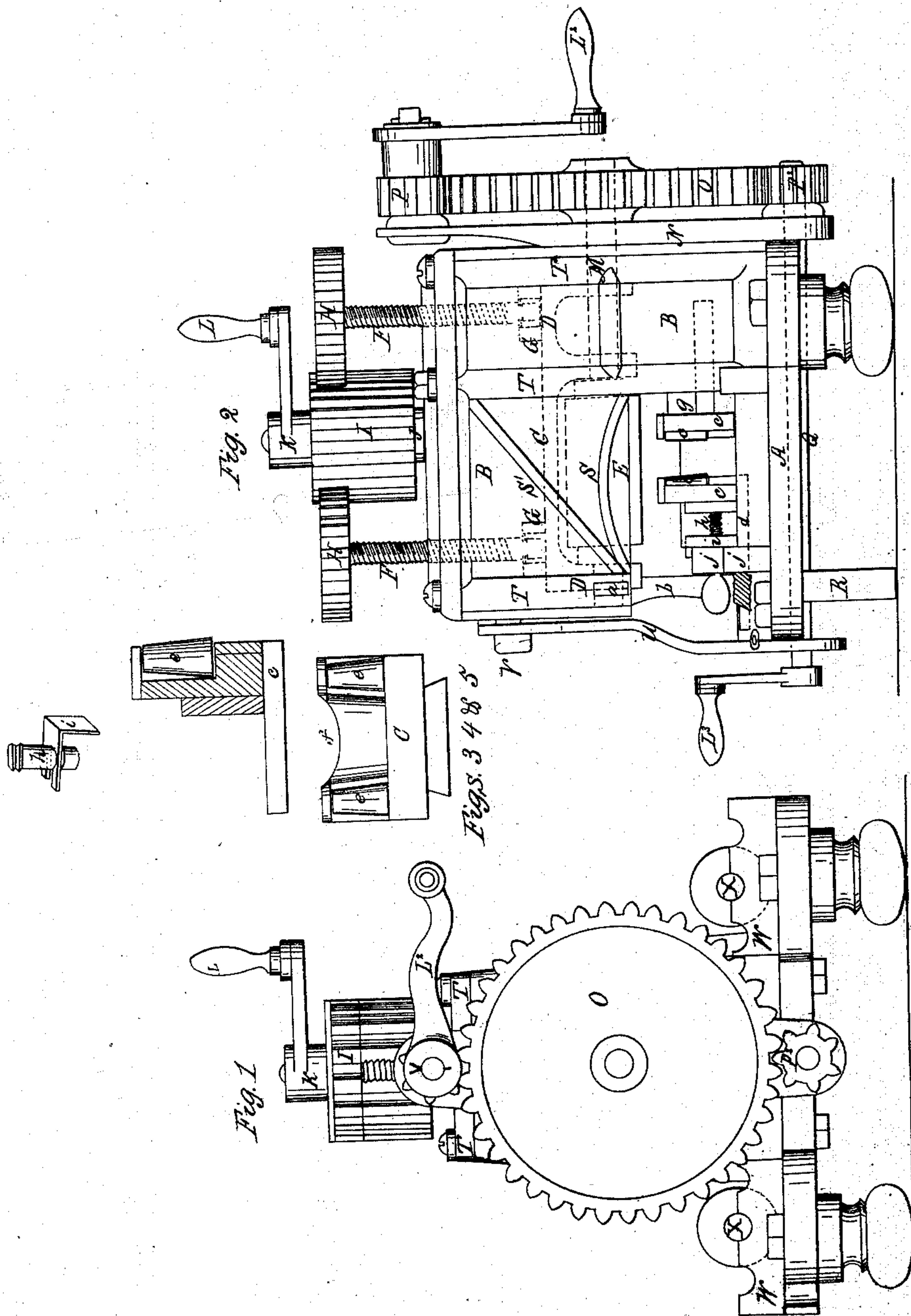


*S. Hall.*

*Machine for Bending Tires.*

*N<sup>o</sup> 62,327.*

*Patented Feb. 26, 1867.*



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# United States Patent Office

SAMUEL HALL, OF NEW YORK, N. Y.

*Letters Patent No. 62,327, dated February 26, 1867.*

## IMPROVEMENT IN MACHINES FOR BENDING METALS.

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, SAMUEL HALL, of the city, county, and State of New York, have invented, made, and applied to use a new and useful Machine for Bending Tire and "Fifth-Wheel" Plates; and I do declare the following to be a full, clear, and correct description of my invention, reference being made to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is an end view of my improved machine.

Figure 2, a front sectional view of the same.

Figures 3, 4, and 5 are views of parts used in connection with the machine in bending "fifth-wheel" plates.

In the drawings, like parts of the invention are indicated by the same letters of reference.

The nature of my invention consists in the construction and operation of an improved machine for the purpose of bending tire and "fifth-wheel" plates, as more fully hereinafter described.

To enable those skilled in the arts to make and use my invention, I will proceed to describe the same.

