

F. B. Williams,

Horse Power.

N^o 25,155.

Patented Aug. 16, 1859.

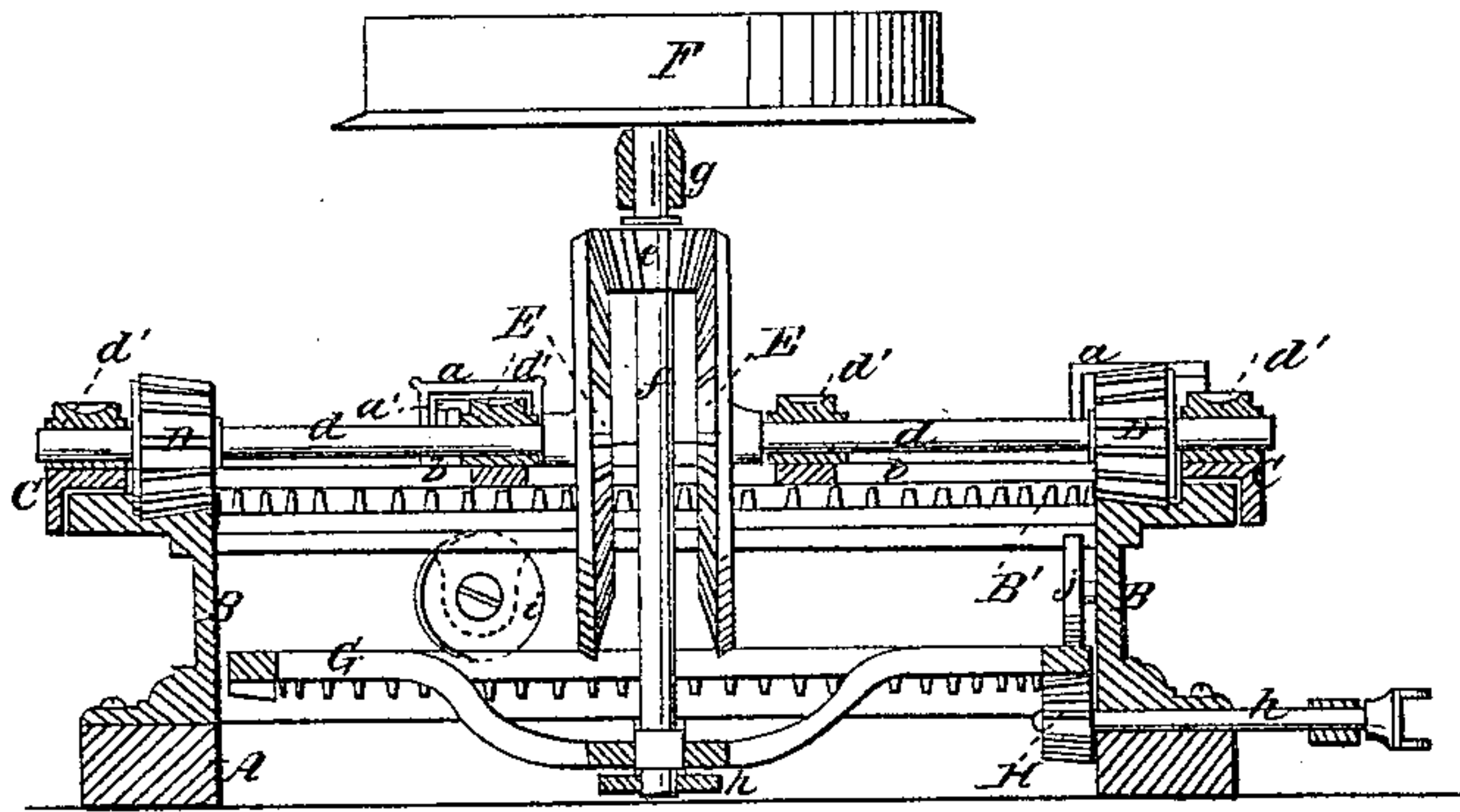
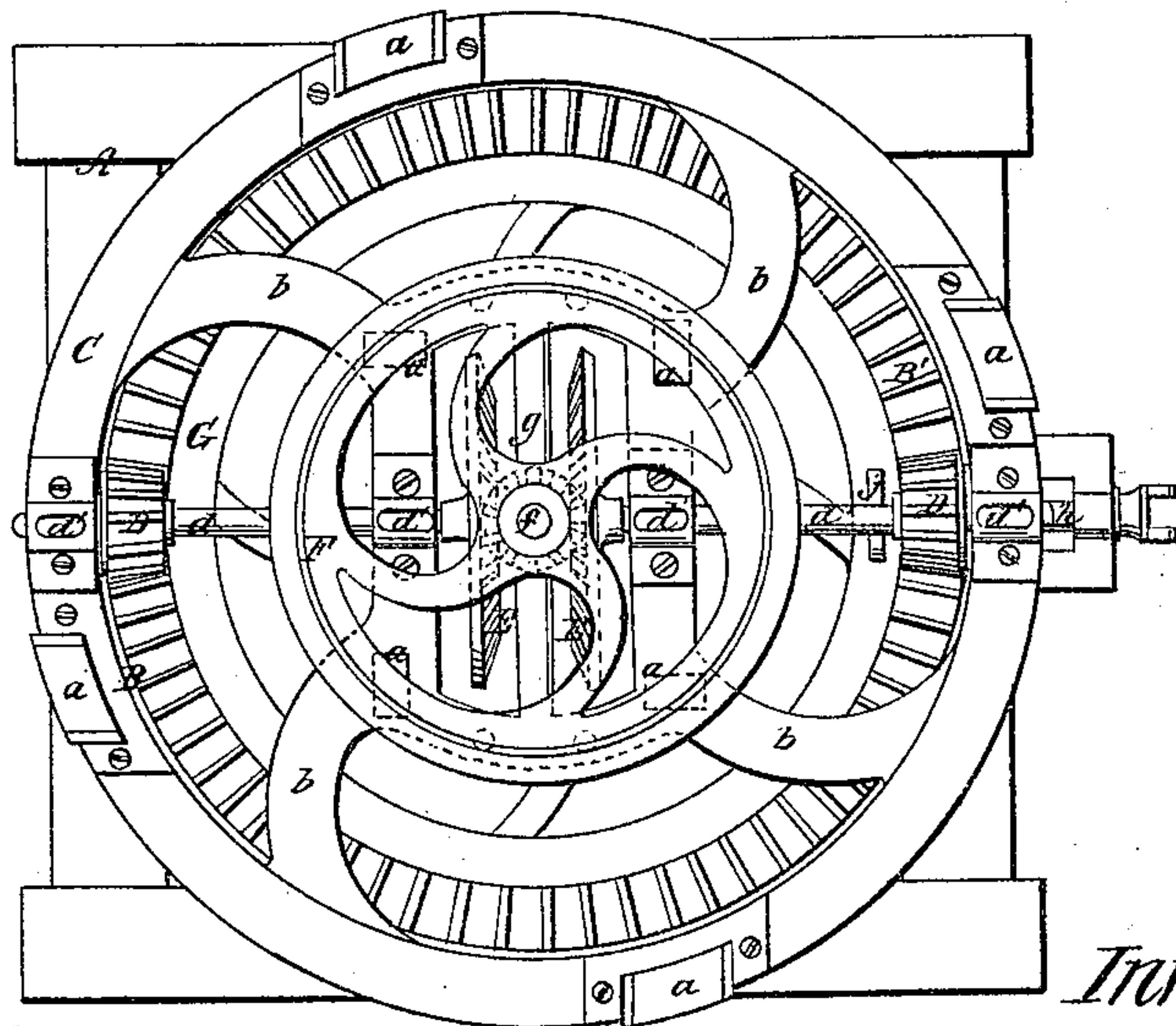


Fig. 1.

Fig. 2.



Witnesses.
E. P. Barton,
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UNITED STATES PATENT OFFICE.

