Sanor & Stoffer,

Horse Power.

No 52,753. Patented Feb. 20, 1866.

Fig: 1.

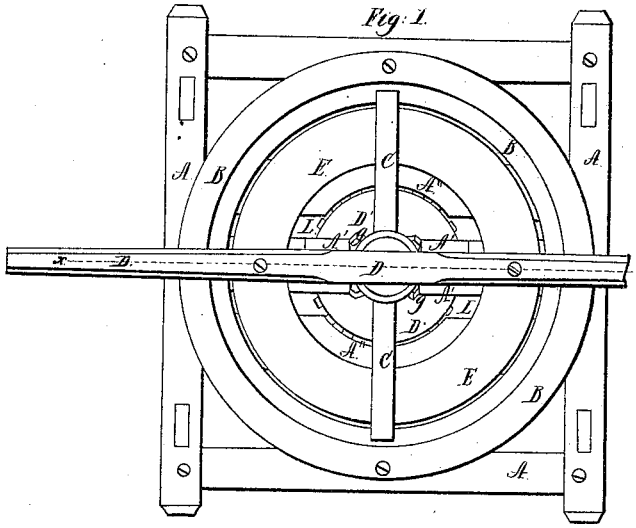


Fig: 4.

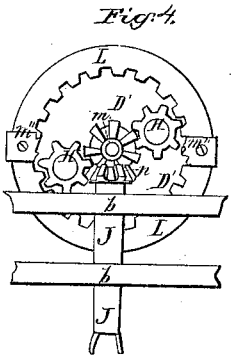


Fig: 2.

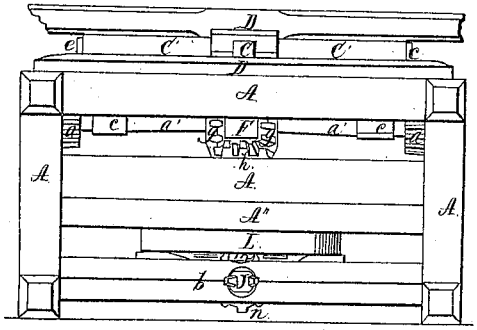
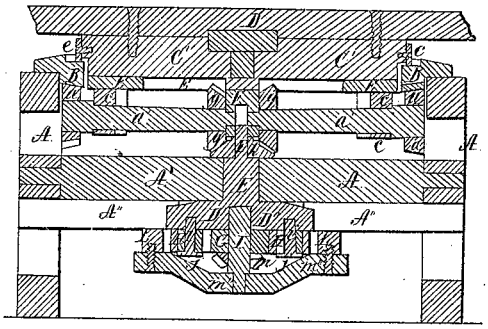


Fig: 3.



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UNITED STATES PATENT OFFICE.

G. W. SANOR, OF HANOVERTON, AND JACOB STOFFER, OF NEW CHAMBERSBURG, OHIO.

IMPROVED HORSE-POWER.

Specification forming part of Letters Patent No. **52,753**, dated February 20, 1866.

To all whom it may concern:

Be it known that we, G. W. SANOR, of Hanoverton, in the county of Columbiana and State of Ohio, and J. STOFFER, of New Chambersburg, Columbiana county, and State of Ohio, have invented certain new and useful Improvements in Horse-Powers; and we do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is plan view of the horse-power. Fig. 2 is a side view. Fig. 3 is a vertical section in the direction of the line *x x* in Fig. 1. Fig. 4 represents a detached section.

Like letters of reference refer to like parts in the several views.

Our improvement relates to constructing a horse-power so that a velocity and leverage will be gained without the usual loss produced by friction, as hereinafter described.

A represents the frame surrounding the wheels and gearing, that is of a suitable construction for this purpose. On the top of this frame is a master-wheel, B, which is stationary, being fastened to the frame.

