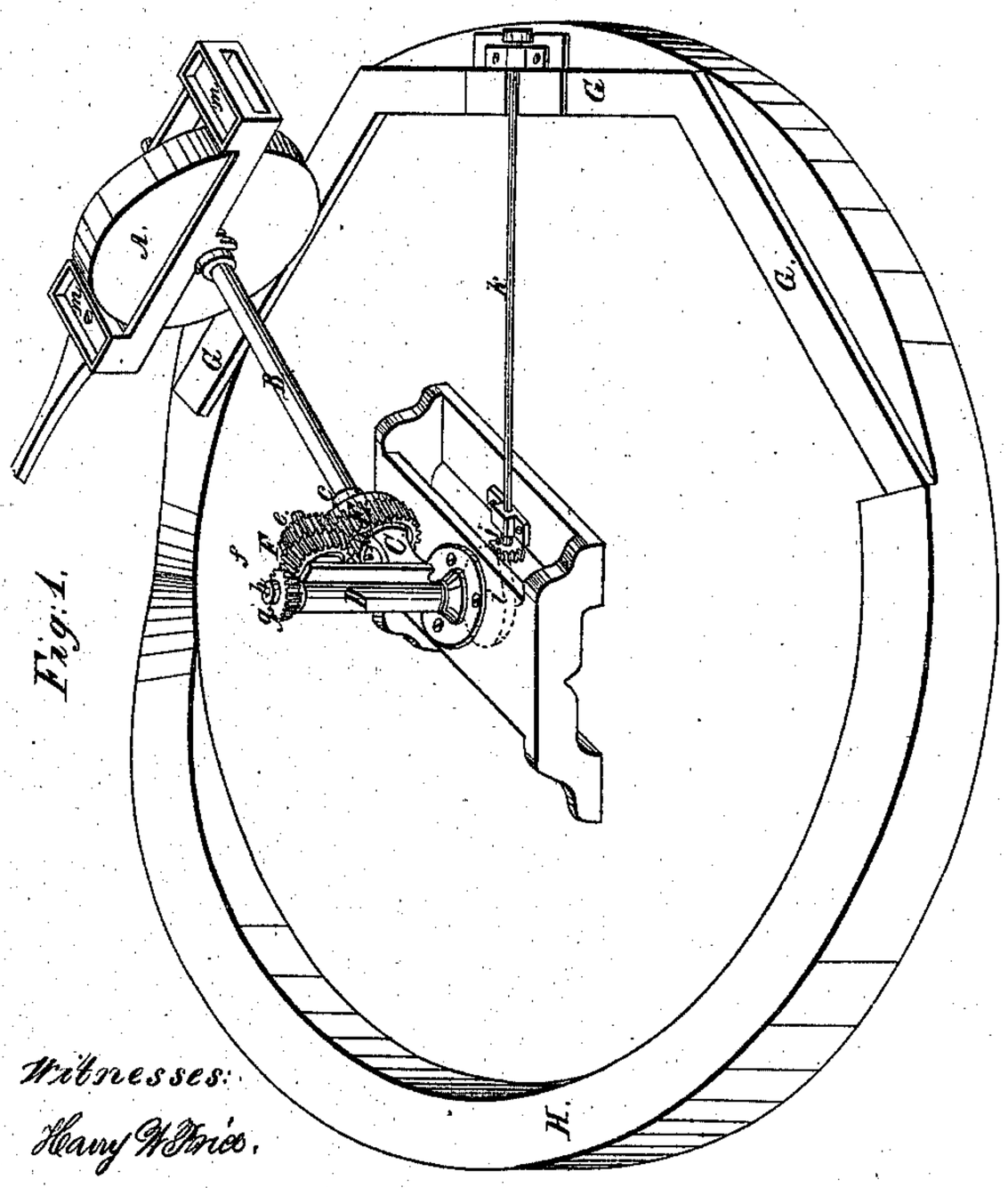


Fig. 2.

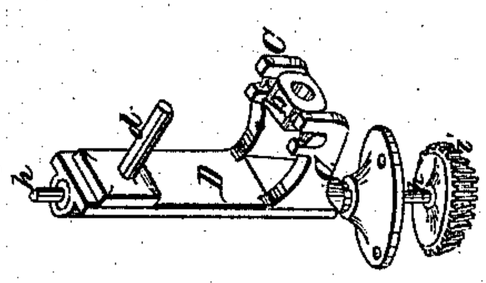


Fig. 3.

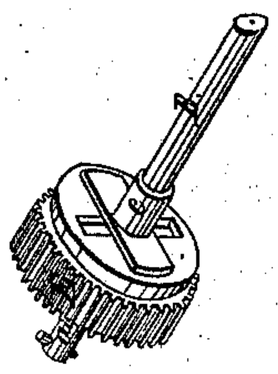


Fig. 4.