F. B. WILLIAMS, OF FREEPORT, ILLINOIS.

HORSE-POWER MACHINE.

Specification of Letters Patent No. 25,155, dated August 16, 1859.

To all whom it may concern:

Be it known that I, F. B. WILLIAMS, of Freeport, in the county of Stephenson and State of Illinois, have invented a new and
5 Improved Horse-Power; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification,
10 in which—

Figure 1, is a vertical central section of my invention, and Fig. 2, is a plan or top view of ditto.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in arranging a series of bevel wheels, toothed rings, pinions, shafts and pulleys in such a manner that the greatest velocity is obtained with
20 the least amount of power and that the power may be transmitted from different places according to the required velocity.

To enable those skilled in the art to make and use my invention, I will proceed to
25 describe its construction and operation.

A suitable foundation or base A, supports a circular standard B, that forms the guide for the ring C, to which the horses are hitched. The draft poles are inserted
30 in the eyes or staples *a*, that are secured partly to the arms *b*, of the ring C, and partly to the ring C, itself.

The upper part of the circular standard B, forms a toothed rim B', and pinions D,
35 which are mounted on horizontal arbors *d*, gear into the toothed rim B'. The arbors *d*, have their bearings in journal boxes *d'*, and secured to their inner ends are two bevel wheels E, which gear into a pinion *e*,
40 that is secured on a vertical shaft *f*, which has its upper bearing in a standard *g*, which is secured to the arms *b*, and its lower bearing in the center *h*, of two arms, which emanate from the lower part of the circular
45 standard B.

A large band wheel F, is mounted on the upper end of the shaft *f*, and its lower end carries a toothed ring G, which gears into a pinion H, that is mounted on a horizontal
50 arbor *h*, which transmits motion to the working machines.

The ring C, fits loosely over the standard B, and it is kept in its place by friction rollers *i*, that are firmly secured to the outside of the ring. These rollers work against
55 the under side of the toothed rim B, so that the ring C, is left perfectly free to rotate

around the standard B, and the pinions D, are prevented coming out of gear with the toothed ring B'. Another friction roller *j*,
6 is secured to the inside of the circular standard B, close over the toothed ring G, keeping the same in gear with the pinion H, as clearly represented in Fig. 1.

The operation is as follows:—The draft
6 poles are inserted into the eyes or staples *a*, as above described and when the horses begin to travel around the common center of the ring C, and of the circular standard B, the pinions D, by gearing into the teeth on
7 the stationary rim B', assume a rotary motion which is transmitted to the vertical shaft *f*, by means of the bevel wheels E, and pinion *e*. The velocity of the arbors *d*, depends upon the velocity with which the
7 horses move, but by the ratio existing between the pinions D, and wheels E, the velocity of the vertical arbor *f*, is about four times larger than that of the arbors *d*, and a belt stretched over the band wheel F, may
8 be sufficient to transmit the motion to the working machines, when a small velocity only is required.

The motion transmitted to the vertical shaft *f*, by the bevel wheels E, and pinion *e*,
8 is also imparted to the toothed ring G, which gears into the pinion H, the diameter of which is about ten times smaller than that of the toothed ring G, so that one revolution of the vertical arbor *f*, gives ten revolutions to the horizontal arbor *h*, and one
9 revolution of the two arbors *d*, 40 revolutions to the arbor *h*, which velocity would be sufficient for most purposes. It will however be easily understood, how the ratio between the pinions D, wheels E, pinion *e*,
9 toothed ring G, and pinion H, can be changed at pleasure so as to obtain any desirable velocity of the arbor *h*.

This horse power takes up but little room
10 and it has the advantage of combining great power with great velocity.

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

The arrangement and combination of the
10 circular standard B, toothed rim B', ring C, pinions D, wheels E, pinion *e*, toothed ring G, and pinion H, to operate substantially as and for the purpose specified.

F. B. WILLIAMS.

Witnesses:

E. P. BARTON,
H. C. BURCHARD.