

GEORGE MATHESON.

Improvement in Machines for Bending Tube Skelps.

No. 121,057.

Patented Nov. 21, 1871.

Fig. 1.

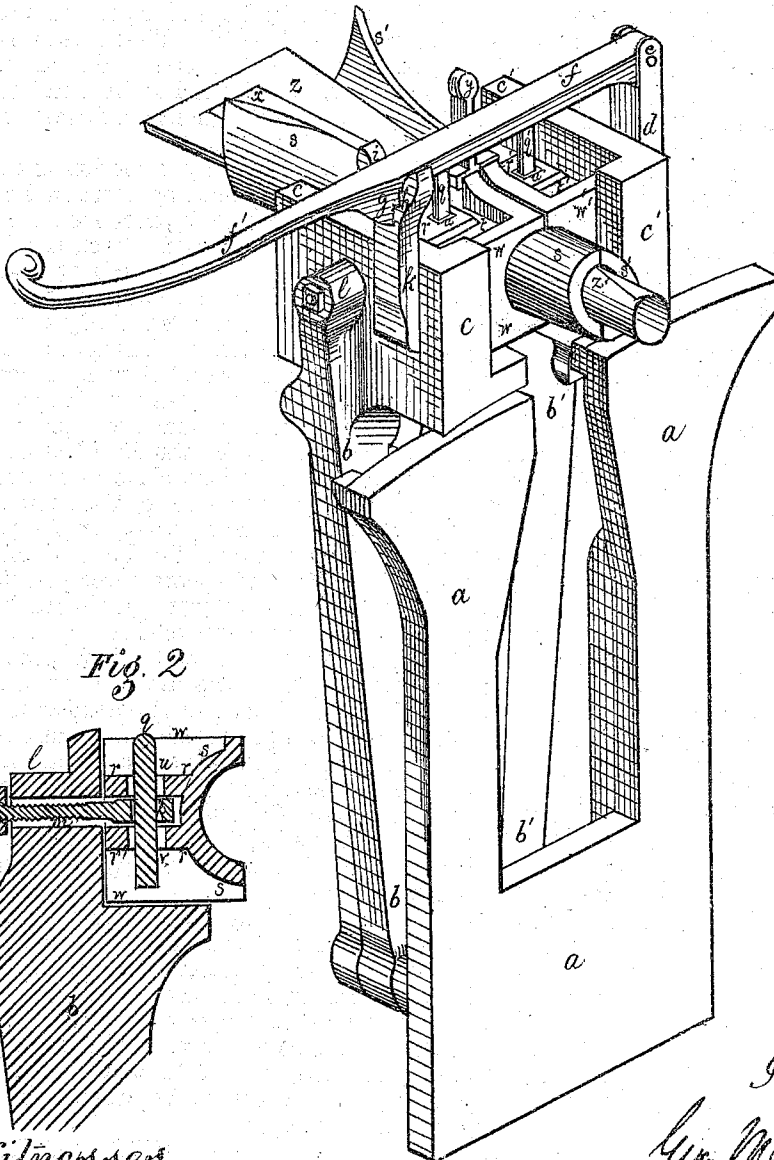
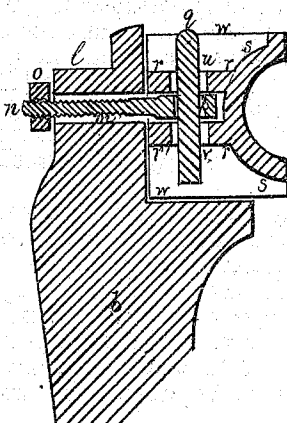


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE MATHESON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE NATIONAL TUBE WORKS COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR BENDING TUBE-SKELPS.

Specification forming part of Letters Patent No. 121,057, dated November 21, 1871.

To all whom it may concern:

Be it known that I, GEORGE MATHESON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Apparatus for Forming and Bending Tubing, of which the following is a specification:

Figure 1 in the drawing represents an isometric view of my improved machine. Fig. 2 is a detached view of a part embodying one of the principles of my invention.

The present invention relates to certain new and useful improvements in machines for forming tubes, and has for its object certain improvements in mechanism that will allow the die to be adjusted in the jaws of the machine so that a free lateral and vertical movement may be given to it, thereby preventing the breaking of the supports of the die, which is often liable to occur, owing to the rigidity, when formed as heretofore in one piece with the jaws of the machine. My improvement consists in so constructing the supports of the die as to be entirely independent of the jaws of the machine, and to allow of a free adjustment of the die either laterally or vertically, as will be hereinafter more fully explained.

a a a in the drawing represent the frame of a tube-bending and forming machine, to which are attached two arms or jaws, *b b b' b'*, turning at the bottom on pivots attached to the frame *a a a*. The upper portions of the jaws form standards or frames *c c c' c'*. Connected with the standard or frame *c c* is a standard, *d*, connected with which, by a pivot, *e*, is a lever-arm, *f*, formed with latch *g*, arranged with one or more notches, *h*, and having its end or handle *f'* curved upward from the latch *g*, so that when the jaws *b b b' b'* are brought together the handle *f'*, resting by its own weight on a notch or slot, *i*, formed in the top of a standard, *k*, attached to the standard or frame *c c*, is more readily brought over the notch or slot *i*, and the bottom of the latch *g*, which is a continuation of the slope of the handle *f'*, extended downward in an opposite curve, and easily follows the curve of the handle *f'*. Attached to the side of the frame *c c c' c'* are standards or sockets *l*, each formed with a slot, *m*, through which plays a screw, *n*, held by a nut, *o*, operating on the outside of the standards or sockets *l*. The screws *n* are formed at one end with slots, through which pass pins or bars *q q'*, which also pass through

slots *u u' v v'* formed in the arms *r r'*, united with each section of a die, *s s s' s'*, and also connected by flanges *t t t' t'* with a die-frame or standards, *w w'*. *x* is a mandrel, operated in the die *s s'* by a handle, *y*. *z* is the end of the metal as it enters the die *s s'*, and *z'* is the tube formed after passing through the die *s s'*.

The operation of my invention is as follows: The jaws *b b b' b'*, being operated in the ordinary manner, are made to approach each other, and the lever-arm *f*, playing freely on the pivot *e*, is, by its own weight, brought to bear at its further end or handle *f'* on the notch or slot *i*, and as the jaws *b b b' b'* are more nearly advanced the standard *c c* is pressed against the handle *f'* so as to gradually raise it, and, following along the curve of the handle *f'*, it passes over the curve of the latch *g*, the latter being arranged in such a position as to hold against the standard *k* at the time the front of the two sections of the die *s s'* are brought in contact with each other by the operation of the jaws *b b b' b'* on their pivots. In the present invention each section of the die is adjusted to the jaws *b b b' b'* so as to operate freely in the following manner: The screws *n*, playing in the slots *m*, allow the die *s s'* to move either up or down, and the slots *u u' v v'*, through which pass the pins or bars *q q'*, allow the die to operate in a lateral direction, so that an opportunity is provided for the adjustment of the die *s s'* as circumstances may necessitate, instead of confining it as heretofore to a rigid and stationary position, in which it was often liable to fracture. By locking the die as hereinabove described it is made equal to a solid die, or it may be operated as a loose die.

Having thus fully described my improvement, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

The combination of the jaws *b b'*, having slots *m*, flanges *t t'*, slots *u u' v v'*, screws *n*, pins *q*, die *s s'*, and frames *w w' c c'*, arranged as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. MATHESON.

Witnesses:

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