A is a bed-piece for supporting the operating parts of my improved machine. B B shows the box frame of the machine, which frame may be bolted to the bed-piece A, or may be cast with the same. C shows the roller box placed within the frame B B. Within this box C are the journal boxes D D for holding the upper or top bending roller E for bending the tire or "fifth-wheel" plates. Directly above this roller box, and bearing upon the upper side of the same, are the lifting or adjusting screws F, which are inserted through the cover of the box frame B B. G G show projections on the top of the roller box C, which projections receive and retain the screws F, the projections being provided with a slot on one side to receive a lifting key, which is slotted to pass through the groove of the screws, so that as the screws are withdrawn the box C shall be lifted with them. These screws are provided with the pinions H gearing into the intermediate pinion I, of the same diameter as the pinions H. This intermediate pinion I is supported upon the stud J, substantially held in the cover of the box frame B B, or a third lifting screw may be used in its stead. This intermediate is provided with the hub K to receive the crank L. M shows the roller-shaft carrying the bending roller E. This shaft passes through the end of the box frame B B and the arm N, which arm, N, is attached to the roller box C above and below the shaft M. Upon this shaft is keyed the spur-wheel O, gearing into the pinions P and P<sup>2</sup>, one of which, P, is held upon a stud inserted in the upper end of the arm N, and the other, P<sup>2</sup>, upon the shaft Q, running under the bed-plate A and supported by the box frame B. S S' show braces, the one curved and the other diagonal, placed on the box frame B B at each side to strengthen that portion of the frame B B below which the iron to be bent passes. T show columns to receive the screws or bolts holding the cover to the box frame B B. Upon the shaft Q is placed a connection, U, provided with a stud, V, which stud, V, when the machine is in operation, is inserted in a slotted opening in the front end of the box frame B B, and enters an opening in the front end of the roller box C, thus serving to raise or lower the shaft Q and retain it on a line with the pinion, (P<sup>2</sup>) end. W show recessed ribs upon the bed-plate A, which recessed ribs receive the lower rollers X, over which the iron to be bent passes. At the bottom of the box frame B B are the projections *a* to receive and retain the movable supporting arm *b*, attached to the bed-plate A in any convenient manner.

The machine being thus constructed, the operation is as follows: The rollers X are placed within the recesses W, in accordance with the diameter of the tire to be formed. The iron to be bent is then introduced into the machine, and the roller E is adjusted to the same by means of the screws F operated by the gearing H, I, and H and crank L, which screws bear upon and are attached to the upper side of the roller box C. Motion being now imparted and communicated to the machine through the pinions P and P<sup>2</sup> and spur-wheel O, the iron is drawn through the machine by the pressure of the roller E upon the iron placed upon the rollers X, and the operation just described is repeated until a perfect tire is formed. When the tire has been formed, to remove the same from the machine the arm *b* is released from the frame and away from the rollers X, and the pin V is removed from the opening in the box frame and the rod U, the upper roller E is relieved from pressing upon the tire by means of the adjusting screws, and the tire can be readily withdrawn from the rollers X. The tire having been removed from the machine and the parts just released having been restored to the position they usually occupy, a second bar of iron may be inserted in the machine and the operation just described be repeated. The arms *b* are only used when the heavier kinds of iron are employed. When it is desired to bend what is



known as a "fifth-wheel" tire or plate the iron is inserted edgewise upon the rollers X, placed as previously according to the diameter required. Inasmuch as more power is required in this operation than in the previous one, and in order that the roller E may not crook the bar while passing through the machine, I employ two sliding boxes, *c c*, one sliding within the back part of the box frame B B, and the other in a dove-tailed slot in the bed-plate A. These sliding boxes are provided with the vertical rollers *c c*, which bear upon the sides of the iron and keep the same perfectly flat and with the semicircular recess *g* to receive the upper roller E, if required. One of these sliding boxes is adjusted by means of a taper key, and the other is adjusted by means of a thumb-screw, *h*, passing through a block, *i*, bearing against the lugs *j j*.

The peculiar advantages resulting from the use of a machine constructed as described are, that the pressing or bending roller and its journal boxes are held in a sliding box working within the box frame, thus adding great strength to the machine and decreasing the liability of the same to frequently break or get out of order. Again, the tire when formed can be more readily and expeditiously removed from the machine than in the ordinary tire machine, in which the tire is removed by springing it apart, so that it can pass over the pressing or bending roller, which operation is an exceedingly laborious one; and finally in that the adjusting screws are connected to the roller box, as shown, and operate the bending roller by means of gearing, thus adjusting it much more evenly than where the screws bear upon the journal box only and are not adjusted by means of gearing.

While in the present instance I have shown the arm N in a vertical position, I do not intend to confine myself to this position of the same, as I am aware that the same may be placed at right angles to the machine, if desired, which in some cases might prove of advantage.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. I claim the box frame B B, constructed substantially as shown for the purpose set forth.
2. In combination with the bending roller, held and adjusted substantially as described, I claim the rollers X, when the same shall be combined, constructed, and operated substantially as shown for the purposes set forth.
3. In combination with the same, the use of the sliding boxes, constructed as shown for the purposes specified.

SAMUEL HALL.

Witnesses:

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