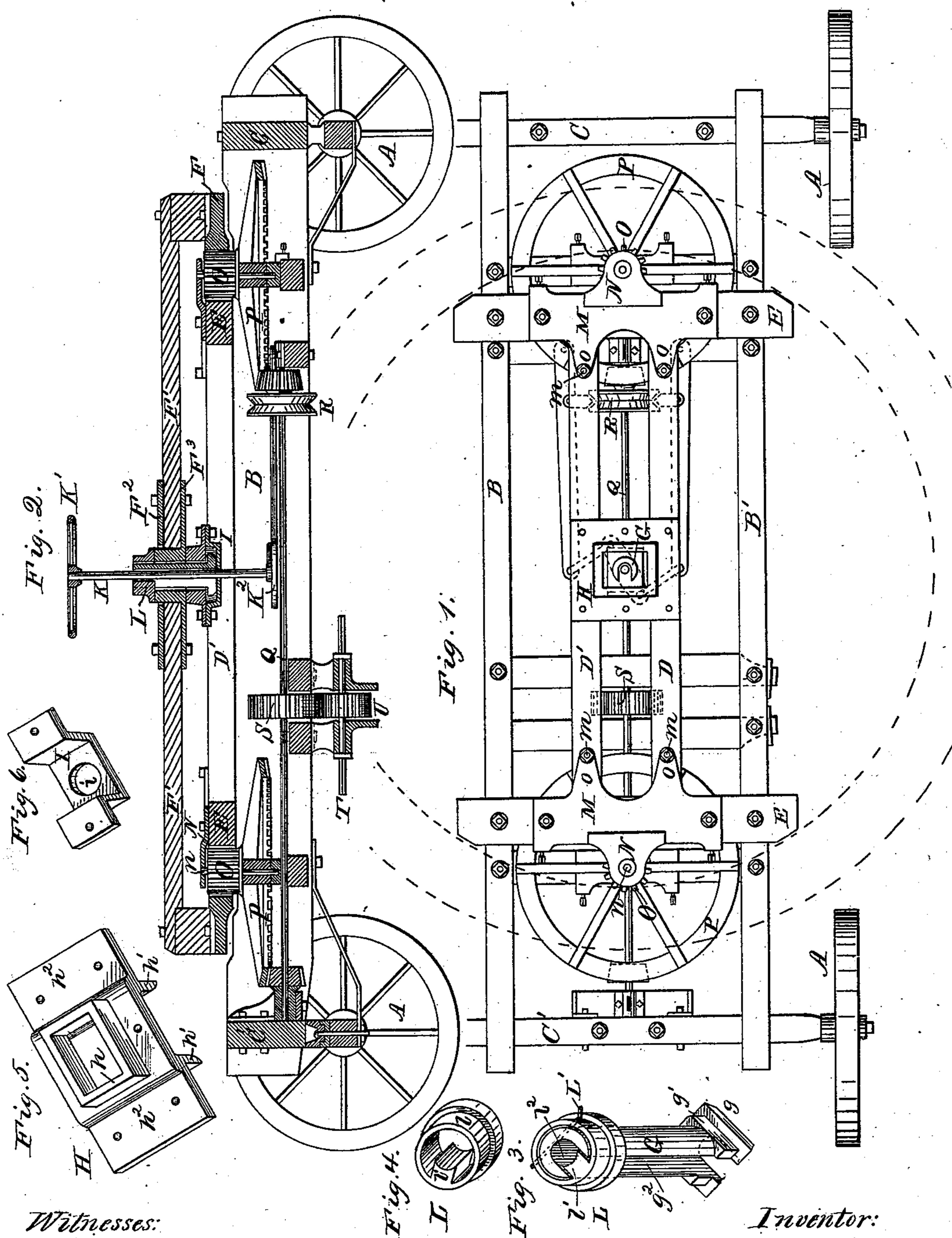


(No Model.)

J. H. ELWARD.
Horse-Power.

No. 227,745.

Patented May 18, 1880.



Witnesses:

H. H. Bliss

Inventor:

John H Edward
by H H Doubleday atty

UNITED STATES PATENT OFFICE.

JOHN H. ELWARD, OF STILLWATER, MINNESOTA.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 227,745, dated May 18, 1880.

