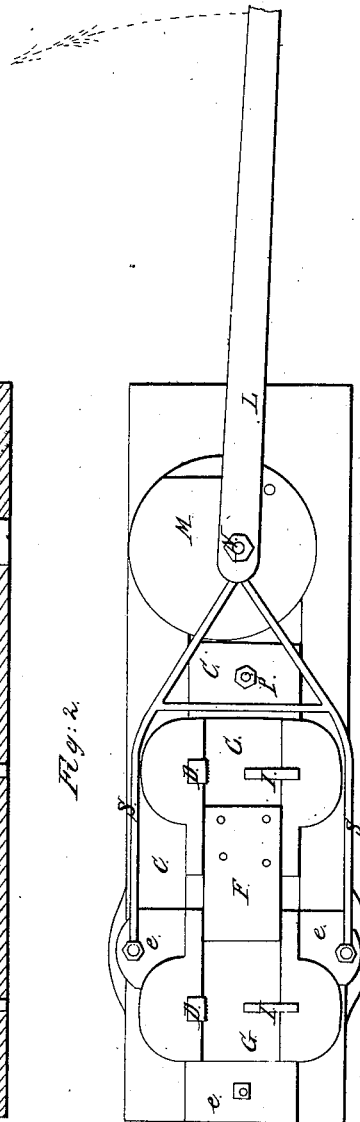
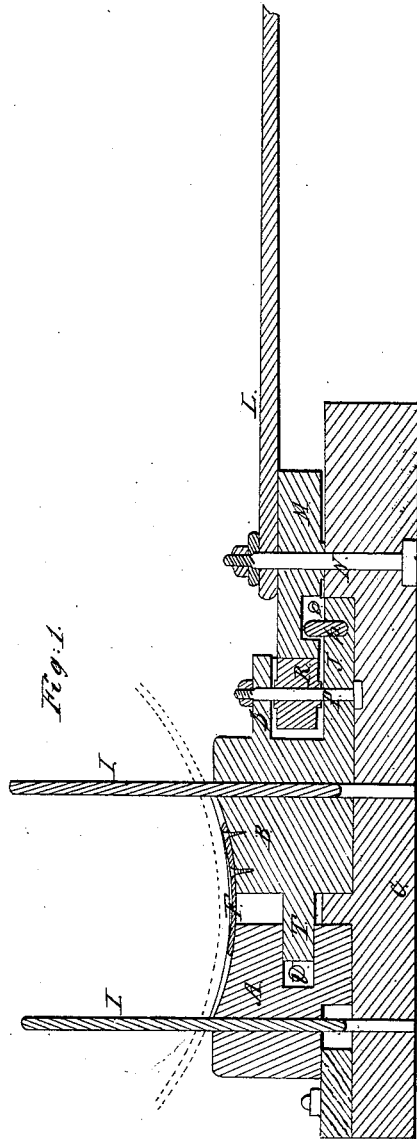


H. L. Howard.

Upsetting Tires.

N^o 51,456.

Patented Dec. 12, 1865.



Witnesses;

*Otto L. Johnson,
George Johnson.*

Inventor;

Hiram L. Howard.

UNITED STATES PATENT OFFICE.

HIRAM L. HOWARD, OF MENDON, MICHIGAN.

TIRE-UPSETTING MACHINE.

Specification forming part of Letters Patent No. 51,456, dated December 12, 1865.

To all whom it may concern:

Be it known that I, HIRAM L. HOWARD, of the village of Mendon, in the county of St. Joseph and State of Michigan, have invented a new and useful Improvement in Tire-Upsetting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section; Fig. 2, a plan or top view of the machine.

Similar letters of reference indicate corresponding parts in both figures.

My invention consists of a peculiar arrangement of the clamping and upsetting jaws in relation to each other and to the operating device, by which important advantages are obtained in this class of machines, to be more fully explained hereinafter; and the better to enable others skilled in the art to construct and use my invention, I will now proceed more fully to describe it.

