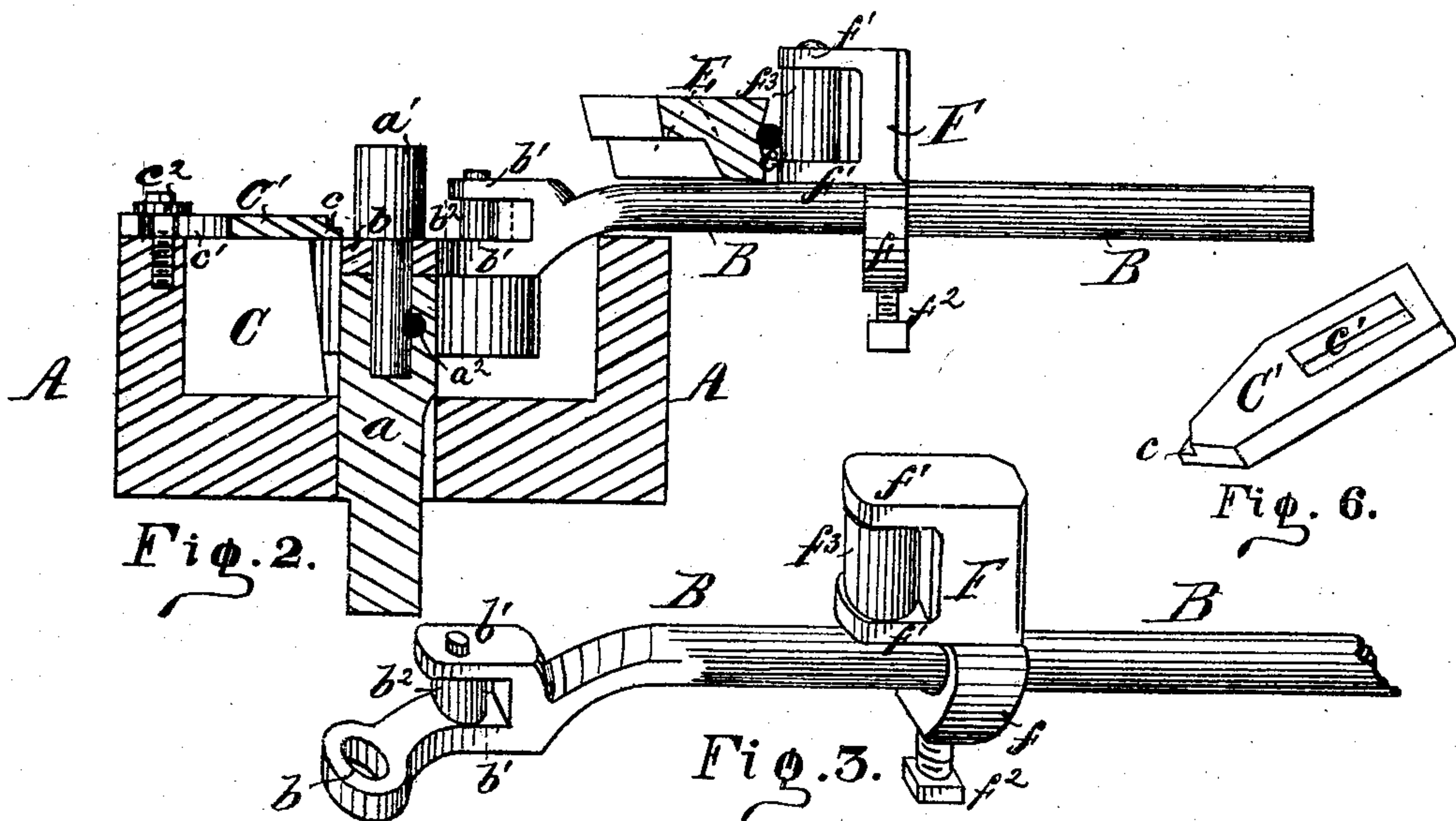
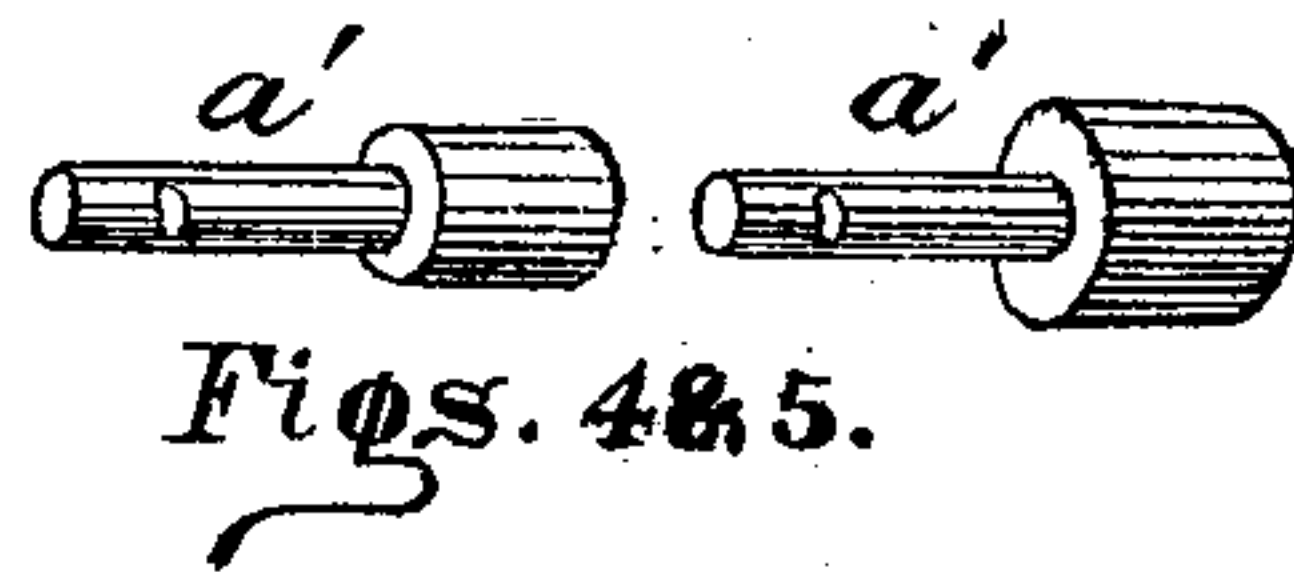