Application filed March 30, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. ELWARD, of Stillwater, county of Washington, State of Minnesota, have invented a new and useful
5 Improvement in Horse-Powers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 is a top-plan view of a horse-power embodying my improvements, the master-wheel and two of the transporting-wheels being removed. Fig. 2 is a central longitudinal vertical section. Fig. 3 is an enlarged view
15 of the center-pin detached. Figs. 4, 5, and 6 are detailed views of various parts enlarged.

In the drawings, A A represent the transporting-wheels, upon which the horse-power is mounted.

20 The general frame-work is composed of longitudinal sills B B', the front girt, C, and rear cross-girt, C', constructed and attached together in substantially the ordinary manner. With this part of the frame-work I have combined an improved supplemental frame for the
25 purpose of immediately supporting the machinery of the horse-power. This supplemental frame is composed of two sills, D D', placed parallel with each other and longitudinally with the main frame. The parallel sills
30 D D' are at their ends attached to the cross-bars E E, supported upon the top of the main frame. The purposes for which this supplemental frame D D' E E' has been devised will be set forth hereinafter.

35 F represents the master-wheel, which is mounted and supported as follows: F' are radial arms, secured at their inner ends to an upper plate, F², and a lower plate, F³, and at
40 their outer ends attached to the master-wheel in such manner as to suspend the master-wheel from an overhanging frame composed of the parts F' F² F³.

45 G represents the center-pin, which is constructed and secured in position in the following improved manner: The central part of the pin is cylindrical, as shown in Fig. 3, and is at its lower end provided with a square or rectangular base, as shown at g. Immediately
50 above the base g a guide, g', is formed. g²

represents a longitudinal slot formed in one side of the center-pin G, and extending the full length thereof.

H is a supporting-plate for the center-pin, constructed in the form distinctly shown in
55 Fig. 5, it being cast or provided with an upwardly-extending box, h, downwardly-projecting flanges h', and laterally-projecting flanges h². This plate is placed upon the top of the parallel beams or sills D D' at their center, and
60 is secured in position by means of bolts passing through the laterally-projecting flanges h². The plate H and the sills D D' are so related that the flanges h' h' are placed in contact laterally with the edges of said sills, and serve
65 to keep them properly separated, and at the same time the bolts passing through the flanges h² serve to prevent the timbers from separating, so that together they form a frame
70 of great strength at the center of the machine. The center-pin G, when in position, passes vertically through the box part h of the plate H, and is held up in position therein by means of a bracket or depending support, I. (Shown
75 detached in Fig. 6.)

After the center-pin has been put in place, said bracket I is bolted to the plate H in the
80 space between the flanges h' h', as shown in Fig. 2, in such manner that the guide g' shall be held in place between the lateral walls of the box h. The opening in the box h is somewhat larger in diameter than the center-pin
85 G, so that the center-pin can be allowed to move laterally to accommodate itself to the movements of the master-wheel.

K represents the brake-rod of the machine, situated in the slot g² in the center-pin. It
90 extends above the center-pin sufficiently far to be provided with a hand-wheel, K', and below the pin it carries a crank-disk, K².

There is an aperture, i, in the bracket or support I, which permits the vertical brake-rod to be passed upwardly through such support. This aperture i is of a diameter somewhat longer than that of the brake-rod, so
95 that said rod can slide or oscillate laterally to accommodate the center-pin as it is moved by the master-wheel while in operation. This prevents the rod from being cramped by the plate I.

After the center-pin G has been put in place in the center of the master-wheel, and the brake-rod K has been inserted through the pin, the parts are held together by means of a cap or washer, L. (Shown detached in Fig. 4.) This cap or washer is formed with an annular band or ring, l , which fits tightly around the upper end of the center-pin, and with an upwardly-projecting lug, l' , adapted to fit in the upper part of the slot g^2 , and form at said upper end a substantially circular opening, as shown at l^2 .

The brake-rod is held in proper position at the upper end by means of this inwardly-projecting lug l' .

The cap or washer L is held in place upon the center-pin by a key or pin, L' , as shown in Fig. 3. When thus secured it operates to prevent the center of the master-wheel from rising by reason of strain from the sweeps.

