

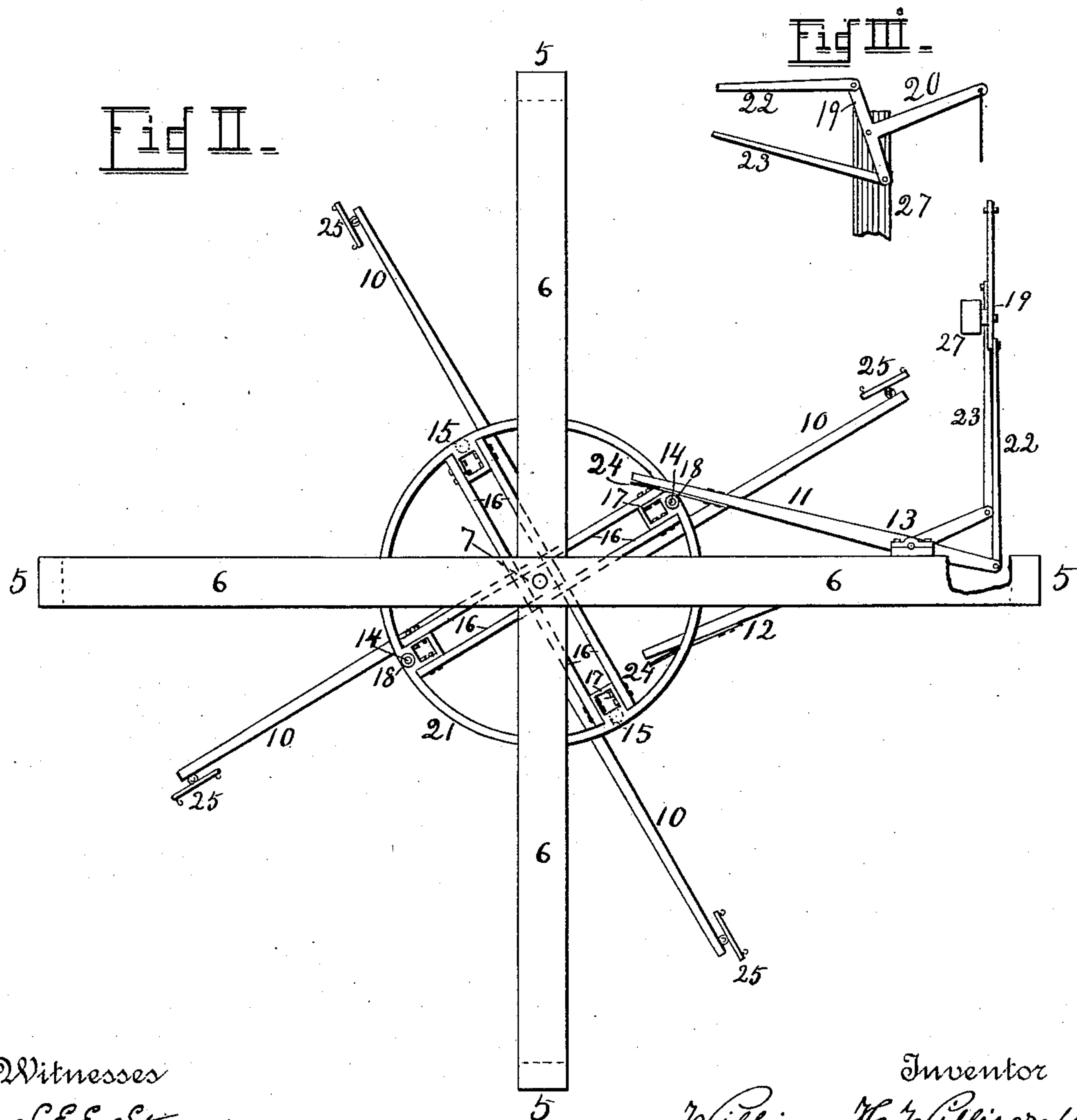
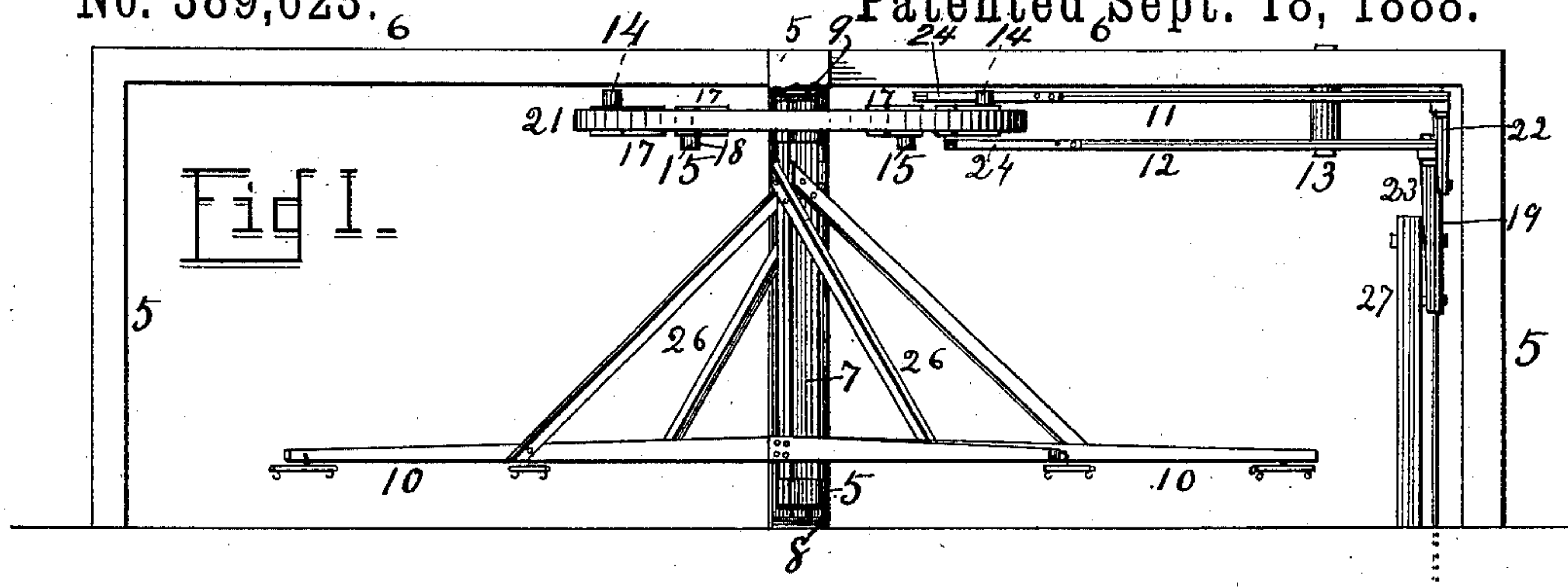
(No Model.)