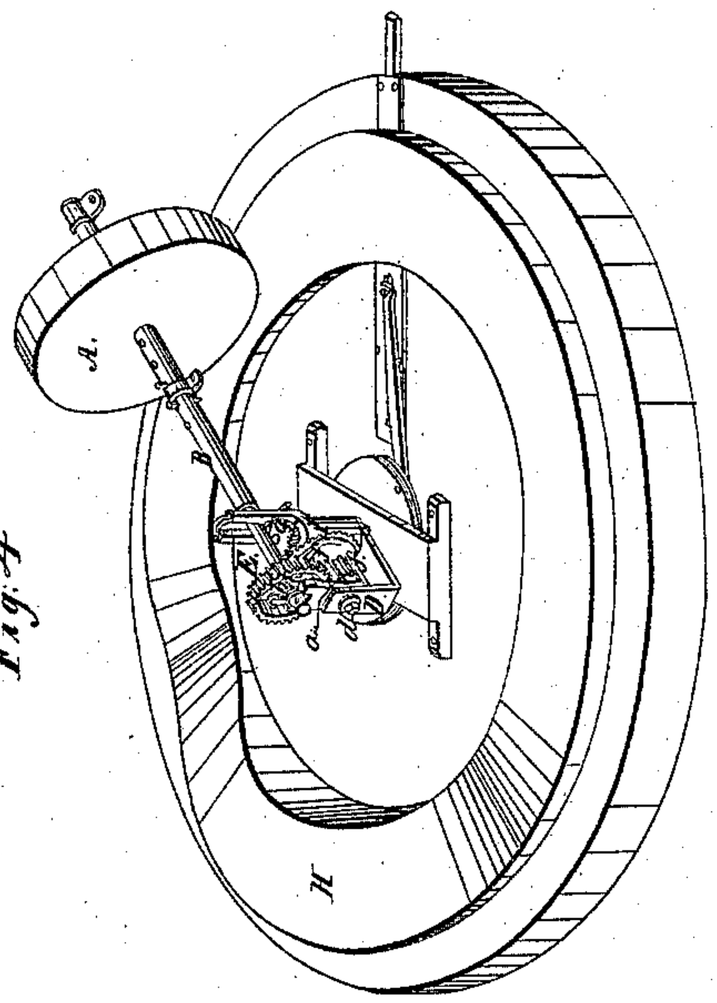


Fig. 5.

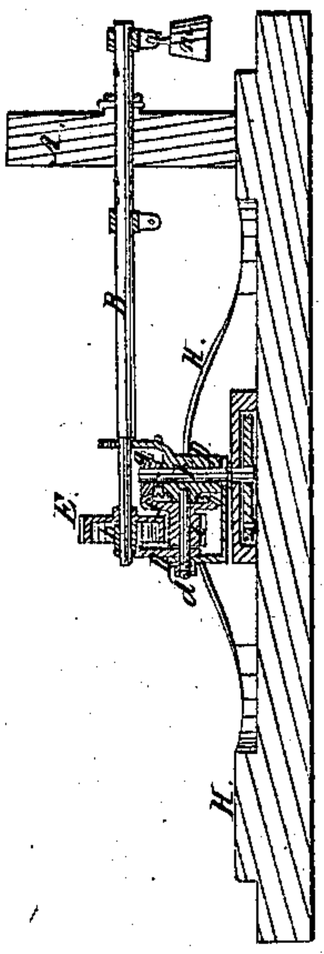
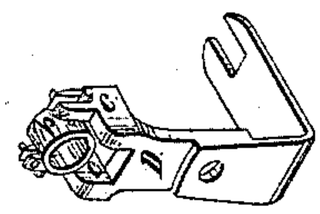


Fig. 6.



Witnesses:

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By atty. A.B. Stoughton.

UNITED STATES PATENT OFFICE.

STUART PERRY, OF NEWPORT, ASSIGNOR TO CHARLES H. A. CARTER, OF NEW YORK CITY, NEW YORK.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **35,567**, dated June 10, 1862.

To all whom it may concern:

Be it known that I, STUART PERRY, of Newport, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Traction Center-Geared Horse-Powers; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of my horse-power machine. Figs. 2 and 3 represent detached portions thereof, to better illustrate details not distinctly seen in Fig. 1. Figs. 4, 5, and 6 represent a modification of my general plan of construction, but showing a different mode of applying the same.

Similar letters of reference, where they occur in the several figures, denote like parts of the horse-power in all the drawings.

Traction center-geared horse-powers have long been known, but from defects in their construction have not gone into general use. As heretofore constructed the power derived from this kind of horse-power has been very limited, and to attempt to increase their power or speed created either a slip of the traction-wheel, or else excessive friction, either of which would render the machine impracticable for general purposes; but being satisfied that this kind of horse-power possessed many good qualities—viz., cheapness, simplicity, portability, adaptability to any purpose or any place, easily set up or taken down, and requiring but little stowage-room—I determined, if possible, to overcome the objectionable features of the machine as heretofore constructed, and have succeeded in doing so and in producing a horse-power that is very efficient and very valuable.

