

W. W. SMITH & J. C. RANDALL.  
Horse-Power.

No. 219,315.

Patented Sept. 2, 1879.

Fig. 1.

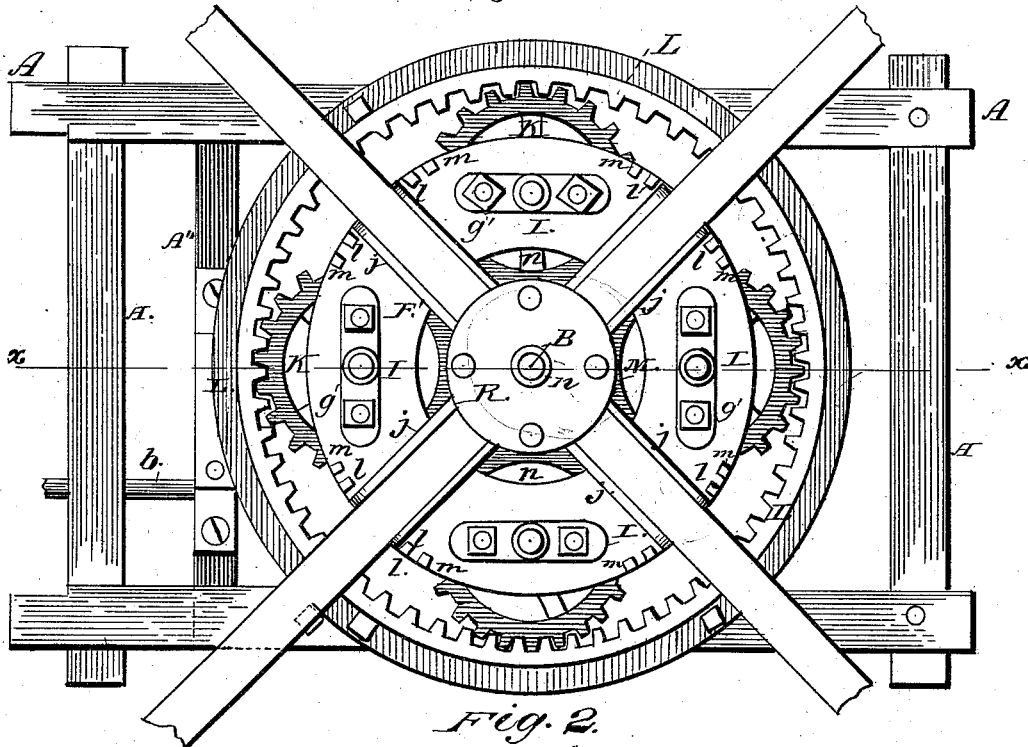
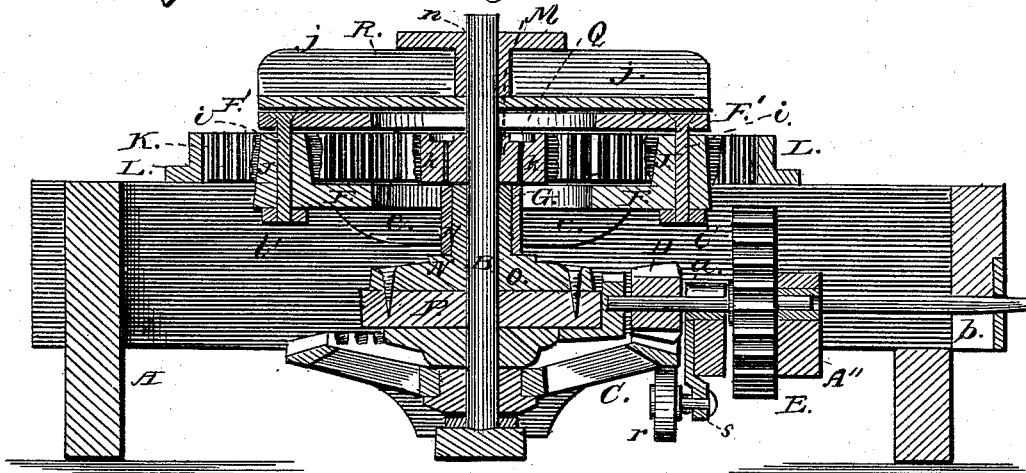


Fig. 2.



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Fig. 3.