Heretofore, with horse-powers as ordinarily constructed, it was necessary to lift or remove the master-wheel out of its place when it was desired to withdraw the center-pin for any purpose whatever—as, for instance, when it was broken or worn.

This displacing of the master-wheel is very disadvantageous for many reasons, among which are the facts that it takes several men to lift one of the wheels, each of which generally weighs from six hundred to seven hundred pounds; and, again, that those who generally operate the horse-powers have but limited knowledge of the proper arranging of gearing, and in replacing the wheel they often put it on improperly, so that the teeth are rapidly worn and destroyed.

By means of the improved devices which I have described the pin may be removed from the wheel without in any wise altering the position of the master-wheel itself. Thus, when it is desired to remove the pin G the bolts which hold the bracket or support I are removed, and also the cap or washer L, after withdrawing pin L' . The center-pin G will then drop downward, and can be detached from the brake-stem K by means of the slot g^2 in the side of the pin. After it is repaired it can be replaced by reversing the last-described steps, or, when desired, a new one can be inserted in its place.

By employing two parallel sills or beams, D D', for the support of the center-pin and master-wheel, I am enabled not only to make a much stronger frame-work at the center of the machine, as above described, but also to provide a means for readily withdrawing and inserting the center-pin and for supporting the same between said beams or sills D D'.

Moreover, the beams D D' provide four fastening-points for the bracket plates or frames M M, which carry the brackets N, the brackets being formed in one piece with the frames M. In these brackets N are mounted the shafts n , which carry the master-pinions O and the twin wheels P.

The bracket-plates M M are each supported at two points, $m m$, on the transverse sills E E, and at two other points on the sills D D'.

The limited fastening for these plates that has been permitted in horse-powers as heretofore constructed has caused great weakness in the frame-work at these points, and by constructing and arranging the frames and the plates as shown I am enabled to provide much greater strength and security for the mounting of the pinions and twin wheels.

I prefer to form the plates M M with inwardly-projecting arms or ears $o o$, for receiving the bolts which pass through the parallel timbers D D'.

The power is received by the shaft Q from the twin wheels P P.

R represents the brake-wheel; S, the wheel upon the power-shaft Q; T, the tumbling-rod shaft; U, the pinion on tumbling-rod shaft, all of which parts may be of any desired construction, they forming no essential part of present invention.

What I claim is—

1. In a horse-power, the combination, with the main frame B B' C C' and the master-wheel, of the parallel sills D D' and the central plate, H, bolted to the sills, substantially as set forth.

2. In a horse-power, the combination, with the main frame B B' C C' and the master-pinion O, of the parallel sills D D', cross-girt E, bracket N, and bracket-plate M, bolted to the girt E and to both sills D D'.

3. In a horse-power, the combination of the master-wheel and a laterally-moving center-pin for said wheel, of a plate which is detachably secured to the frame, and which loosely supports the lower end of the center-pin, and is arranged to be attached to and detached from the frame without moving the master-wheel, substantially as set forth.

4. The combination, with the master-wheel of a horse-power and the brake-rod passing through the center of said wheel, of a center-pin provided with a slot formed in the side of the center-pin for the reception of the brake-rod, substantially as set forth.

5. The combination, with the master-wheel F and brake-rod K, of center-pin G, slotted, as at g^2 , and the cap or washer L, substantially as set forth.

6. The combination, with the master-wheel and the plate H, provided with the box h , of the center-pin G, having the head g and guide g' , substantially as set forth.

7. The combination, with the master-wheel and the center-pin G, of the plate H and the bracket or support I, to be secured beneath the lower end of the center-pin, substantially as set forth.

8. The combination, with the master-wheel, the main frame B B' and C C', and the supplemental frame constructed with the central parallel sills, D D', of the part H, provided with the dependent flanges $h h'$, adapted to

brace the sills D D', and the lateral flanges $h^2 h^2$, to be bolted to said sills, substantially as set forth.

9. The combination of the master-wheel, the
5 sliding center-pin, the brake-rod passing through the center-pin, and the support I, having an aperture, i , for the passage of the brake-rod, substantially as set forth.

In testimony whereof I have hereunto set my hand this 16th day of March, A. D. 1880. 10

JOHN H. ELWARD.

Witnesses:

AUG. F. SANFTENBERG,
H. J. CHAMBERS.