

S. STONER.

Horse Power.

No. 105,276.

Patented July 12, 1870.

Fig. 1.

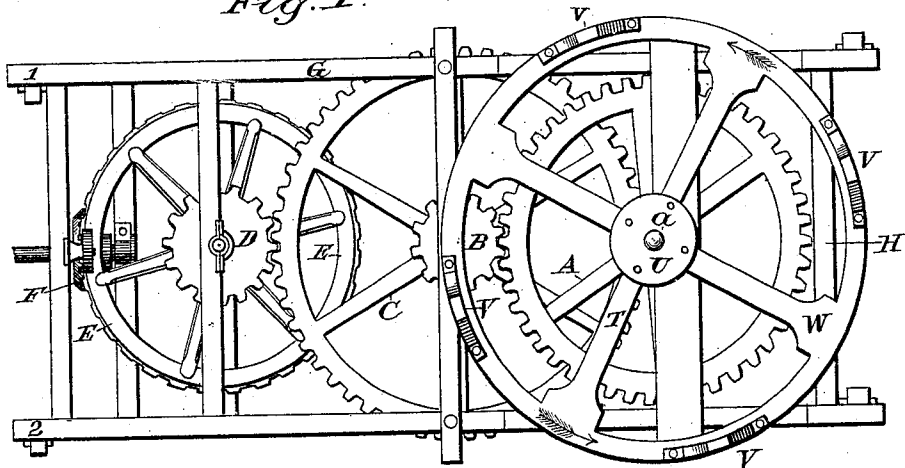


Fig. 2. V

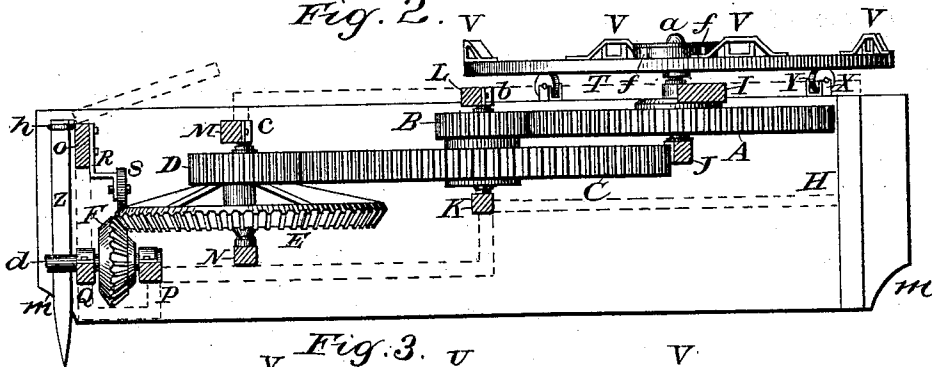
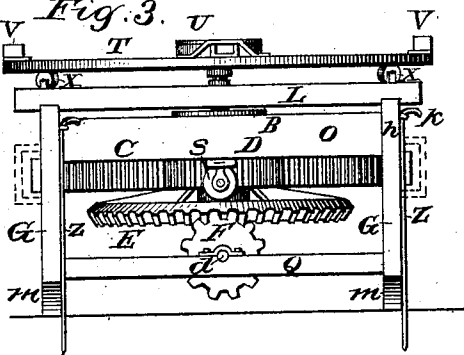


Fig. 3. V



Witnesses:

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Inventor

Solomon Stoner
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United States Patent Office.

SOLOMON STONER, OF CANTON, OHIO.

Letters Patent No. 105,276, dated July 12, 1870.

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, SOLOMON STONER, of Canton, Stark county, Ohio, have invented certain new and useful Improvements in Horse-Powers; and that the following is a full, clear, and exact description thereof.

Nature and Objects of my Invention.

My invention relates to the arrangement of a series of iron stakes in staples at the four corners of the frame, whereby I obtain a very cheap and simple means of staking the power to the ground, in such a manner as to secure it firmly in position and prevent it from being racked out of shape while in operation, but still preserve such an arrangement that the power can readily be taken up and moved, whenever it is found desirable.

Description of Accompanying Drawing.

Figure 1 is a plan of a horse-power embodying my invention.

Figure 2 is a side view of the same, with one side piece removed.

Figure 3 is an end view of the same.

General Description.

The horse-power frame consists of the broad side pieces G G, which are made of broad plank of a suitable thickness, and which are set up edgewise and parallel to each other, and are rigidly secured to the end piece H, which is made of plank of the same width as the side pieces G G.

The ends of the piece H may be mortised and tenoned into the side pieces G G, or grooves can be cut in said side pieces, to admit the ends of the piece H, to which the side pieces may be clamped by suitable bolts or screws, or other suitable modes of attachment which will as effectually prevent the vertical movement of one side piece independently of the other, without a torsional strain on the end piece, may be adopted.

