No. 725,026. PATENTED APR. 14, 1903.

G. BOEHM.

SCROLL BENDING MACHINE.

APPLICATION FILED JAN. 20, 1902.

NO MODEL.

Fig. 1.

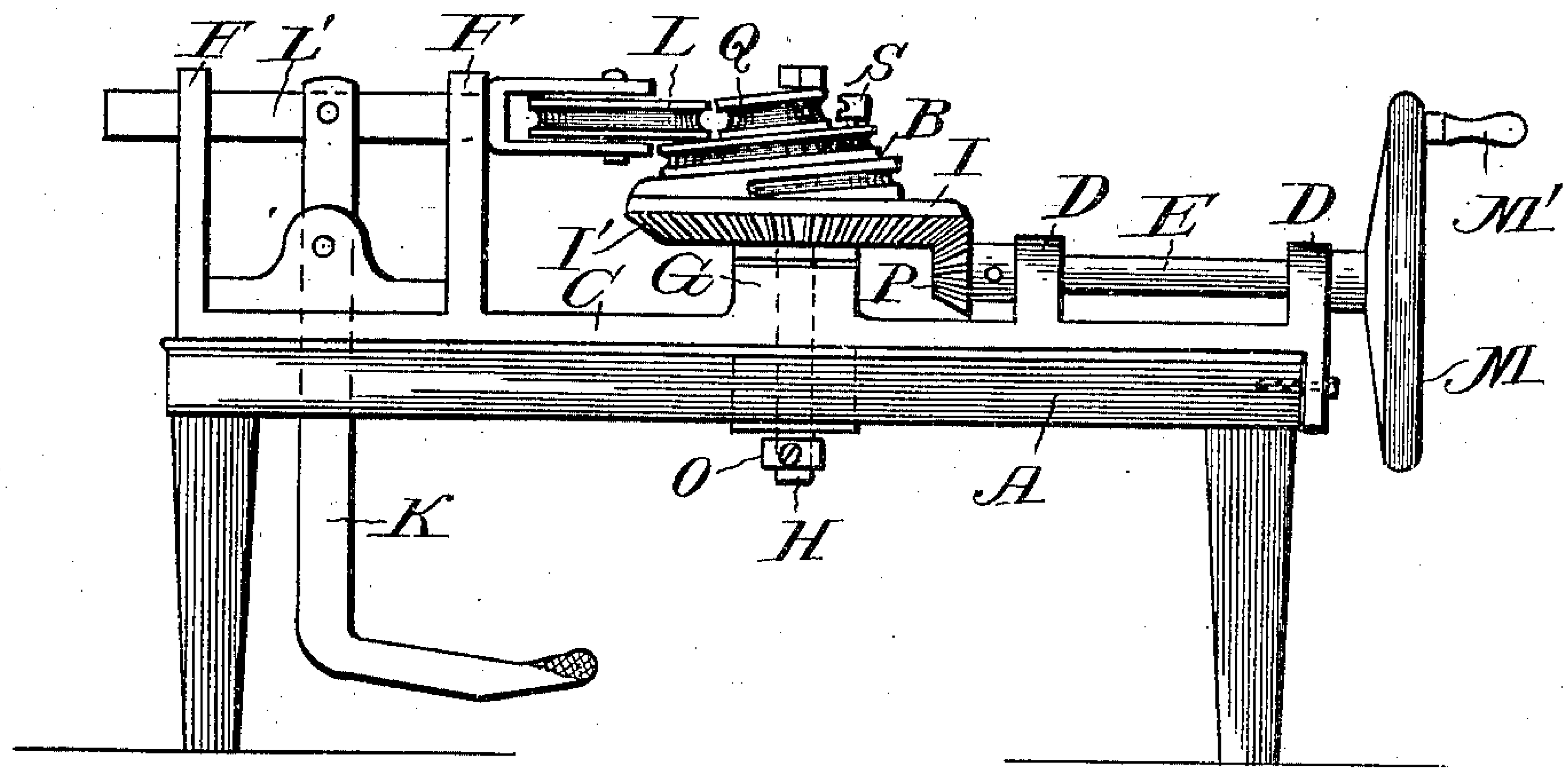


Fig. 2.

