L. STEWART.

Horse-Power.

No. 164,335. Patented June 8, 1875.

Fig. 1.

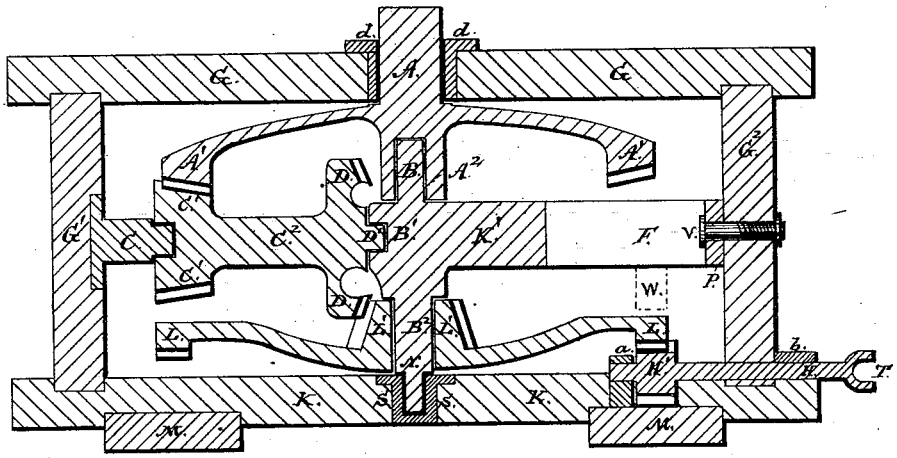
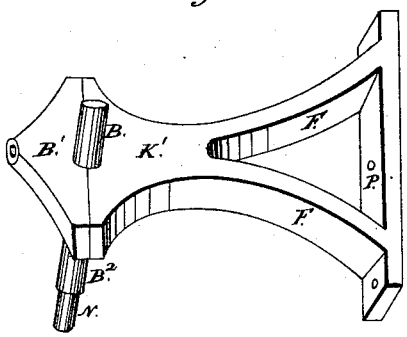


Fig. 2.



Witnesses.

James N. May.

Theophilus Weaver.

Inventor.

Lewis Stewart

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UNITED STATES PATENT OFFICE.

LEWIS STEWART, OF CAMP HILL, PENNSYLVANIA.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **164,335**, dated June 8, 1875; application filed April 24, 1875.

To all whom it may concern:

Be it known that I, LEWIS STEWART, of Camp Hill, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements on Horse-Powers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and the reference characters thereof, making a part of this specification.

Figure 1 in the drawings represents a vertical longitudinal section of the timber-frame, and a bisection of the gears mounted centrally therein. Fig. 2 is a perspective view of the spider or bracket employed as a central support for the first three members of the series of gears in my device.

The nature and objects of my improvements are comprehended in the novel construction and arrangement of the apparatus to secure high speed in a simple, durable machine, as well as great compactness and freedom from risks on account of obstructions lodged or dropped into the teeth of the gears.

Its novel and useful features consist in, first, a central support or three-way bracket, by which the main gears are compactly brought into communication with each other, firmly held to their places and planes of duty in such manner as to impose no great stress on the bracket structure and its fastening; second, the arrangement of the larger multiplying-gears superimposedly, and the lesser multiplying-gear interposedly and horizontally between the larger, in such manner that the bracket structure may serve as an axle for the larger gears inserted loosely thereon, and as a pillow-block for the inner support of the lesser gear-shaft, and that the top, bottom, and end timbers of the power-frame may serve as external supports for the several gears.

In the description following similar letters refer to similar parts in the several views.

A A^1 A^2 is the master or driving gear, having the journal A, which is adapted at its top to receive thereon the usual cap for the insertion of the sweep-arms, in the usual manner, and, therefore, not shown. A^1 is the wheel-crown, and A^2 is a hub, into which the post or spindle B is inserted, as shown. L L′ is the major multiplying-gear, having the crown L, by which the tumbling-shaft H is rotated, which has the pinion H′ thereon communicating with crown L, and has the clevis or jaw T, as shown, by which the tumbling shafting is extended to the usual band-wheel, in the usual manner, and, therefore, not shown. L′ is a solidly-attached pinion on wheel L, and interiorly it serves as a hub or bearing for the post or spindle B^2, about which it revolves. Wheel L L′ is vertically beneath wheel A^1 A^2, and nearly the same size, and, like it, has its teeth prone or on its under side, and therefore secure against lodgment of impediments in the teeth thereof. Member C^1 C^2 D D′ is a compound gear, having the pinion C^1 and the multiplier D, as shown, on the horizontal shaft C^2 D′, which is supported at its outer end on the pedestal C, and at its inner end in the bearing B′ of the bracket structure. It is obvious this intermediate gear C^1 C^2 D D′ effects the compounding of the velocity of wheel A^1 on wheel L in a compact and efficient manner by exceedingly simple and well-sustained mountings. The mountings of my power reduce to two main parts—namely, the frame composed of the timbers G G^1 G^2 K, and the spider K′ F. These serve to confine and locate the gears, as shown. The timbers G K keep the wheels A^1 and L to their journals B and B^2, respectively, and the hubs A^2 and L′ are stopped against collapse by the body of the spider K′ F. Likewise is the member C^1 C^2 D D′ supported on timber G^1 against outward displacement, and is kept by the boss about journal D′ against the spider-head about the bearing B^1, in such manner that no inward displacement can occur. The spider K′ F, in form as shown, is attached at its foot P by bolts to the inside of the upright G^2, and its head or opposite end is supported chiefly by the gears A^1 and L, which so fill the spaces between the timbers G and K and the spider-body that it is blocked to place, the post B^2 having also a tenon, N, which enters a socket, S, in the sill K, to resist lateral displacement.

Should the wheel L, in consequence of wear or too much play about journal B^2, have a tendency to unmesh from pinion H′, a check-roller, W, may be employed, which can be

supported on the spider K′ F, in position as indicated, which will confine crown L to its place of duty.

The plan of my improved horse-power is such as to secure a highly-geared speed-generator in small compass without great weight of castings, and that will allow the ordinary travel of horses, thus furnishing a better power than those now in use, in which the horses must be overdriven, or made to travel faster than the ordinary rate at which they are driven in performing farm duty.

Having thus fully and clearly described my invention, what I regard as new and useful, and what I desire to secure by Letters Patent of the United States, is—

1. The spider or bracket structure K′ F, provided with the journals B B^2, and the bearing B^1, as a central support for the members A^1 L and C^1 C^2 D D′, its parts being constructed and arranged substantially as and for the purposes set forth.

2. The combination of the bracket structure K′ F, the multiplying members A^1 L and C^1 C^2 D D′, all arranged and supported in the frame G G^1 G^2 K, and operating to rotate the shaft H by pinion H′, substantially in the manner as and for the purpose herein set forth.

In testimony that I claim the foregoing as my invention I have hereunto set my hand in the presence of two witnesses this 22d day of April, 1875.

LEWIS STEWART.

Witnesses:

JAMES N. MAY,

THEOPHILUS WEAVER.