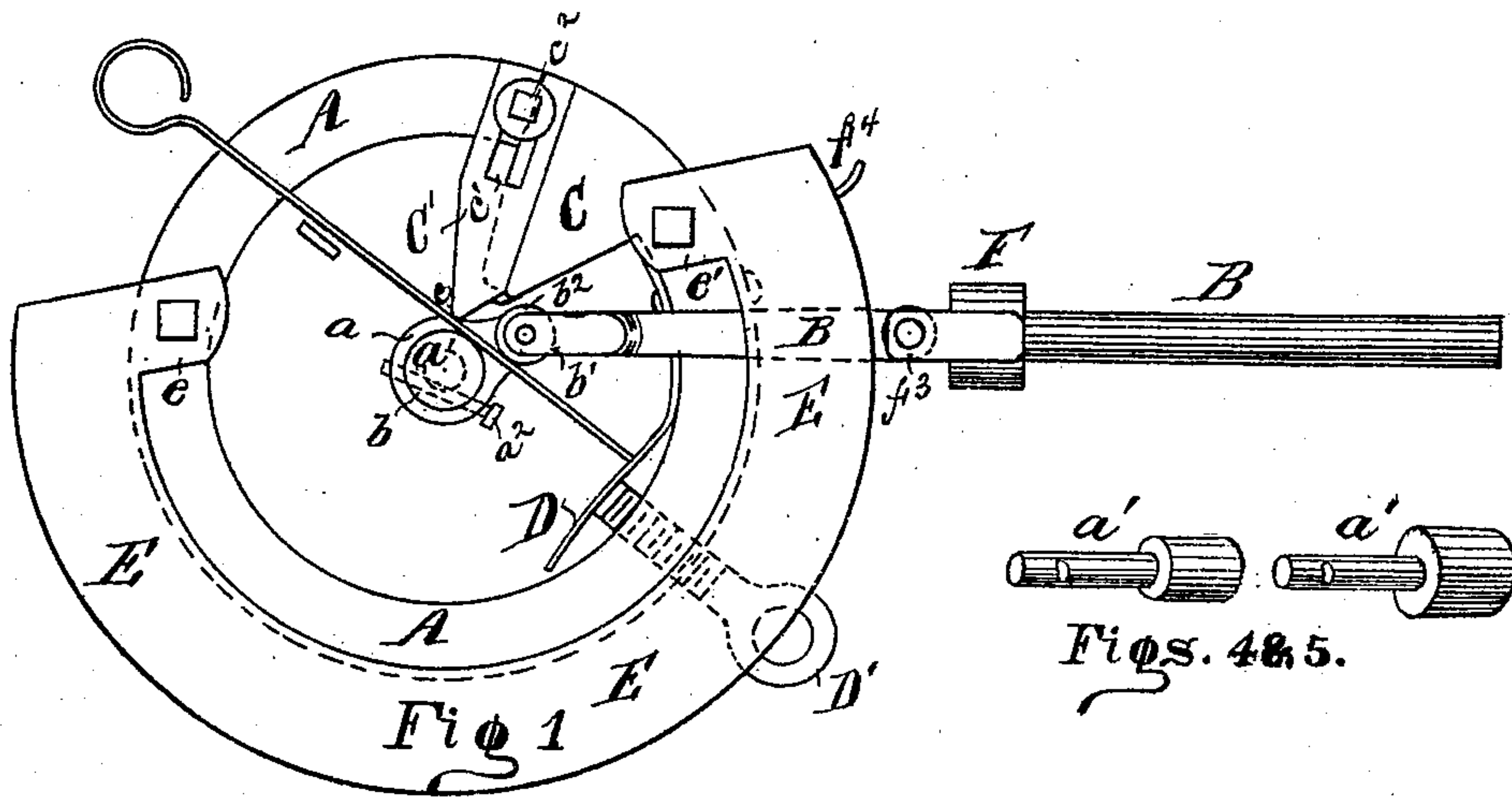