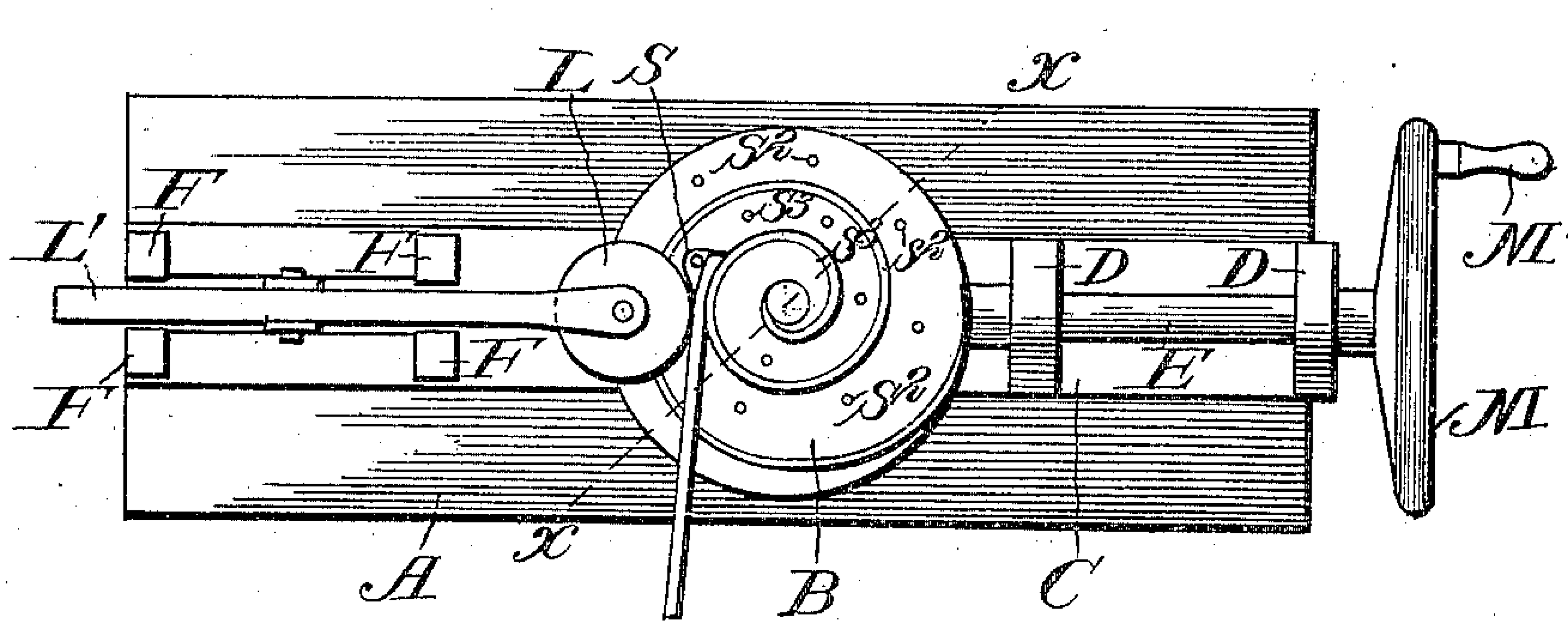


Fig. 3.