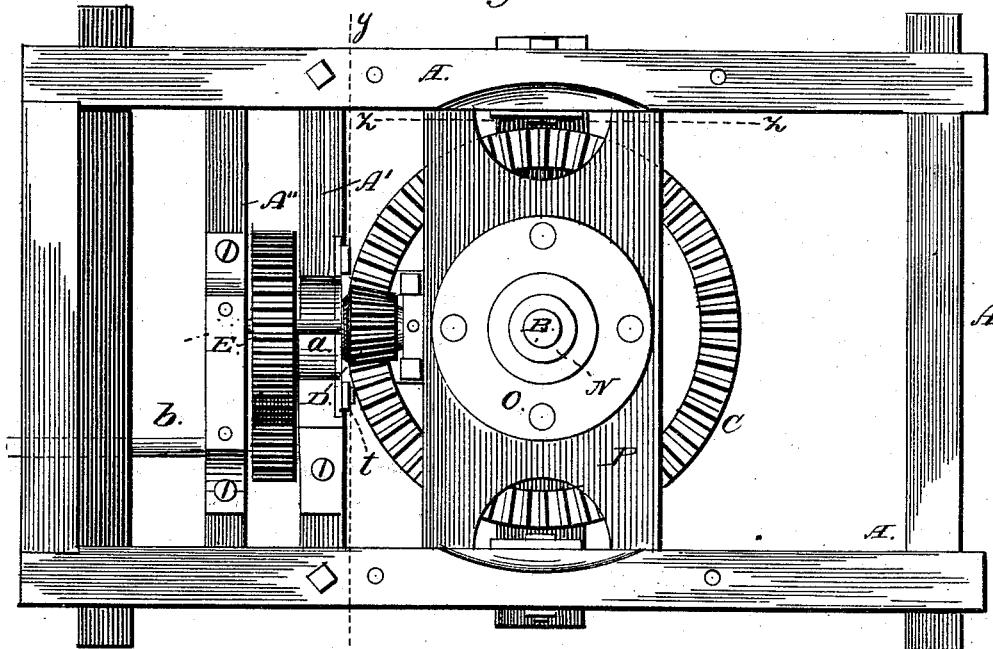


Fig. 4.

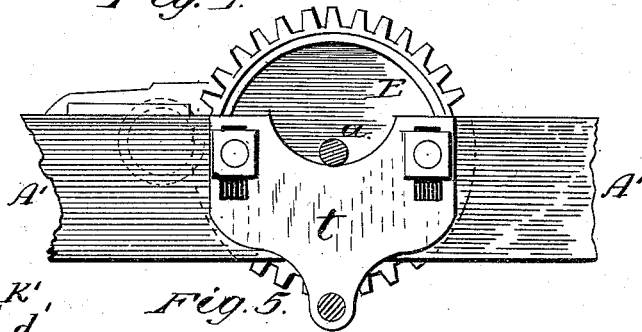


Fig. 6.

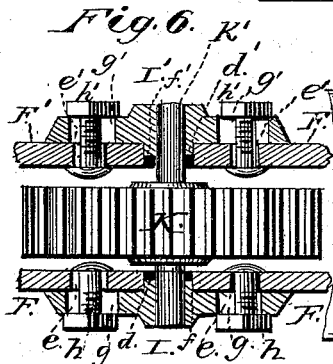
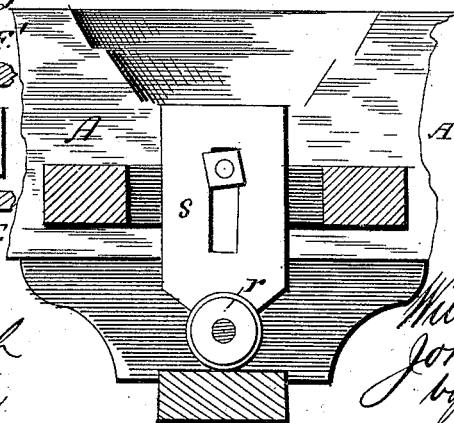


Fig. 5.



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# UNITED STATES PATENT OFFICE.

WILLIAM W. SMITH AND JOHN C. RANDALL, OF SULPHUR SPRINGS, TEXAS.

## IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **219,315**, dated September 2, 1879; application filed June 5, 1879.