W. H. WILLISCRAFT.

HORSE POWER MACHINE.

No. 389,623.

Patented Sept. 18, 1888.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM H. WILLISCRAFT, OF JUNIPER, ARIZONA TERRITORY.

HORSE-POWER MACHINE.

SPECIFICATION forming part of Letters Patent No. 389,623, dated September 18, 1888.

Application filed May 18, 1888. Serial No. 274,266. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WILLISCRAFT, a citizen of the United States, residing at Juniper, in the county of Yavapai, Arizona Territory, have invented certain new and useful Improvements in Horse-Power Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that kind of machines whereby the movement of a horse in traveling may be transmitted to other machinery, and called "horse-powers."

The object of the invention is to convert a continuous circular motion produced by one or more horses traveling in a ring into reciprocating motion suitable for acting directly upon pumps, hammers, pile-drivers, saws, &c.

To this end my invention consists in the construction and combination of parts forming a horse-power machine, hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I is an elevation of a horse-power machine according to my invention, a portion of the nearest post being left out to expose parts to the rear thereof. Fig. II is a plan of the same, and Fig. III a detail in side elevation.

The frame consists of four posts, 5, rigidly fixed in the ground to support the cross-beams 6.

7 is the main shaft, pivoted at its lower end in a step-block, 8, and pivoted at its upper end in a bearing, 9, fixed to the center of the cross-beam 6.

