W. Lauer.

Horse Power.

No. 91,456. Patented Jun. 15, 1869.

Fig. 1.

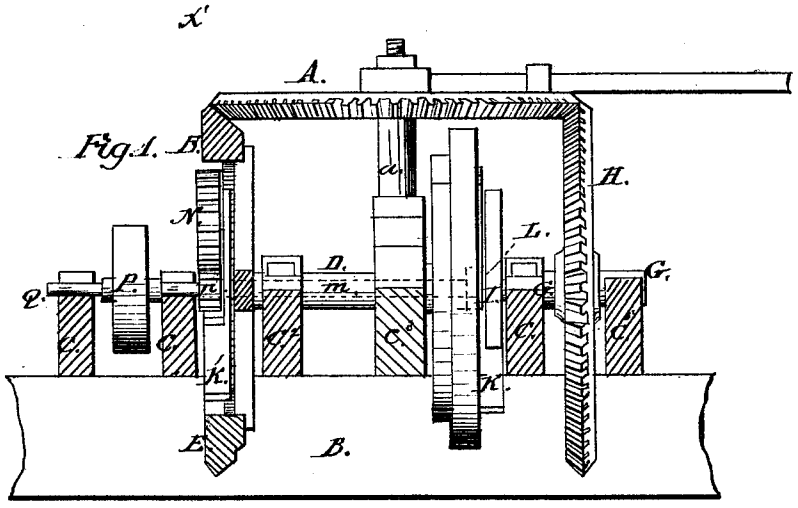
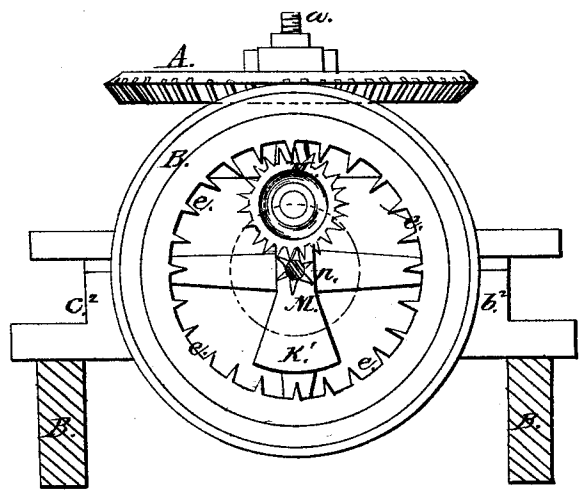


Fig. 2.



Witnesses:
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United States Patent Office.

WILLIAM LAUVER, OF PERU MILLS, PENNSYLVANIA.

Letters Patent No. 91,456, *dated June* 15, 1869.

IMPROVEMENT IN HORSE-POWER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM LAUVER, of Peru Mills, in the county of Juniata, and State of Pennsylvania, 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 construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section.

Figure 2 is a cross-section through line *x x* of fig. 1.

The object of this invention is to obtain, at the same time, the maximum of compactness and speed.

In the drawings—

B B represent two longitudinal parallel bed-pieces of the frame, and C C^1 C^2 are six parallel cross-beams, resting upon and framed to the bed-pieces, for the purpose of supporting the shafts and wheels.

A is the motive-wheel, being a horizontal mitre-wheel, supported upon a vertical spindle, *a*, stepped in the cross-piece C^3.

D is a large hollow shaft, bearing in the beams C^2 ^3C, and supporting at one end a vertical mitre-wheel, E, gearing with and rotated by the wheel A, and at the other, a vertical internal gear-wheel, F.

G is a short shaft, bearing in the beams C^4 C^5, and supporting a mitre-wheel, H, which also gears with and is rotated by the wheel A, of course in a direction opposite to that of wheel E. The wheels E H are of equal size.

Fixed to the inner end of shaft G, is an arm, I, which bears a planet-wheel, J, at one end, and a counterbalance, K, at the other, the wheel J working in connection with the internal gear of wheel F, and with a small spur-wheel, L, on the end of a long shaft, *m*. The latter shaft extends through the hollow shaft D, and carries at its opposite end an arm, M, which supports a planet-wheel, N, and a counterbalance, K^1. This planet-wheel operates in connection with an internal cog-rim, *e*, upon the wheel E, and also with a small spur-wheel, *n*, fixed to a short shaft, Q, supported by the beams C C^1, and bearing the working-belt pulley P.

The operation is as follows:

The wheel A being put in motion, actuates the wheel E, and through it, the shaft D and the wheel F, in one direction, and the wheel H in the other. The shaft of the latter wheel carries the planet-wheel J round in a direction opposite to that of the wheel F, thus doubling the rapidity of its movement along the cog-rim of wheel E, and proportionately increasing the velocity of the small central shaft *m*, which it puts in motion.

The speed of shaft *m* having been thus raised, it is applied to increase the rapidity of the movement of the other planet-wheel N along the cog-rim *e*. At the same time, the wheel N moves in a direction opposite to the direction of motion of wheel E, with which it gears, so that thereby its motion is proportionately increased, in the same manner that the motion of wheel J was accelerated by the motion of shaft G, as above described.

The speed of the planet-wheel N being thus raised to a high degree, it is transmitted (still further multiplied) through the small spur-wheel *n* to shaft Q and the working-pulley P.

When the several parts are in the relative proportions shown in the drawings, I obtain about one hundred and twenty revolutions of the pulley P, to one of the motive-wheel A. The proportions may, of course, be varied at pleasure.

The whole machine is exceedingly compact, occupying a space which is nearly covered by the horizontal wheel A.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The counterbalance K or K′, applied in connection with a sun-and-planet wheel, substantially as shown and described.

2. The combination and arrangement of the horizontal wheel A, vertical mitre-wheels E H, sun-and-planet wheels F J L, and E *e* N *n*, shafts G *m* Q, and arms I M, all constructed, combined, and adapted to operate in connection with each other, in the manner and for the purposes set forth.

To the above specification of my improvement, I have set my hand, this 30th day of March, 1869.

WILLIAM LAUVER.

Witnesses:

CHAS. A. PETTIT,

S. C. KEMON.