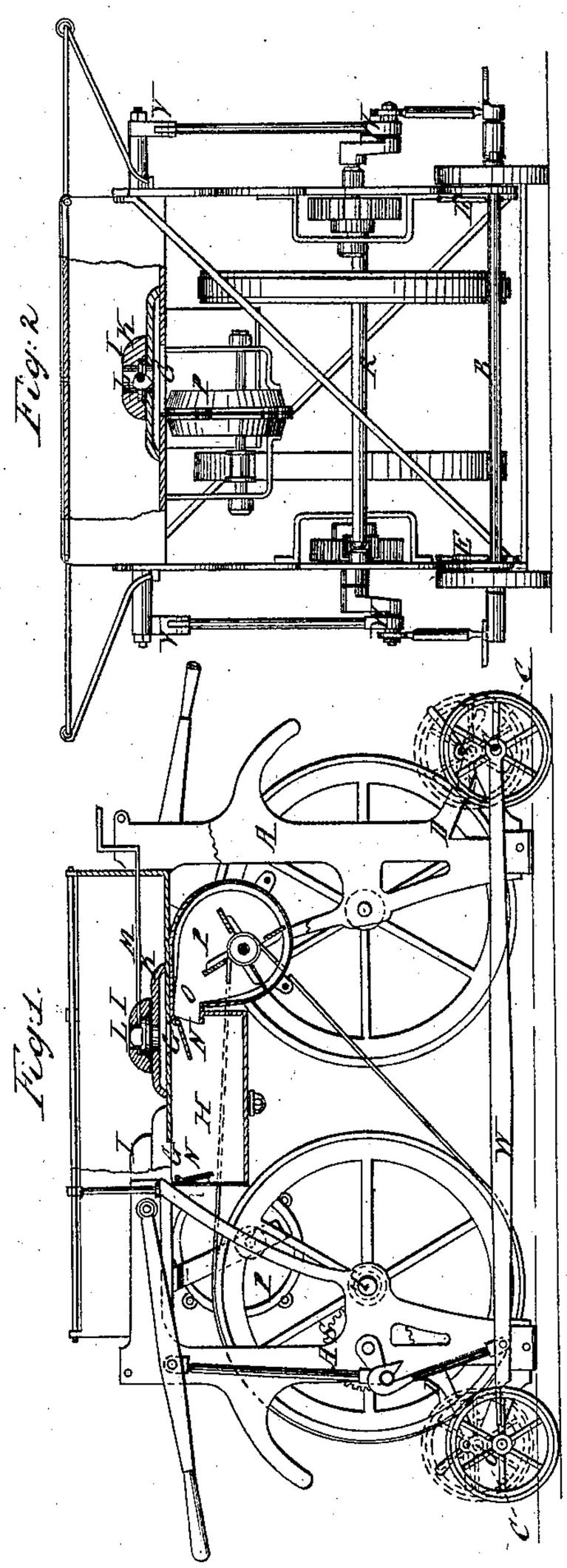
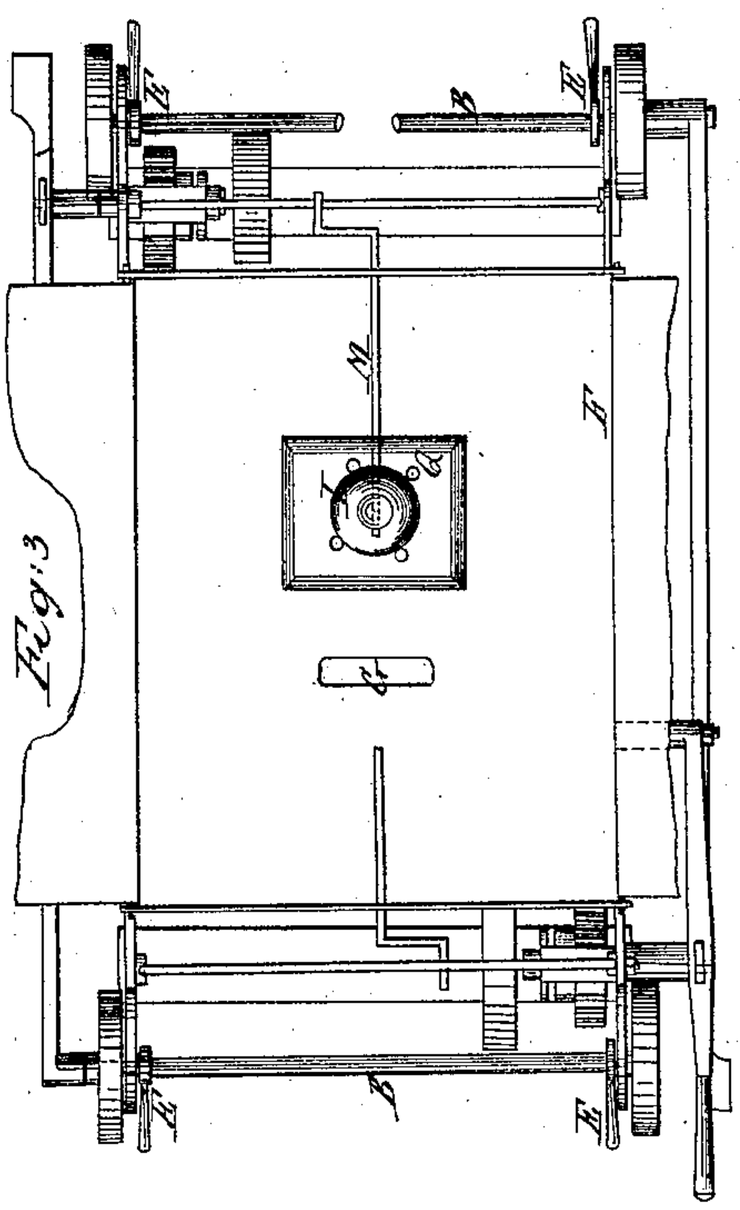
G. Campbell.