C C′ are cross-pieces, to one of which, or the cross-piece C′, is secured a lever or sweep, D, that the driving-power is connected to. The cross-pieces are secured to a crown-wheel, E, and the ends rest and move on the inner portion of the wheel B, on the ends of one or both of which there can be friction-rollers, as seen at *e* in Figs. 2 and 3.

On the under side of the wheel B there are cogs that pinions *a* on shafts *a′* work in, whereby the pinions and shafts are revolved. The shafts of these pinions are connected to the crown-wheel E by passing through journal-boxes *c*, secured on the under side of the wheel, on opposite sides. (Seen in Figs. 2 and 3.) The inner ends of the shafts are inserted or have their bearings in a shaft, F, extending down from the cross-pieces C C′, as shown in Fig. 3, on each side of which are beveled gears or pinions *g* secured on the shafts *a′*. These gears work in a beveled gear, *h*, on the shaft E, by which it is turned. The shaft E extends through a cross-piece, A′, of the frame, and the upper end, above the pinion *h*, fits into a hole or opening in the shaft F, as represented in Fig. 3, in which it turns or has its bearing, and that forms also a bearing for the shaft F, making a mutual bearing for each.

At the lower end of the shaft E there is a disk, D′, underneath which, on opposite sides, are pinions or gears H, that turn on shafts or pins *i* secured in the disk, which have heads *j* at the lower ends, that retain the pinions up in place on the face of the disk. These pinions work in cogs round on the inner side of the stationary wheel L, secured to cross-pieces A″ of the frame. The pinions H also work in a gear, G, on a shaft, I, in the center, that extends up into a hole in the disk D′, in which it turns.

The under side of the wheel L and disk D′, with the gearing, is represented in Fig. 4. Below the pinion G there is a beveled gear, *m*, that works in a gear, *n*, on the tumbler-shaft J, which is supported in cross-pieces *b* of the frame. The lower end of the shaft I has its bearing in a bridge-tree, *m″*, attached to the wheel L.

The manner in which this horse-power as constructed operates is as follows: As the lever or sweep D is turned by the driving power it revolves the crown-wheel E, whereby the pinions *a* are turned by working in cogs in the master-wheel, which revolves the shafts *a′*, turning the gears *g*, that, working in the gear-wheel *h*, turn it, revolving the shaft E and disk D′; and as the pinions H move with the disk and work in the cogs of the wheel L they are revolved, turning the gear G with the beveled gear *m*, that, working in the gear *n*, revolves the tumbler-shaft J. By this operation there is a gain of velocity and leverage without the usual loss of power by the introduction of the pinion *a a* and H H, for the crown-wheel E, in traveling once around, causes the pinions *a* and shafts *a′* to make four and one-half revolutions, turning the gear *h* five and one-half times, and the gear *h* being on the shaft E, the disk D′ is revolved correspondingly, which turns the pinions H working in the cogs of the wheel L sixteen and one-half times, causing the pinion G to make seventeen and one-half revolutions, and this motion (seventeen and one-half) is conveyed to the tumbler-shaft J by the beveled gears *m* and *n*.

Supposing the crown-wheel to be six feet in

diameter and the gears *a a* and *h* five inches, while the crown-wheel would be making one revolution it would turn the gear *h* and disk D′ fifteen times, turning the pinions H forty-five. That would transmit sixty revolutions to the gear G and tumbler-shaft, making a gain of motion from the crown-wheel to the tumbler-shaft equal to fifty-nine in positive velocity.

What we claim as our improvement, and desire to secure by Letters Patent, is—

1. The arrangement of the crown-wheel E, master-wheel B, and shaft F, in combination with the shafts *a′* and E and pinions *a g h*, operating in the manner and for the purpose substantially as described.

2. The shaft E, having its upper journal within and operating conjointly with the shaft F, in combination with the disk D′ and shaft I, loose within said disk, arranged and operating conjointly, as and for the purpose substantially as set forth.

3. The gear-wheel L and pinions H, in combination with the disk D′, shaft I, and bevel-pinions *m n*, arranged and operating conjointly, as and for the purpose substantially as specified.

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