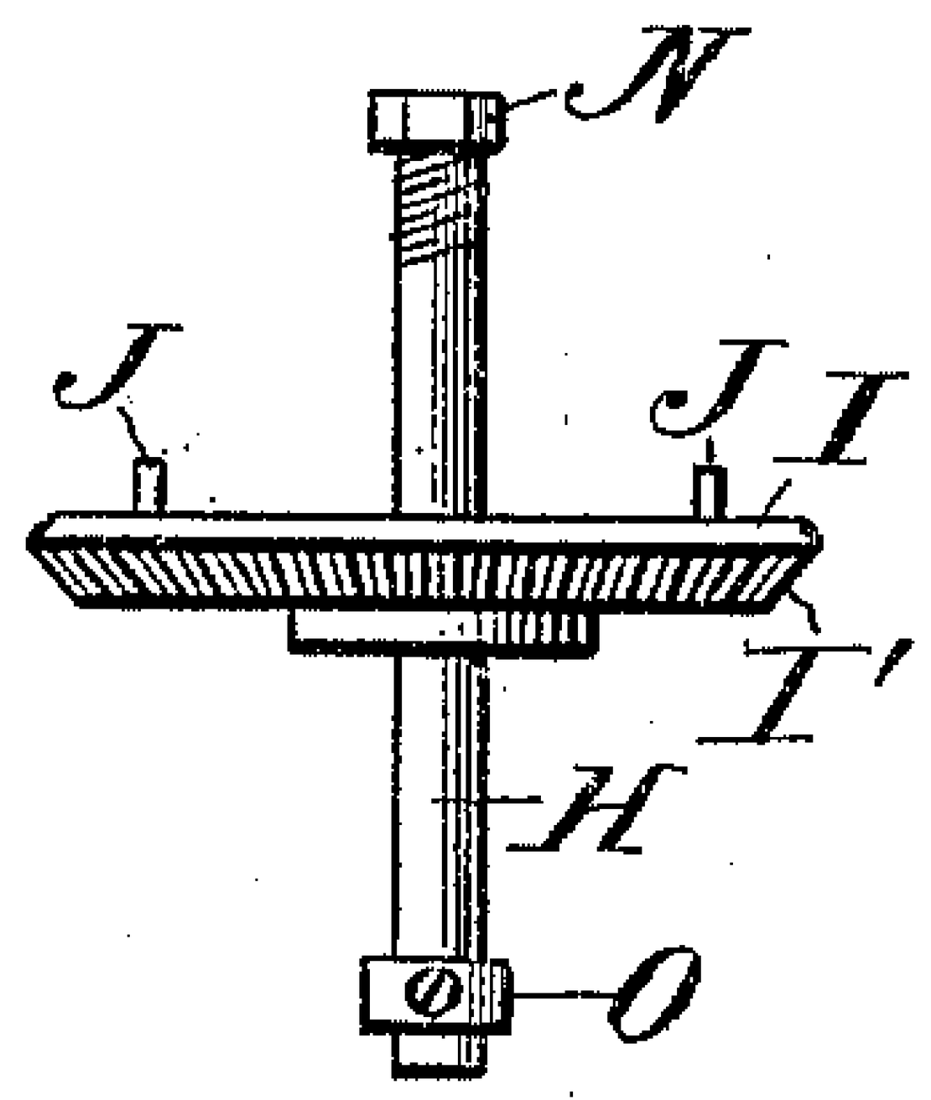
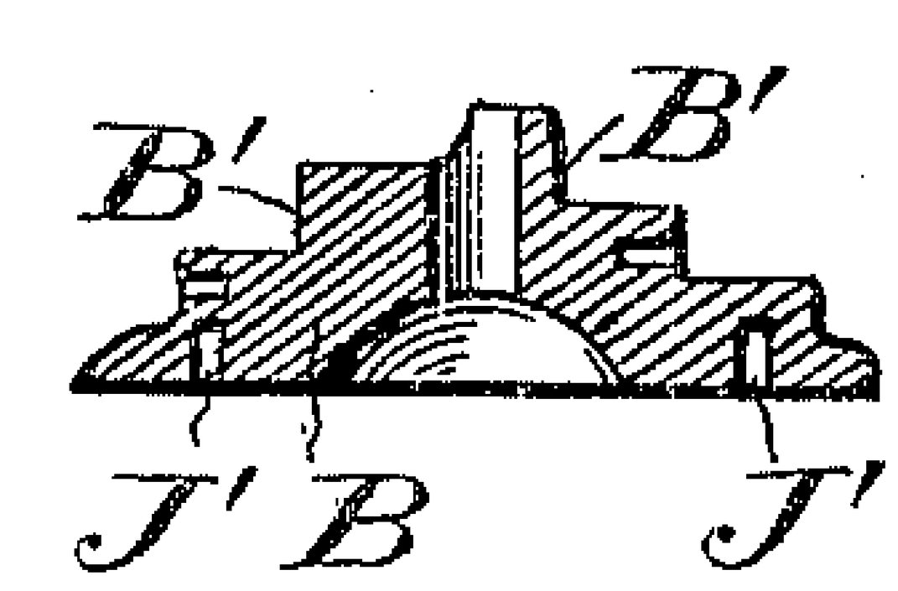


