W. G. McCOMAS.

Horse-Power.

No. 205,563. Patented July 2, 1878.

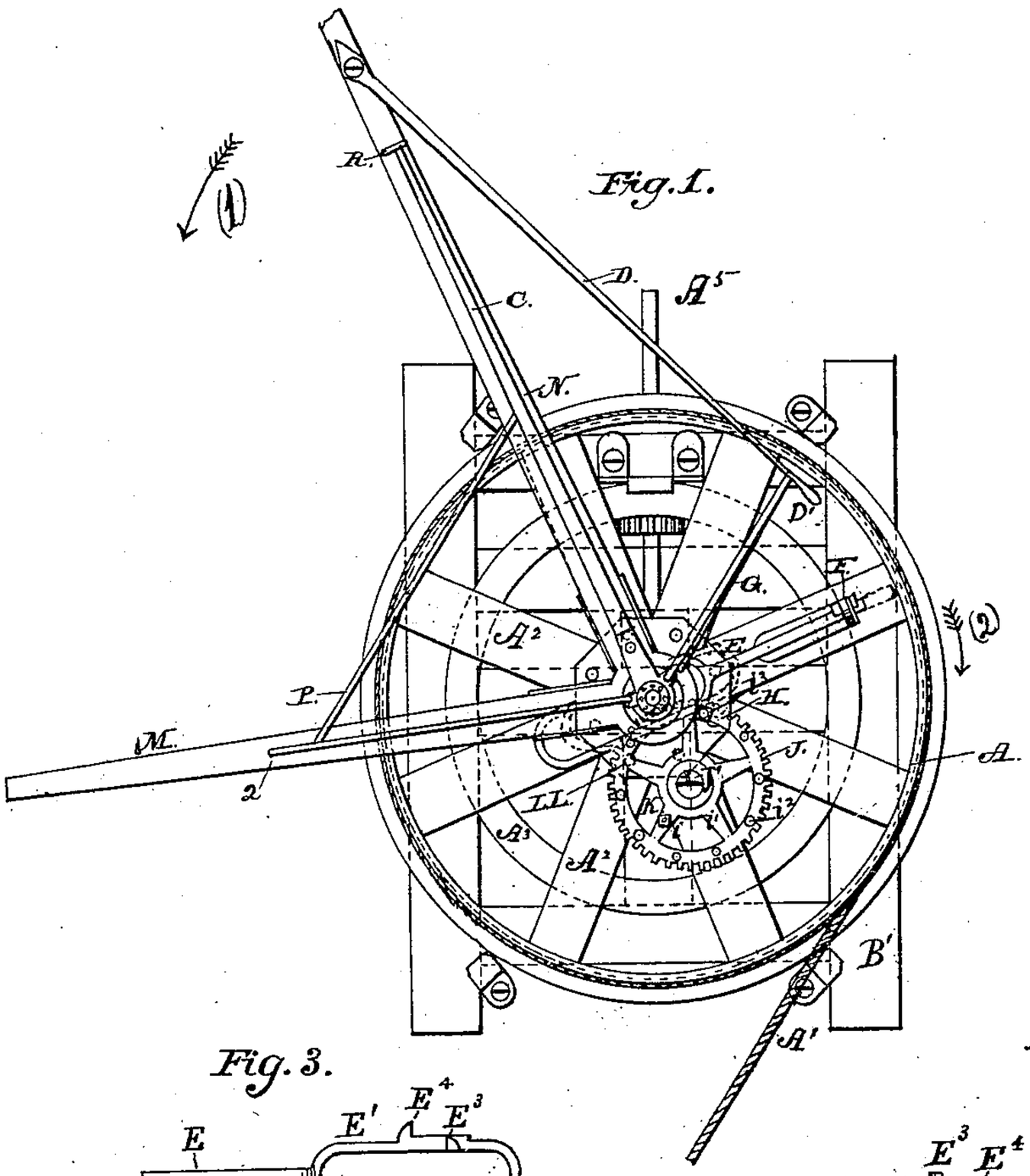


Fig. 1.

Fig. 3.

