

H. B. STEVENS.

Improvement in Horse-Powers.

No. 114,874.

Fig. 1.

Patented May 16, 1871.

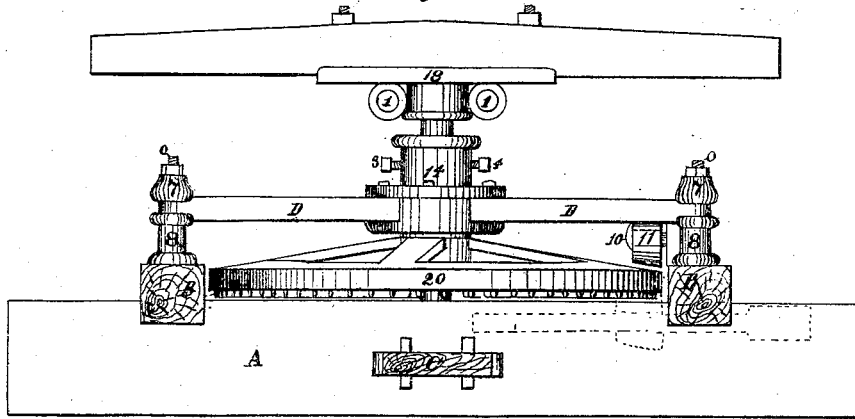


Fig. 2.

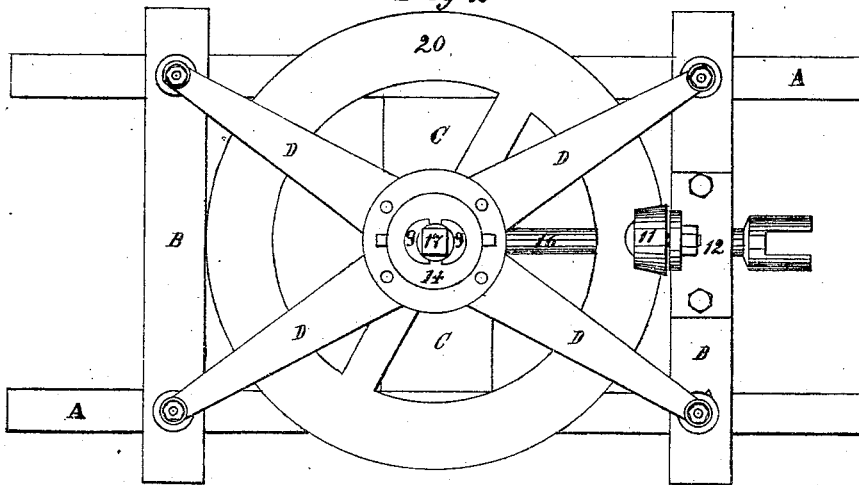
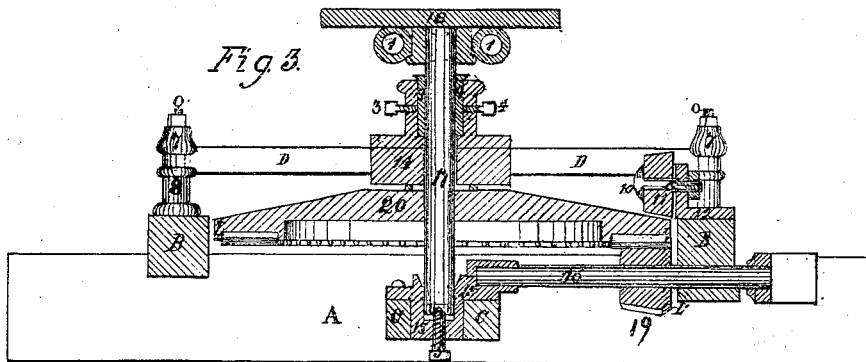


Fig. 3.



Witnesses.

*Wm. J. Coleman*  
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Inventor

HENRY B. STEVENS.

*By Daniel Breed At.*

# United States Patent Office.

HENRY B. STEVENS, OF BUFFALO, NEW YORK, ASSIGNOR TO GEORGE L. SQUIER, OF SAME PLACE.

Letters Patent No. 114,874, dated May 16, 1871.

## IMPROVEMENT IN HORSE-POWERS.

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, HENRY B. STEVENS, of the city of Buffalo, county of Erie and State of New York, have invented certain Improvements in Horse-Powers, of which the following is a specification, reference being had to the accompanying drawing and the letters of reference marked thereon.