Fig. 4.



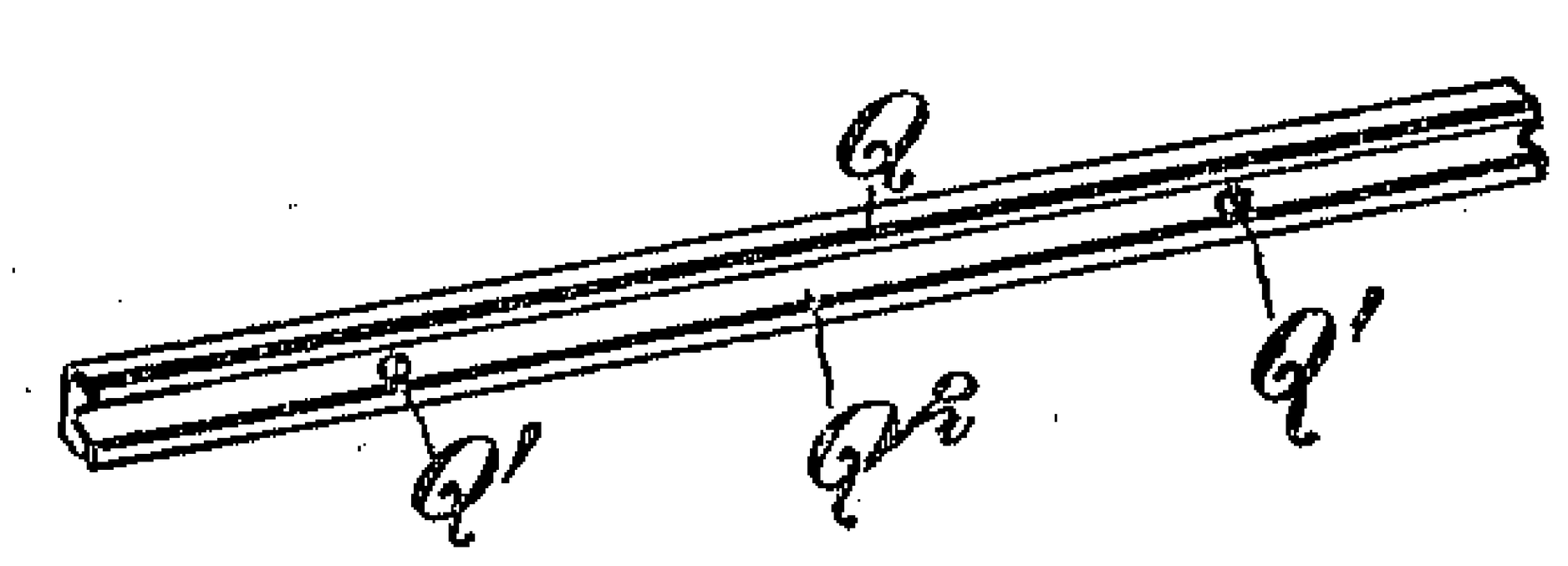


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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SCROLL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 725,026, dated April 14, 1903.

