

## Horse Power.

*Patented May 6, 1844.*



# UNITED STATES PATENT OFFICE.

A. D. CHILDS, OF ROCHESTER, NEW YORK.

## HORSE-POWER FOR DRIVING MACHINERY.

Specification of Letters Patent No. 3,572, dated May 6, 1844.

*To all whom it may concern:*

Be it known that I, A. D. CHILDS, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Horse-Powers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1, is a perspective view. Fig. 2, is a top plan with the revolving cap removed and showing the gearing; Fig. 3, a vertical section.

The construction is as follows: On a square timber frame (*a*) formed of four pieces which serve as sills, is bolted a circular ring (*b*), by a flanch (*c*) that may project out at right angles from it at its lower edge, as shown in the drawing, or inward toward the center; this ring rises perpendicular a few inches, above which there is an offset, enlarging the ring the length of a cog, which is used in the gearing, when it again rises; as clearly shown at (*b'*) Fig. 3; the height of the cog above named, where it terminates in a horizontal outward flanch (*b<sup>2</sup>*); the recess (*b'*) has teeth or cogs (*d*) projecting inward in it, the face of said cogs being flush with the inner surface of the lower, and smaller part of the ring, these cogs form an internal stationary gear, and are cast with the ring, to the lower part of which is also cast four arms (two of which are shown in Fig. 3 (*e*)) that join at the center and there support the lower end of a center shaft.

Upon the stationary ring as above described a revolving cap turns; it consists of a flat circular plate (*f*) from the center of which a short hollow truncated cone (*f'*) rises; this plate is of a diameter large enough to extend beyond the top flanch (*b<sup>2</sup>*) of the lower ring; from the periphery of the plate are three equidistant segmental projections (*f<sup>2</sup>*) that are level with the horizontal surface of said plate and having a square or conical shaped staple (*f<sup>3</sup>*) standing up on each to receive a radial lever, the inner end of which enters a hole in the truncated cone at the center; under the staples a hole is made through the plate so that in casting the mold forms its own cores, an advantage well known to practical founders; on the plate between the projections (*f<sup>2</sup>*) are semicircular hollow pieces (*f<sup>4</sup>*)

jutting upward directly over the flanch (*b<sup>2</sup>*); in these are put friction rollers (*g*) (see Fig. 3) on which the weight of the cap and its attachments rest; a flanch (*f<sup>5</sup>*) extends downward from the plate and segment projections at their outer edge, and this flanch supports a stud on which a friction roller (*h*) turns at the point just under the roller (*g*) below the flanch (*b<sup>2</sup>*), by this arrangement the cap can be turned around without rising up. At the center of the segment projections are studs (*i*) fixed into the plate (*f*) which stand out on the under side far enough for axles for the planet wheels (*k, k, k*) and their pinions (*l*) which are joined to their centers underneath them; the pinions (*l*) work into and are turned by the stationary gear around the inside of the ring (*b*) and by their attachment to the planet wheels above named cause them also to turn; the wheels extend inward to a pinion (*m*) at the center on an upright shaft (*n*) which turns on a pivot at its lower end in a step where the arms (*e*) before described meet; the upper end of the shaft is supported by a collar in the truncated cone at the center of cap (*f*); near the lower bearing of the shaft, a bevel wheel (*o*) is attached that gears into a bevel pinion (*p*) on a line shaft (*q*).

The wheels are held in their places by means of rollers (*r*), on the studs (*i*) which form a part of the cap, below or above the pinions, and bearing against a smooth part of the ring (*b*), guide the pitch of the gearing and make it run steady by keeping the cap accurately in place. Between the wheels (*k*), on the line between their centers, bosses project down from the cap; and braces, which extend from one stud (*i*) to another are bolted thereto; the braces being for the purpose of steadying the studs are connected with their lower ends. Instead of the braces above named a flat plate may extend inward from the flanch (*f<sup>5</sup>*) under the planet wheel which answers the same purpose. The construction and guidance of the above parts form an essential feature in my machine and are important to its perfect operation.

The line shaft (*q*) has a clutch box coupling so that when the machine is driven in the proper direction the shaft turns and if the driving power is suddenly stopped the machine that is driven will have freedom to run on till its momentum is checked. A universal joint also of common construction



may be also advantageously added to the shaft.

To guide the pitch of the wheels it will be obvious that friction rollers can be put  
5 into the flanch ( $f^s$ ) and bear against the outside of the stationary ring instead of those above described and lettered ( $r$ ) in drawing; this I deem substantially the same as the method shown in the drawing.

10 What I claim as my invention and desire to secure by Letters Patent is—

The method of sustaining the upper end

of the center shaft and guiding the pitch of the planet wheel pinions by means of the cap as described; which is guided by 15 rollers on the studs of the cap under the planet wheels bearing and rolling on the inner periphery of the permanent ring by means of which a stationary center is dispensed with and the wheels are protected.

A. D. CHILDS.

Witnesses:

JOHN HETZ,

J. J. GREENOUGH.