

J. H. HELM.

Machines for Bending Truck-Sides for Railway Cars.

No. 143,010.

Patented September 23, 1873.

Fig. 1.

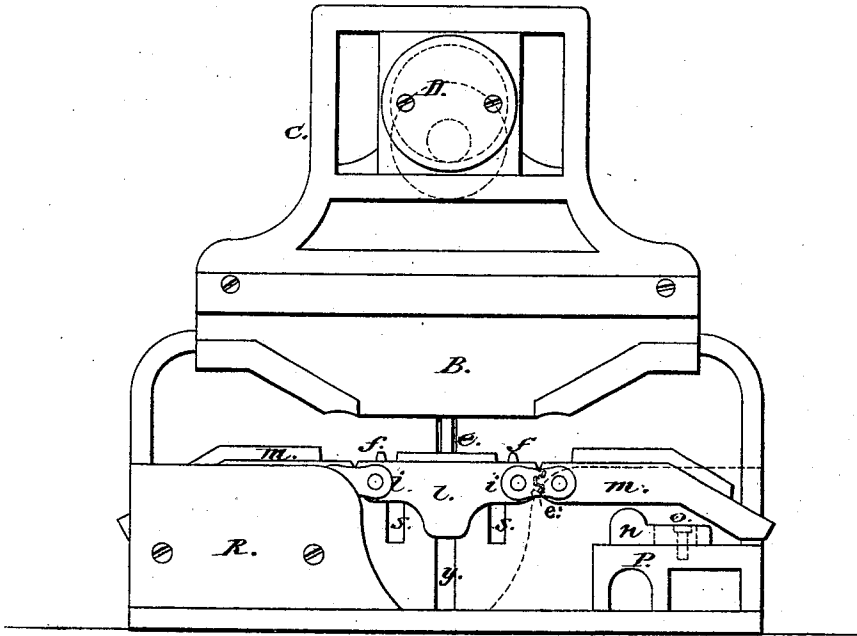
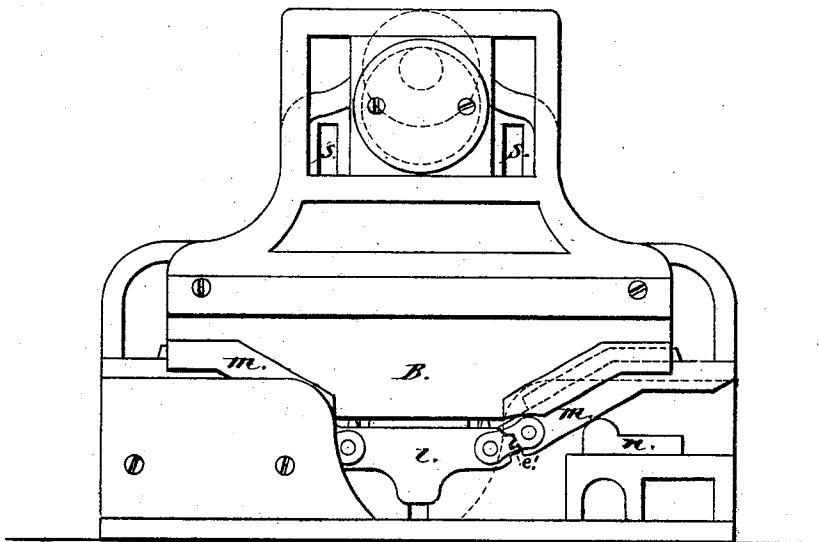


Fig. 2.



Witnesses.

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Fig. 3.

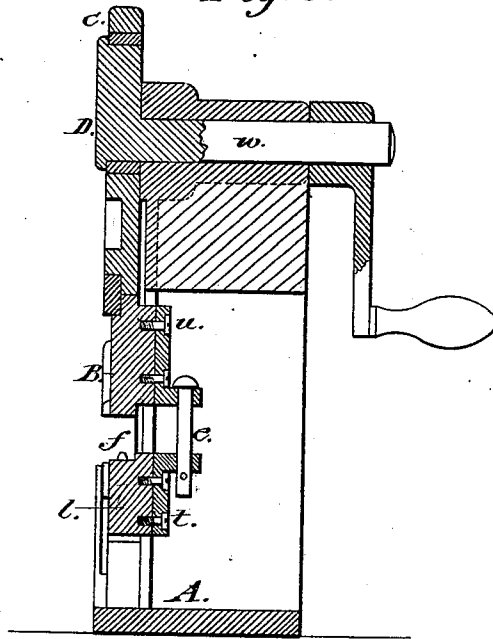


Fig. 4.