Application filed January 20, 1902. Serial No. 90,449. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BOEHM, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Scroll-Bending Machine, of which the following is a specification.

My invention relates to improvements in scroll-bending machines in which the metal bar or tube to be bent into a scroll for iron bedsteads and the like is bent around a form usually constructed of pins set into a plate of the shape or form desired by means of a lever; and the objects of my improvement are, first, to provide a rotating spiral-shaped form block or head; second, to provide means for forming any number of scroll-turns, larger or smaller, on the same form; third, to provide facilities for bending scrolls of bars or tubes having different diameters on the same form block or head, and, fourth, to provide a form-block that will form a perfect metal scroll and not ruffle or wrinkle the inner or contact surface of the scroll.

My invention consists of a spiral-shaped form block or head mounted upon a rotating carriage. The end of a metal bar or tube is engaged to the spiral-shaped form-block and incurvated around it according to the number of turns desired in the scroll.

It also consists in the arrangement and combination of the parts, which will be more fully described hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of the entire machine supported upon a table. Fig. 2 is a top plan view of the machine and table supporting the same. Fig. 3 is a side elevation in detail of the vertical shaft and rotating carriage disconnected from the machine with the form block or head removed. Fig. 4 is a vertical section view of the spiral-shaped form block or head, taken on the dotted line $x\,x$ of Fig. 2. Fig. 5 is a detail view in perspective of a grooved strap adapted to be spun onto the spiral-shaped form-block for the purpose of accommodating the different diameters of the stock to be bent into scrolls.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents a table or stand upon which is engaged the bed C, having upright standards D D, supporting the shaft E, and extensions F F for a lever device constitute the framework of the machine. In the center is provided a boss G, supplied with a vertical shaft H, having a face-plate or carriage I, adapted to engage the spiral-shaped form B and to be rotated by the shaft E, referred to hereinafter.

The form block or head B is cone-shaped, with an L-shaped step B′ formed in its circumference and running from its apex to its base spiral-like, encircling the body of said cone-shaped body as many times as desired, and against the vertical face of this step is secured by a suitable holdfast the stock to be scrolled, which is wound upon said form, that imparts to the stock a helical form exactly as said step B′, which is flattened in a vise after being removed from the form block or head and is referred to hereinafter. Said form block or head B is intended to be rigidly engaged to the shaft H, and the manner of engagement that I have adopted is obvious. The face-plate or carriage I is a part of said shaft, provided with vertical extending drive-pins J J, that engage in corresponding sockets J′ J′ in the base of said form block or head B, and is secured down thereon by means of the nut N. (See Figs. 3 and 4.) Said shaft H is rotatably mounted within the boss or bearing G, provided in the bed C, and secured by a collar and screw O. The under side of said face-plate I is provided with teeth or cogs I′, that correspond to and engage with the gear P, carried on the shaft E, and is rotated forward or backward by means of the wheel M and crank-handle M′.

The slide-bar L′ is provided with a loose grooved pulley L and is pivoted to the foot-lever K and reciprocated lengthwise through guide-slots provided in the standards F F by the foot of the operator at K′, so that said pulley L will follow freely up and down on the helical step B′ of the form block or head B as it is rotated for the purpose of holding the stock tight to said face B′ as it is wound thereon.

The block S or holdfast has a groove in its edge to correspond to the semidiameter of the stock to be scrolled, with a pin extension engaging with the form block or head B, and engages the end of the stock thereto to be

scrolled. This holdfast-block S is intended as the simplest form of engagement that can be easily and quickly attached and detached for holding the first end of the stock to be scrolled. The pin extension thereof is adapted to engage in the sockets S^2 S^3, &c., (see Fig. 2,) as it is desired to make similar or dissimilar scrolls with respect to number of turns in the scroll or the central diameter thereof increased or decreased, as need be.