The object of my invention is to construct a sweep horse-power which shall be more simple, efficient, and durable, than any heretofore made.

I accomplish this object, first, by building a frame with diagonal trees on a new and greatly improved plan; and, secondly, by an arrangement of the gearing, which renders the different parts capable of easy and perfect adjustment in their best working positions with regard to each other, by means of adjustable bearings, and tracks or rims, for maintaining coincidence of the pitches of the master-wheel and pinion.

In the accompanying drawing—

Figure 1 is a side view of my improved horse-power.

Figure 2 is a top view of the same.

Figure 3 is a vertical section through the center, showing the construction of the adjustable bearings.

In the construction of my improved horse-power I make a strong rectangular wooden frame by notching on the sills A the cross-pieces B.

I then construct a diagonal truss or cross-trees, D, similar to the letter X in shape, bolted to the corners of the aforesaid frame, the bolt or bolts passing through the cross-pieces and sills in such a way that if the timber shrinks, simply screwing up the nuts will render the frame tight and rigid.

Blocks or pedestals 8 may be placed between the ends of the cross-trees D and the cross-pieces B, or the cross-trees may be curved downward if necessary.

In the center of the sills is mortised and keyed a bridge-tree C, which supports the step-box 15. This step-box contains bearings for both the sweep and counter-shafts 17 and 16. These bearings, being thus cast together in one piece and properly bored, must always remain perfectly adjusted to each other.

In the bottom of the sweep-shaft bearing 15 is a set-screw, 5, by which the sweep-shaft may be raised or lowered, and between the end of this screw and the shaft is a disk of steel 6, fig. 3, which prevents the shaft from wearing away the end of the screw. The step-box rests in a mortise in the bridge-tree C, in which its position can be adjusted by wedges driven on either side.

The top of the sweep-shaft 17 is made square to receive a cap, 18, on which the sweep-bar is bolted, and it is also furnished with sockets 1, to receive lead poles.

The upper end of the sweep-shaft 17 is held by a bearing formed in the metallic hub 14 in the cross-

trees, and this bearing has loose bushings 9 adjustable by the set-screws 3 and 4, so as to compensate for all wear and tear, and also to adjust the master-wheel 20 so that its cogs shall mesh properly with the pinion 19.

To the sweep-shaft 17 is firmly keyed a heavy master crown-wheel, 20, furnished with an outer track or rim, L, which rises to the pitch circle of the teeth. This master-wheel meshes into a pinion 19, also provided with a similar track, L', rising to the pitch circle of the teeth, and as the two tracks are fitted to run in contact, or nearly so, it is plain the teeth must always mesh in their best working position.

The master-wheel is also held in position by a guide-roller, 11, resting on it.

The pin of this guide-roller is not perfectly straight, but has the end which is fixed in the guide-plate 12 a little bent downward, or turned eccentrically, as seen at K, fig. 3, so that by turning the pin, the guide-roller may be lowered as the pin wears.

By this means the master-wheel and pinion are always kept in proper contact with each other, and slipping of their cogs is prevented.

I do not, broadly, claim the cross-tree or diagonal braces, nor metallic pillars, nor adjustable metallic bushes for bearings; but I believe that the combinations and arrangements are new as above claimed, and also clear improvements in horse-powers.

Having thus described my invention,

I claim—

1. The arrangement of the main frame-timbers A, B, C, in combination with the cross-trees D, hub 14, and corner-bolts O, substantially as set forth.

2. The metallic hub 14, in combination with the adjustable bushings 9 and set-screws 3 and 4, substantially as set forth.

3. The metallic pedestals 8, bolt O, and caps 7, in combination with the cross-trees D, substantially as described.

4. The metallic step-box 15, when cast in one piece with the bearing of the counter-shaft 16, substantially as described.

5. The eccentric-pin 10, in combination with the guide-roller 11, for the purpose of adjusting the roller on the master-wheel, substantially as set forth.

6. The sweep-shaft 17, in combination with the master-wheel 20 and pinion 19, when said master-wheel and pinion are constructed with a rim or track, L and L', cast upon their peripheries, as and for the purposes described.

7. The sweep-cap 18, constructed with one or more lead-pole sockets 1, substantially as set forth.

HENRY B. STEVENS.

Witnesses:

A. L. BECK,

GEORGE SILVA, Jr.