My invention consists, first, in the kind of gearing I use at the center of the machine, and the combination of the same, so as to get up a quick speed without undue cramping or friction of the several moving parts; and my invention further consists in the manner of uniting the main driving-shaft with the main drive-wheel, so that the shaft may vibrate vertically without communicating its vertical motion to said main drive-wheel injuriously.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A represents a traction-wheel, to which one end of the shaft B is affixed so as to turn with the wheel. The opposite end of said shaft has a journal, *a*, Fig. 3, upon it, which turns in a rocking journal-box, *b*, Fig. 2, supported upon arms C C, united to an upright or column, D, that is firmly affixed to the ground or base of the machine, to hold the gearing steady. To the interior or center end of the shaft B there is fastened a hollow or cup-shaped gear-wheel, E, that will slide and work over the rocking journal-box *b*, so as to bring said box at or near the center of said wheel E, for a purpose that will be hereinafter mentioned. The wheel E may have a sleeve, boss, or hub, *c*, upon it, projecting from the solid end of the wheel, and by means of this sleeve, boss, or hub it is fastened to the shaft B. The gear-wheel E, it will be perceived, has square teeth or cogs upon it, and it meshes with and turns a compound square and bevel wheel or pinion, F, that is supported on an axis or shaft, *d*, Fig. 2, the cogs of the wheel E taking into the square cogs *e* of the compound pinion F, while the bevel-cogs *f* of the pinion F mesh with and turn a bevel-pinion, *g*, on top of a shaft, *h*, that turns in the column D, the lower end of this shaft *h* being furnished also with a bevel-gear, *i*, which, through a bevel-pinion, *j*, on a horizontal shaft, *k*, gives motion to said shaft *k;* and from this shaft motion may be communicated to any machinery to be driven by the horse-power.

The wheel A may run upon the ground and over its natural surface without leveling it down, as the rocking box *b* will allow the shaft B to rise and fall without injury to the gearing, because, in the first place, considerable motion at the wheel end of the shaft would be inappreciable at the center or other end, and what motion there is at the center is in the center of the wheel E and simply rocks said wheel without jamming or cramping it with the other gear, F. With bevel-gears this could not be done as safely, because the heels or points of the teeth would have to sustain all the strain and would be liable to injury there-

from. The straight or square gear at the center is much better than the bevel-gear, and, so far as I can learn, I am the first to introduce square gear at the center of this kind of horse-powers.

The advantage of making the wheel F a compound wheel, instead of two wheels, is this: the tendency of the gear E is to raise up the gear *e* of the pinion F; but this is counteracted by the tendency of the pinion *g* to force down the part *f* of the pinion F, and thus they counteract each other and prevent the pin or shaft *d* from being unevenly worn by extreme pressure in one direction only, and prevent undue friction. The uneven wearing of the pin or shaft *d* may be avoided by turning said pin or shaft in its support on or in the column D and thus make it wear away evenly at least.

I have shown a track for the wheel A to run on, but this, as before stated, is not actually necessary, as it may run upon the ground. If, however, it is preferred to have a track to move it on, then plank, as at G, may be pinned down to the ground, or a continuous circuitous track, H, may be used. The elevations and depressions in the track are designed to show that the wheel will surmount or drop into them without injury to or even cramping the gear at the center. If the traction of the wheel is not sufficient, or if it has a tendency to slip, it may be loaded down to increase the traction by placing weight of any kind upon it, as at *m;* and a very cheap and economical mode of making the wheel A is to have it cast hollow and have an opening into it, so that it may be filled with earth to give it weight and be readily emptied when it is to be transported any distance.

In the modification of the above-described construction, as shown in Figs. 4, 5, and 6, the same letters show the corresponding parts, but differently arranged. In this modification the shaft *h* has at its lower end a crank-wheel, *n*, to which a pitman, *o*, is connected, and from this pitman the motion may be communicated to any machinery to be driven by it.

By describing the gear-wheel F as a compound wheel I do not wish to be understood as limiting my invention to the making of the straight and the bevel teeth or cogs in one piece, for it is evident that they may be cut apart or made in two separate parts and still accomplish precisely the same purpose. I prefer to make this wheel F as shown in the drawings; but it is evident that the straight and bevel portions may be separated and placed on the same journal, *d*, or indeed, each on its own journal, and effect the same result by an equivalent arrangement of the parts.

Having thus fully described the nature and object of my invention, what I claim therein as new is—

1. Supporting the end of the shaft B in or near the center of the main drive-wheel E, for the purpose substantially as described.

2. In combination with a main drive-shaft that has upon its outer end a wheel that may run over an uneven track, the hanging of the opposite end in a rocking or pivoted box to yield thereto, substantially as described.

3. In combination with the main drive-wheel E and the bevel-pinion *g*, the compound pinion F, composed partially of square and partially of beveled teeth, substantially as and for the purpose set forth.

STUART PERRY.

Witnesses:
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WM. GETMAN.