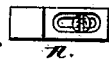
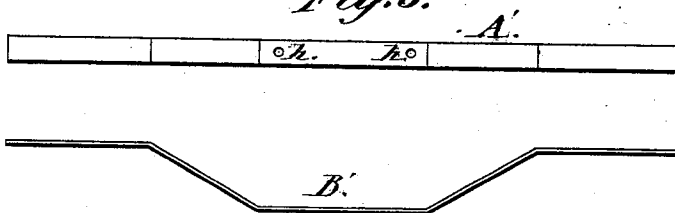


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

J. HENRY HELM, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR BENDING TRUCK-SIDES FOR RAILWAY-CARS.

Specification forming part of Letters Patent No. **143,010**, dated September 23, 1873; application filed June 18, 1873.

To all whom it may concern:

Be it known that I, J. HENRY HELM, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Bending-Machines for "Truck-Sides" of Railway-Car-Trucks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in a combination of a male die with a female die made in sections, which are hinged and geared together, and are susceptible of being raised to a horizontal plane, the two outer sections of said female die resting on and moving over adjustable rests during the operation of bending a straight bar of iron into the desired form by the combined action of the male and female dies upon it.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a front elevation of my improvement in bending-machines for truck-sides of railway-cars. Fig. 2 is a front elevation of the same, representing the dies in the act of bending a bar of iron into form for a truck-side; also representing one of the guide-plates removed, for the purpose of showing the relation of the adjustable rests to the outer sections of the female die. Fig. 3 is a vertical section of the bending-machine. Fig. 4 is a top view or plan of the adjustable rests for the outer sections of the female die. Fig. 5 is a view of the top and side of one bar of a truck-side for trucks of railway-cars.

In the accompanying drawings, A represents the frame of the machine, and it is constructed of iron, in the form shown. B represents the male die, which is secured to a cam-yoke, C, which is raised and lowered through the medium of a cam, D, secured on the end of the shaft *w*, which has its bearing in the frame A. On the back of the male die B is a lug, *u*, and on the back of the center section *l* of the female die is also a lug, *t*. These lugs

u and *t* are provided with openings, in which is placed a coupling-bolt, *e*, for coupling the male die and the center section of the female die together, so that when the male die is raised by the action of the cam D the center section *l* of the female die will also be raised, thereby bringing the several sections of the female die to a horizontal plane, as shown in Fig. 1. The backs of the dies are provided with projections, which are fitted to slots *s* and *y* in the frame A, which slots and projections serve as guides, and prevent any undue motion of the dies lengthwise. The female die consists of three sections, *l m m*, which are geared together by means of teeth or cogs, which mesh into each other in the same manner as the gear-teeth of wheels. The sections *l m m* are coupled together through the medium of links *i*. The coupling-links and the gear-teeth of the sections *l m m* of the female die are clearly shown in Figs. 1 and 2 at *e'*.

By this arrangement of gearing the several sections of the female die, and coupling them together by the links *i*, the dragging and drawing action common to sunk dies is avoided, and the loss of power and undue strain upon the several parts of the machine obviated.

The sections *m* of the female die rest upon adjustable bearings *n*, which are held in the desired position on their seat P through the medium of set-screws *o*, as shown in Figs. 1 and 4. The plates R (one on the right of the machine being removed) act as guides for the sections *m* of the female die, and prevent them from any lateral motion. The center section *l* of the female die is provided with two pins, *f*, which pass into the opening *h* punched into the bar of iron to be bent. (See Fig. 5.)

The operation of the hereinbefore-described machine is as follows: The bar of iron for forming the truck-side is provided with two openings, as indicated at *h*. It is then placed upon the female die, when it is in the position represented in Fig. 1, having the pins *f* in the openings *h* of the bar. Suitable power is then applied to the shaft *w* for revolving it and the cam D on its outer end. The revolving of the cam D will force down the male die B, which, coming in contact with the bar B' placed on the female die, will force down the center por-

tion of the bar B' and center section *l* of the female die; and the center portion of the bar B' and section of the female die recede before the advancing male die B. The sections *m*, geared and coupled to the center section *l*, will press against the under side of the bar B', gradually yielding to the bending bar and male die until the bar is bent to the desired form, as shown in Fig. 5, after which the male die B will ascend, and, it being coupled by the bolt *e* to the section *l* of the female die, will bring it and the sections *m m* to a horizontal plane, as indicated in Fig. 1. The bent bar is then removed from the machine to give place to another bar of iron to be bent in the manner and by the means hereinbefore described.

The skillful mechanic will readily understand that other forms of the male, and corresponding forms may be given to the several sections of the female, die, for the purpose of bending bars of iron into other forms than that herein described and shown without de-

parting from the principle of operation of my improvement in bending-machine.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention is—

1. The combination of the male die B with the female die, consisting of sections *l m m*, hinged and geared together through the medium of links *i* and gear-teeth *e'*, substantially as described, and for the purpose set forth.

2. The section *l* of the female die, provided with pins *f*, and coupled with the male die B through the medium of the lugs *u t* and coupling-bolt *e*, as herein described, and for the purpose set forth.

3. The combination of the adjustable rests *m* with the sections *n* of the female die, substantially as herein described, and for the purpose set forth.

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Witnesses:

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JOHN HEWITT.