A represents a stationary and B a movable cast-iron block or jaw, on the concave upper surfaces of which the wheel-tire to be upset is bedded and clamped. The jaw A is usually constructed with ears or flanges *e*, which are let into the bench-plank C, and are firmly bolted to it. The sliding jaw B is also sunk an equal distance into the plank C, in line and parallel with the jaw A, but with sufficient freedom to allow it to slide horizontally back and forth. To receive the tire, a groove, G, is formed in the upper side of each jaw, on one side of which groove a serrated dog, D, is inserted, against which dog (or, more properly, stud) the wagon or other wheel tire is firmly clamped, previous to upsetting, by driving down the clamping-keys, I I, one of which passes through each jaw immediately opposite, the jaws being so formed at such points and so enlarged as to confer the necessary degree of strength to resist the clamping action of the keys.

F represents a thin metal plate, which I usually attach at the bottom of the groove to one of the jaws, to cover the line of separation, and thus prevent scale, dust, or cinders from falling in.

The sliding jaw B is confined and guided laterally by being sunk in the bench-plank C,

and it is guided and confined vertically, so that it cannot lift at either end, in manner following: The inner end is provided with a stout tongue or tenon, T, which fits into and slides within a corresponding groove, mortise, or recess, U, formed in the inner end of the stationary jaw A, and that portion or depth of said sliding jaw which is sunk into the bench-plank is prolonged, at J, so as to project beyond and overlap underneath the eccentric-cam M, which operates it, and which is secured to the bench by a stout pivot-bolt, N. The cam, besides forcing up the jaw B, in the act of upsetting, by properly turning round the lever L, to which it is attached or locked, also, by means of a pin, *p*, inserted in the overlapping portion of the jaw, acting in an eccentric-groove, *o*, in the under side of said cam, draws back the jaw to its former position on reversing the motion of the cam and lever.

In order to reduce friction, I cast a chamber (open only toward the cam) in the portion marked *b* of the moving jaw, and place therein a metal roller, R, which turns, in close contact with said cam, on the pivot-bolt P.

This machine operates in the ordinary manner by heating a small portion of the tire to be upset and placing it in the groove on the concave upper surface of the jaws A B, previously placed apart, as seen in the drawings. The clamping-keys I I should have previously been lifted almost out of the slots and tipped over outwardly in such manner that the tire, while being placed in position, will strike against the edges and straighten them up, when they will fall by their own gravity into place. A smart blow with a hammer on the end of each key will now dog the tire to each jaw, and the operator, seizing the lever L, turns it and the cam round in a proper direction, and thus, through the medium of the anti-friction roller R, pivoted on the jaw B, compels it to approach the jaw A, and thus upsets or shortens the hot metal between the clamped points as much as may be deemed necessary, when the clamping-keys are driven back and the lever turn in a reverse direction, which motion, through the instrumentality of the eccentric-groove and the pin previously described, brings back the jaw B to its former position, ready for the next operation.

The bench-plank C may be mounted on legs

(not shown) in the usual way, or framed into or attached to the building in any convenient position for use.

In this class of machines the line of resistance, or where the tire is clamped, is naturally and usually above the point where the pressure is applied to the jaw to move it. This causes a tendency to lift, which must be resisted by devices which hitherto have proved defective or of such a character as to require expensive machine-fitting and multiplicity of parts.

In my arrangement it will be seen that the cam pivot-bolt N is effectually tied to the fast jaw A (so that it cannot spring) by means of the forked stays S S, which are looped under the bolt-nut and branch off on each side of the jaws, and are looped and secured by the holding-down bolts, which pass through the side ears of the stationary jaw.

The tongue T and groove U effectually secure the movable jaw at its inner end, and the prolongation J of its outer end is confined between the under side of the cam and the bottom and sides of the sunken recess or groove in the bench-plank C. Thus the parallelism of the jaws is rigidly preserved by the simple modification and arrangement of the operating parts.

The utility of these machines for upsetting wheel-tire (when it has become too large for the wheel) in place of cutting and rewelding has been fully demonstrated, and nothing remains but to so simplify their construction and cheapen their cost that they can be readily made in any village where there is a foundry and blacksmith's shop, which is the object of my invention.

I do not claim upsetting wheel-tire by clamping it to jaws that are forced together, for all of the numerous machines with which I am familiar operate substantially in this way; but

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

The combined arrangement of the clamping and upsetting jaws A B, cam-lever M L, anti-friction roller R, and stays S S, constructed and connected substantially as described, and the several parts arranged relatively with each other and with the bench-plank C or other bed-sill, in the manner and for the purpose herein specified.

HIRAM L. HOWARD.

Witnesses:

OTTO L. JOHNSON,
GEORGE JOHNSON.