10 represents a series of radial arms rigidly fixed at one end of each to the shaft 7, and provided at the other end with suitable means—such as the singletree 25—for attaching a team of one or more horses or mules to pull sidewise on the arms and to travel in a circle around the central shaft, 7, thereby revolving the shaft horizontally. There may be two, four, or any other number of the arms 10 required to attach the desired number of horses, and braces 26 may further connect the said arms 10 with the central shaft, 7.

11 represents one lever and 12 the other, pivoted somewhere midway, as at 13, to some

fixed object—such as the cross-beam 6—to swing in horizontal planes.

14 represents an upper series of pins in the plane of the lever 11, and 15 the lower series of pins in the plane of the lever 12, each series of pins being fixed in a circle around the central shaft, 7, to be revolved therewith, and the pins of one series alternating with the pins of the other series. In order to thus fix these pins, any suitable frame-work connecting them with the shaft may be used. I have here shown four pairs of wheel-arms, 16, securely bolted to the four sides of the shaft, each pair carrying an iron lodge, 17, to support one of the pins. The pins may be provided each with an anti-friction roller, 18. When the central shaft is revolved, the pins or rollers of the upper series come successively in contact with the lever 11, each one carrying the lever forward, and the pins or rollers of the lower series operate in a similar manner upon the lever 12, or some equivalent thereof, whereby the forward movement of either returns the other. At the instant when one pin is leaving its engagement with a lever the following pin of the other series has just engaged the other lever, and the machine runs without shock or jar. Thus an alternating motion is produced which may be applied in the direction of the original horizontal plane of the levers 11 and 12 for any mechanical purpose suited to that movement—such as sawing logs, wood, and stone, planing stone, iron, &c.; or it may be diverted to other directions by common elbow or T-shaped levers—such as the lever 20—which would be suitable for running either shallow or deep pumps and for a great variety of work requiring a vertically-reciprocating motion.

The arms 16 may be surrounded by a wheel-rim, 21, adapted for the direct transmission of circular motion to other machinery, and it is evident that the pins 14 15 may be as well attached to the upper and lower edges of the rim 21 of the wheel as to the arms 16.

24 represents a spring fixed as a shoe on each lever 11 and 12, to receive the impact of the pins or rollers and prevent wearing the levers. Each of these shoes springs back from the lever toward the coming roller, thus offering a yielding resistance, whereby the impact

will be rendered gradually and all concussion and shock avoided. The lever 11 is connected by a rod, 22, with one arm of the reversing-lever 19, and the lever 12 is connected by a rod, 23, with the other arm of the reversing-lever 19, and in the present case the lever 19 is shown as the cross-arm of the T-shaped lever 20, which is pivoted upon a stationary post, 27.

It is unnecessary and practically impossible for me to name the great variety of purposes to which my horse-power may be economically applied. Its effective directness of action, its simplicity, and its cheapness recommend it.

Having thus fully described my invention, what I desire to secure by Letters Patent is the following:

1. The combination, in a horse-power machine, of the posts 5, the cross-beam 6, the step-block 8, the vertical shaft 7, pivoted between the step-block and cross-beam, the radial arms 10, secured at one end to the said shaft, the wheel having arms 16, the pins 14 and 15, two levers, 11 and 12, pivoted to a fixed support and adapted to be engaged by the said pins alternately, and a reversing-lever, 19, connected with the levers 11 and 12, substantially as shown and described.

2. The combination, in a horse-power machine, of a vertically-journaled shaft, a wheel fixed horizontally thereon, one series of pins fixed to the wheel to project upward and an-

other series of pins fixed to the same wheel alternating circumferentially with the pins of the first series and projecting downward, two levers vertically pivoted on a fixed support, with one end of each lever in the path of one of the said series of pins, and a reversing-lever connected with the said two levers, substantially as shown and described.

3. The combination, in a horse-power machine, of a vertically-journaled wheel provided with pins at intervals on its circumference, two levers pivoted on a fixed support and adapted to be engaged alternately by the said pins, and a reversing-lever for connecting the two levers together, whereby the forward movement of each lever causes the return movement of the other, substantially as shown and described.

4. The combination, with the levers 11 and 12, of shoes 24, consisting of springs secured at one end of each to one of the levers and free at the other end to spring away from the lever, and a wheel having a series of pins or rollers mounted to revolve and to engage the said shoes, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. WILLISCRAFT.

Witnesses:

WM. H. MCGREW,

O. LINCOLN.