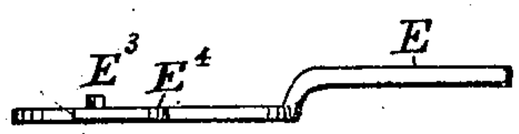
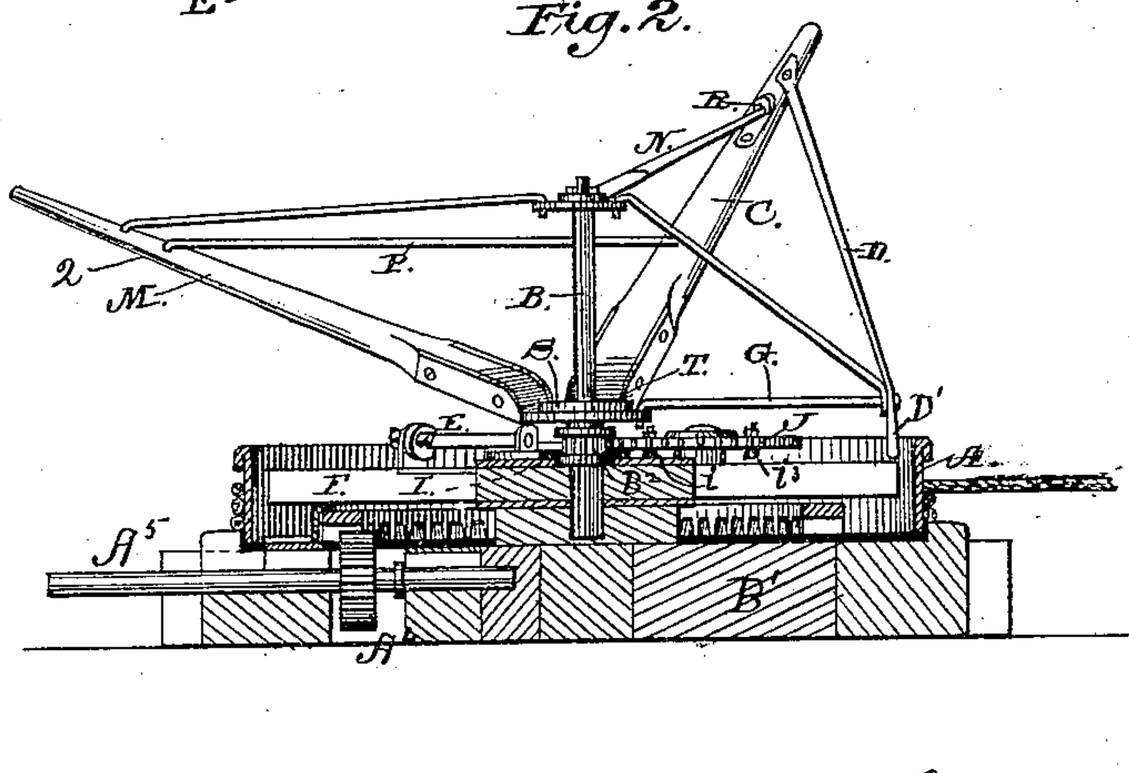


Fig. 4.

Fig. 2.



Attest:

Alex Scott

J. B. Groff.

Inventor:

Wm G McComas

R. S. & A. L. Lacey.

attorneys

UNITED STATES PATENT OFFICE.

WILLIAM G. McCOMAS, OF COLERAIN, OHIO.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **205,563,** dated July 2, 1878; application filed November 10, 1877.

To all whom it may concern:

Be it known that I, WM. G. McCOMAS, of Colerain, Belmont county, Ohio, have invented a new and Improved Horse-Power; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has for its object to furnish a horse-power by which the distance or height to which the weight is to be moved or raised can be automatically regulated; and it consists in a gear-wheel having its rim perforated with a series of holes, and provided with removable stops, and meshing with a fixed pinion or gear-wheel on the stationary center-shaft, and in a sliding bar, all arranged in combination with the drum and sweep, as hereinafter more fully set forth.

In the drawings, Figure 1 is a plan, and Fig. 2 a vertical section, of a machine constructed according to my invention; and Fig. 3 is a plan, and Fig. 4 a side elevation, of the sliding bar.

A is the drum, around which is wound the rope A^1 in hoisting the weight. It is supported in the vertical position shown by the series of spokes A^2, the inner ends of which are suitably affixed on a central hub, which turns on the central shaft B, and on its under side is affixed a master gear-wheel, A^3, which engages a pinion, A^4, on a shaft, A^5, by which machinery may be driven the same as is by ordinary horse-powers when the device is not employed for hoisting by the rope A^1. The vertical shaft B has its lower end rigidly fixed in the main framing B^1. It has formed on or affixed to it a cog-pinion, B^2, placed so that the hub of the drum A will revolve between it and the main framing B^1, as shown in Fig. 2.