The vertical face B′ of the form-block B aforementioned may be used with perfect results on flat stock or with good results on round stock, where a slight ruffle to the inner surface of the scroll is not objectionable, as on plain painted or enameled work; but for a perfect scroll of round or irregular diameters of stock to be free from wrinkle or ruffle and susceptible of a high polish I would affix in or on said face B′ a form corresponding to the semicircumference of the stock to be scrolled. In order to give to the stock a greater contact-surface to bend against and to obviate the expense of a form block or head B for each circumferential stock form and diametrical size of stock to be scrolled, I have provided a metal strap Q, (shown in Fig. 5,) with any desired form cut thereon, which is wound to said face B′ and secured by screws Q′ Q′ therein. I wish to extend this same idea of a form-strap Q to the holdfast-block S and the loose pulley L, aforedescribed. The idea most sought of this semicircumferential face Q^2 on the form-block B and loose pulley L for round stock is to furnish a greater contact-surface for the stock to be bent with and against, that the same will bend from its vertical diameter as well as its lateral diameter, that bends the entire thickness of the stock and becomes necessary to make a perfect scroll. Especially is this so in the bending of scrolls from tubing. For instance, to bend either a bar or a tube around pins set in a plate—the usual mode—the stock will bend short in the inner contact-surface—that is, its lateral diametrical point of contact—pucker and wrinkle on its inner surface between the contact-points of the pins, and stretch, flatten, and crack on its outside surface—objections intended to be overcome by my invention.

By the above method of bending scrolls it is necessary to cut the scroll-bars longer than the real scroll desired to allow for holding at both ends of the bar, which holding portions must be cut off after the scroll is turned—a difficult operation and a waste of stock. By my invention the stock is cut the exact length required for the scroll and is bent the entire length helical form, that is removed from the machine by releasing the lever L′ and reversing the rotation of the form block or head B. The helical-formed scroll is then lifted off and flattened between the jaws of a vise elsewhere.

The form block or head B aforedescribed may be used independent of the machine by making the same fast in a vise or on a bench and winding the stock onto it.

Having thus described my invention, I claim—

1. A metal-scroll-bending machine provided with a cone-shaped form-block, spiral displacements with successive falls formed on the block, an adjustable and removable clamping-block carried by the form-block, and means to rotate the form-block.

2. A metal-scroll-bending machine provided with a detachable cone-shaped form-block, spiral displacements with successive falls formed on the block, an adjustable and removable clamping-block carried by the form-block, a relatively movable guiding-roller adapted to engage the spiral displacements, and means for rotating the form-block.

3. A metal-scroll-bending machine provided with a cone-shaped form-block having a helical groove formed on the circumference thereof, a clamping-block adapted to be removably posited in the groove, a reciprocal guiding-roller adapted to engage the groove, means to rotate the form-block, and means for bending the entire surface of the stock.

4. In a metal-scroll-bending machine, a bed having a revoluble carriage thereon, a cone-shape form-block detachably posited on the carriage, a spiral groove in the form-block, an adjustable clamping-block carried by the form-block, a reciprocal grooved guiding-roller adapted to engage the spiral, means to rotate the form-block, and a strap having a form-face to engage one-half of the stock whereby the entire surface of the stock is bent.

5. In a metal-scroll-bending machine, a cone-shaped form block or head B, an L-shaped step B′ helically formed in its circumference, the vertical portion thereof adapted to have wound thereon the stock to be scrolled, a holdfast-block S, and means for rotating said form-block B, in combination with a loose pulley L, its holding device L′, and lever K′, for the purposes specified, substantially as set forth.

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

GEORGE BOEHM.

Witnesses:
JOHN H. HILLER,
FRANK R. BROWN.