The cross-pieces I and L are secured on the side pieces G G, as shown, and the cross-pieces J K M N O P Q are mortised in between said side pieces, and the gear-shafts *a*, *b*, *c*, and *d* are secured in suitable boxes on said cross-pieces, as shown.

The first spur-gear wheel A is secured on the shaft *a* and meshes into the first spur-pinion B, on the shaft *b*, on which is also secured the second spur-wheel C, which meshes into the second spur-pinion D, on the shaft *c*, on which is also secured the bevel-wheel E, which meshes into the bevel-pinion F, on the driving-shaft *d*, from which the power is applied to the particular purpose required.

From this description it is seen that the "speeding up" of the machine is mainly effected by the double

set of horizontal spur-wheels and pinions, and it is also seen that a slight horizontal twisting of the frame would not seriously affect the running of such gear, as it would simply make the teeth of the gear interlock more or less deeply with each other, while, if the frame were twisted vertically, as, for example, if the corner 1 were raised above the level of the corner 2, (see fig. 1,) the gear-teeth would be twisted to an angle with each other, and hence would cut and bind into each other, and thus affect the running of the machine.

For this reason I have changed the construction of the frame for such gear, and instead of making the frame of two horizontal top and bottom pieces united by vertical posts, as in former constructions, in which horizontal rigidity in the frame was the result to be attained, I put the body of the material into the three pieces G H G, and secure them so firmly together that no change in the relative heights of the corners 1 and 2 can be effected without twisting the end piece H, which is sufficiently heavy to resist such torsional strain, thus disposing the material in such a manner as to most effectually resist that vertical twisting of the frame which would most affect the running of the gear.

Where it is desired to increase the gearing, in order to protect it from moisture and dirt, as well as to prevent the danger of injury to the driver or horses, by accidentally falling or stepping into the gearing, a tight board covering can readily be introduced onto and between the frame-pieces G G, as indicated by dotted lines in fig. 2, a hinged cover being arranged at the driving-shaft end, in order to give ready access to the bevel-wheel and pinion shafting, which require frequent oiling and cleaning.

The bevel-wheel E being driven at a great velocity, it is evident that a slight twisting of the same would cause a violent beating of the bevel-teeth on the teeth of the bevel-pinion, which would soon destroy both the wheel and pinion.

In order to steady the movement of the wheel E, and thus preserve an even mesh with the pinion F, I mount the roller-wheel S on a pivot on the standard R on the frame-piece O, in such a position as to allow it to run on the upper edge of the wheel E, as shown, by which said wheel is prevented from vibrating to and from the pinion F, during its rotation, as is readily seen.

The lever-wheel T consists of the rim W, which runs on rollers X X, arranged on standards Y on the frame G H G, and which is united by suitable spokes with the hub U, which is secured on the shaft *a* of the first gear-wheel A.

The levers to which the horses are attached are inserted through the holes *e* in the brackets V, on the rim W, into the holes *f* in the hub U, thus completing

the mechanism by which the power of the horses is applied to the gearing, without interfering with the frame or casing for the gear.

In order to fasten the power to the ground at any desired point, the staples *h h h h* are inserted in the side pieces *G G*, at the four corners of the frame, as shown in fig. 1, and in them are inserted the stakes *Z*, which are made with a head, *k*, at one side, as shown.

The rotation of the lever-wheel *L* being in the direction indicated by arrows, it is evident that the tendency is to cause the frame to rotate in the same direction; hence the stakes *Z Z* are placed on the faces of the pieces *G G* opposite to the direction of this rotation, and are driven into the ground until the heads *k* are brought down on the staples *h*, when it is seen, that, as the stakes *Z* rest squarely against the pieces *G G*, and are held to said pieces by the staples *h* at their upper ends, no movement of the power can take place without the forcing of the stakes *Z* broadside through the ground, which would be very unlikely to occur in practice.

By placing a crow-bar under the notches *m* in the pieces *G G*, the corners of the frame, and, consequent-

ly, the stakes *Z*, can readily be started up when desired.

I do not claim the use of securing-stakes for fastening the horse-power to the ground, except when constructed and arranged on the frame, as shown.

Claim.

What I claim as new, and desire to secure by Letters Patent, is—

The iron stakes *Z Z Z Z*, with heads *k* thereon, arranged in the staples *h* and against the sides of the side pieces *G G*, opposite to the direction of the propelling-power, as applied to the lever-wheel *T*, said side pieces *G G* having the lifting-notches *m* cut in their lower corners, substantially as and for the purpose specified.

As evidence of the foregoing, witness my hand this 5th day of May, A. D. 1870.

SOLOMON STONER.

Witnesses:

JOB ABBOTT,
ANDREW CHOFFIN.