C is the sweep, provided with a suitable hub or attachment, which fits and turns on the shaft B immediately above the pinion B^2. It is suitably braced to the top of the central shaft B and to the guide-sweep M, so as to give it firmness in position. The outer end of the brace-rod N is provided with a head, and slides in a bearing, R, and permits a sufficient vertical movement of the sweep to prevent unusual strain on the latter where the ground over which the horses are passing is uneven. D is the rod by which the sweep and drum are geared together. It has one end affixed to the sweep C, as shown, while its opposite end is extended to, and has formed on it, a hook, D′, arranged immediately within the rim of the drum A, as shown, and is adapted to catch on the end of the sliding bar E when the latter is pushed out to the rim of the drum. E is the sliding bar by which the machine is geared or ungeared. It has its outer end supported in a bearing, F, affixed on one of the spokes of the drum, while its other end is formed with arms or guides E^1 E^2, which slide back and forth on opposite sides of the shaft B at the lower end of the pinion B^1. It has a projection or shoulder, E^3, formed on the upper side, and a projection or shoulder, E^4, formed on the edge, of the arm or guides E^1, as shown. J is the gear-wheel by which the bar E is moved back and forth on its bearings, and by which the machine is adjusted to the height to which the weight on the end of the rope A^1 is to be elevated. It is journaled on one of the spokes, and is carried around by the revolutions of the drum. It meshes with the pinion B^2, by which it is made to turn on its axis as it is carried around the shaft B by the drum. It is provided with a stop, *i*, affixed on the under side of and intermediately between the ends of one of the spokes or arms i^1, and its rim is perforated with a series of holes, i^2, in any one of which may be placed a removable stop, i^3.

In the revolutions of the drum the stops *i* or i^3 will engage the shoulders E^3 or E^4, and cause the bar E to slide out or in, and thus put the machine in or out of gear, as I will now explain.

The horses attached to the sweep C move in the direction of the arrow 1, Fig. 1. The machinery in the drawings is represented as out of gear. When in gear the bar E will be thrown out, as indicated by dotted lines, Fig. 1. The weight on the end of the rope having been elevated to the desired height, the stop i^3 on the rim of the wheel J comes against the shoulder E^3 on the upper side of the guide E^1 and forces back the bar E till the hook D′ on the rod D is released, and the sweep C revolves

idly on the shaft B. The outer end of the rope, after the weight has been discharged, is now lowered to the ground, and as it is drawn down it causes the drum to revolve backward in the direction indicated by the arrow 2. This backward revolution causes the wheel J to revolve backward, and hinges the stop *i* against the side projection E^4 on the guide E^1, and pushes the end of the bar E outward and across the track of the hook D′, by which it is engaged at the proper time as the horses move the sweep C around.

By moving the stop i^3 to different holes in the rim of the wheel J, the automatic working of the machinery can be regulated to any given height to which it may be desired to elevate the weight.

As the stop i^3 is moved to the right away from the stop *i*, as viewed from the center of the wheel J, the height or distance to which the weight on the end of the rope is to be moved will be increased, the greatest height attainable being when the stop i^3 is placed in the last hole in the rim to the left of the stop *i*, as the latter is seen looking outward from the center J′ of the wheel J.

I do not confine myself to any particular number of cogs in the wheel J and pinion B^2, as these gears may be constructed with any desired number of cogs.

When weights are to be elevated to great heights or drawn great distances, it would be necessary to have the wheels J and B^2 constructed with a larger number of cogs than I have shown in the machine represented in the drawings.

By removing the stops *i* and i^3 from the wheel and throwing the bar out so as to engage the hook D^1, the device may be used for a continuous motion of machinery coupled with the shaft A^5. With the stops in position a direct and reverse motion may be given to the shaft A^5 and its connecting machinery, when such movements are desired.

When the power is used for raising weights to a fixed or uniform height, there is no need of having the stop removable; but it could be rigidly fixed to the rim of the wheel. But where the machine is employed to elevate weights the rim of the wheel J must be provided with a series of holes, i^2 i^2, and the stop i^3 made so that it can be removed and fixed in any given hole, for the purposes hereinbefore set forth.

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

1. The combination, with the drum A and sweep C, having hooked rod D, each turning on the central shaft B, having pinion B^2, of the gear J, provided with the stops *i* i^3 and sliding bar E, having shoulders E^3 E^4, substantially as and for the purposes set forth.

2. The wheel J, constructed with the series of holes i^2 in its rim, and provided with the fixed stop *i* and adjustable stop i^3, and meshing with a pinion, B^2, on the fixed central shaft, in combination with the bar E, constructed as described, and the operating and hoisting mechanism of the horse-power, substantially as and for the purpose set forth.

W. G. McCOMAS.

Witnesses:
THOMAS C. CONNOLLY,
HARRY W. CRAGIN.