### *To all whom it may concern:*

Be it known that we, WILLIAM W. SMITH and JOHN C. RANDALL, of Sulphur Springs, in the county of Hopkins and State of Texas, have invented certain new and useful Improvements in Horse-Powers; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan or top view of a horse-power embodying our improvements. Fig. 2 is a vertical sectional view of the same, taken through line *x x*, Fig. 1. Fig. 3 is a plan view of the machine with the revolving frame containing the counter-wheels and their appendages removed. Fig. 4 is a vertical sectional view, taken on line *y y*, Fig. 3. Fig. 5 is an enlarged section, taken on line *z z*, Fig. 3; and Fig. 6 is an enlarged section of the rotary frame, which contains the counter-wheels and their adjusting-boxes.

Similar letters of reference indicate corresponding parts in all the figures.

This invention has relation to horse-powers; and consists in the improvements in the construction of the same hereinafter fully described, and particularly pointed out in the claim.

In the two sheets of drawings hereto attached, A designates the frame, upon which is fixed a wheel, L, having inside teeth or gearing. A vertical shaft, B, has a gear-wheel, C, at its lower end, the smooth under side of which rests upon casters or rollers *r*, pivoted in adjustable slides *s*, which are secured upon the inner side of frame A, so that by adjusting the rollers *r* vertically all slack from wear may be taken up, and the gear-wheel C will run true in a horizontal plane, causing it at all times to mesh evenly with a bevel-gear wheel or pinion, D, upon a short vertically-adjustable shaft, *a*, the boxes *t* of which are adjustable in like manner as the slides *s*, which support the rollers *r* upon the cross-beams A' A'' of frame A, so that shaft *a*, with its pinion D, may be adjusted to correspond to the adjustment of the bevel-wheel C.

At the opposite end of shaft *a* is keyed a gear-wheel, E, which meshes with a pinion upon the barrel-wheel shaft *b*, which connects with the tumbling rods or shafts.

K are the counter-wheels, of which there are four, meshing on one side with the inside gear of the stationary wheel L, and on the other with the central crown-wheel, M, which is keyed upon shaft B. The counter-wheels K are pivoted each on a short vertical shaft, K', (see Fig. 6,) the ends of which are journaled in skeleton-boxes I' I, provided with collars *f' f*, which are adjustable in slots *d' d* in the upper and lower annular plates, F' F, which together form the counter-wheel-supporting frame.

The upper and lower boxes, I' I, may be adjusted by means of bolts *g' g*, having nuts *h' h*, which said bolts are adjustable in slots *e' e*, of which there is one on each side of the central slots, *d' d*. By this arrangement the counter-wheels may be so adjusted within their annular frame F' F as to always properly engage with the fixed wheel L as well as with the central crown-wheel, M.

The annular plates F' F are secured together by hollow posts J, rising from the lower plate, F, between the counter-wheels, through which are inserted nutted bolts *i*. Plate F has four radial arms, *c*, extending to a central thimble or hub, G, which is pivoted upon a hollow standard or sleeve, N, cast centrally upon a circular base, O, bolted upon a cross-piece, P, in the bottom part of frame A. The vertical shaft B revolves within the tubular standard N, having, as has been already set forth, the crown-wheel M keyed upon its upper end in a plane with the counter-wheels K. Crown-wheel M has an annular recess or groove, Q, in its upper face, from which a series of perforations, *k*, extend vertically through the wheel, by means of which hub G, shaft B, and its tubular post N may be lubricated without removing the crown-wheel or any other part of the mechanism.

The upper annular plate, F', is cast with studs *l m*. A lever-head, R, formed of four sockets, *j j j j*, has a central hole, *n*, which slips over the vertical shaft B, and the arms or sockets *j* rest between the studs *l l*, as shown in Fig. 1. The studs *m m* are for con-

necting the sweeps by stay-rods to the annular face-plate F'. The central vertical shaft, B, is extended above the lever-head R, in order that the crown-wheel may be removed and placed above the machinery without removing the vertical shaft.

Having thus described our improvements, we claim and desire to secure by Letters Patent of the United States—

As an improvement in horse-powers, the annular frame composed of a lower annular plate, F, having central hub, G, radiating arms *e*, hollow posts J, and slots *e d e*, and an up-

per corresponding plate, F', having studs *l m* and slots *e' d' e'*, registering with those of the plate below, substantially as herein shown and described.

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

WILLIAM W. SMITH.  
JOHN C. RANDALL.

Witnesses:

B. W. REILLY,  
JAMES M. MULLINS.