Forging Metals.

No. 100,975. Patented Mar. 22, 1870.





Witnesses
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United States Patent Office.

GEORGE CAMPBELL, OF NORTH BUFFALO, NEW YORK.

Letters Patent No. 100,975, *dated March* 22, 1870; *antedated March* 11, 1870.

IMPROVED FORGE.

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, GEORGE CAMPBELL, of North Buffalo, in the county of Erie and State of New York, have invented a new and improved Forge; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

This invention relates to improvements in blacksmiths' forges, having for its object to provide an improved arrangement of means whereby the supporting-frame of a portable forge may be readily transferred from the wheels on which it is moved to the ground, and *vice versa*.

Also, certain improvements in the tweer-irons and valves, for varying the position and form of the fire; and

Also, certain improvements in an air-receiver, common to two fans and fires, for automatically controlling the blast, whether one or both fans are used.

Figure 1 represents a side elevation of my improved apparatus, with a part sectioned;

Figure 2 represents an end elevation, also partly sectioned; and

Figure 3 represents a plan view.

Similar letters of reference indicate corresponding parts.

A represents the frame, which is supported on the axle B of small wheels, for moving it from place to place.

The axles B pass through vertical slots C in brackets D, projecting from the posts at each end of the frame.

Above these slots, dogs E, having handles, are pivoted in such a way that when the frame is raised up, to bring the shafts or axles to the bottom of the slots, they will engage the tops of the axles and suspend the frame above the ground thereon. To let the frame down to rest on the ground these dogs are disengaged from the axles.

F represents the fire-box, wherein, through the bottom, I make two air-passages, G, leading from an air-receiving chamber, H, below, for two fires.

I represents the tweers, having circular orifices enlarged at the bottom, and resting on valves, K, similar in form to the slide-valves of a steam-engine; through these the blast rises.

The tweers are provided with valves, L, representing in form a sector of a sphere, and pivoted to turning rods M in the angle of the radial lines.

The air-receiver H is provided with valves N, covering the supply-passages O, from the fans P. These valves open inward, and will both be open when both fans are operating, but when only one is working the valve of the other will be closed, so as to prevent the escape of the air through the fan not operating.

The shape of the fire may be changed to a circular form by adjusting the base of the valves L upward, when the air will pass all around them. When adjusted to the position represented in fig. 2, the fire will take the form of the opening between the vertex of the angle of the valve and the side of the circular orifice through the tweer; and the fire of this form may be changed to the opposite side of the said orifice by reversing the position of the valve. When the base of the valve is turned downward the orifice will be closed, by the said base fitting at the top of the orifice through the sliding valves K, which is intended to be such as to stop the blast.

By means of the sliding valves K, the two fires may be brought toward or from each other, and by moving the slide-valves K, so that the orifices through them will not coincide with the orifices G through the fire-box, the air will strike the under surface of the said valves, and become thereby considerably heated before contact with the fire. The enlarged recesses in the bottoms of the tweers also tend to increase the temperature of the air. It is also warmed to a considerable extent in the receiver H below.

The tweers rest on the top of the valves K, and are prevented from changing position on them by the pins Q rising up from the faces of the said valves; and, by means of these pins and the rods M, the said valves are moved around on the bottom of the fire-box.

The moving of the valves and tweers in this way breaks up and facilitates the removal of the cinder and slag.

Both fires may be blown by one fan, which will be sufficient for small work.

For operating the fans, I provide the crank-shafts R, multiplying-wheels T, and large belt-wheels U, which are also balance-wheels, and to the wrist-pins of these cranks I connect both hand-levers V and foot-levers W, so arranged that the operator may work with hand and foot at the same time.

Having thus described my invention,

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

1. The combination of the frame A having the slots C', the axles B and wheels thereon, and the dogs E, when all arranged substantially as specified.

2. The arrangement with the passages O from two fans, of the receiver H and valves N, substantially as specified.

3. The combination with the perforated fire-box and the tweers I, of the sliding valves K, substantially as specified.

4. The combination with the tweers I, of the valves L, when shaped substantially as specified.

GEORGE CAMPBELL.

Witnesses:

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