S. E. SMITH.
Devices for Bending Bails.

No. 149,076.

Patented March 31, 1874.



Witnesses:
J. M. Herchel.
Chas. Meisner.

Inventor:
Sylvester E. Smith
per *Herchel & Co.*

UNITED STATES PATENT OFFICE.

SYLVESTER E. SMITH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO HIMSELF AND
FRANK B. FILLEY, OF SAME PLACE.

IMPROVEMENT IN DEVICES FOR BENDING BAILS.

Specification forming part of Letters Patent No. 149,076, dated March 31, 1874; application filed
September 22, 1873.

To all whom it may concern:

Be it known that I, SYLVESTER E. SMITH, of St. Louis, Missouri, have invented an Improved Machine for Making Bails, Handles, &c., of which the following is a specification:

This invention relates to hand-machines for the making of rings, hooks, staples, fastenings, and the like, especially for ears and bails for pots, buckets, and similar vessels; and consists in certain details of construction, which will be fully described hereinafter.

Of the drawing, Figure 1 is a plan view; Fig. 2, a sectional elevation at line *x x*; Fig. 3, a perspective view of hand-lever with follower attached; Figs. 4 and 5, perspective views of different sizes of mandrels used; Fig. 6 being a perspective view of shoulder-stop.

A is the circular body or frame, properly mounted on a bed-plate, or secured to a support. *a* is the shaft, its upper end having a socket to receive, and in which the shank of a bolt or mandrel, *a*¹, is placed. (See Figs. 2, 4, 5.) The mandrels *a*¹ can be of different sizes, according to the thickness or diameter of the metal. B is the handle or lever, formed to have a curved journal-bearing, *b*, and, also, the joint-bearings *b*¹, at its front end, (see Figs. 1, 2, and 3,) the object of the bearing *b* being to pass through it the shank of the mandrel *a*¹, and to so journal the hand-lever B to the shaft *a* as to turn in either direction. For this purpose, to secure the mandrel *a*¹ in the socket of shaft *a*, a small pin, *a*², is passed through a corresponding groove with which said mandrel is provided. (See Figs. 2, 4, 5.) The hand-lever B is thus secured between the respective shoulders of the mandrel *a*¹ and that of the top of the socketed shaft *a*. In the joint-bearings *b*¹ of the hand-lever B I provide a roller, *b*². Said roller can also be of different sizes (see Fig. 2) to suit the varying diameter or thickness of the iron or wire; and, in order to allow same to be passed through and between the mandrel *a*¹ and roller *b*², as will hereinafter appear.

To make devices where a shoulder is required, I have provided the machine with the following improved shoulder-stop: The shoulder-stop should possess great bearing-strength, to resist the strain brought against it. For

this purpose I cast, or otherwise make, to form part of the frame A, an inward-projecting offset, C. (See Figs. 1 and 2.) The top of the offset C is further recessed, or made to a shoulder or seat, in which the shoulder-stop C' is to be seated and secured. (See Figs. 1 and 2.) The shoulder-stop C' is of the shape shown in Figs. 1, 2, and 6, terminating in the shoulder-point *c*, and, further, having an elongated slot, *c*¹, the purpose of the shoulder-point being to produce the shoulder in the wire, rod, or work; and the object of the slot *c*¹ being to secure, by means of a set-screw, *c*², to the shouldered offset C, the shoulder-stop C' in any adjusted position to and from the mandrel *a*¹, as the thickness of the material to be worked requires.

The gage, by means whereof the wire, rod, or metal can be gaged the required distance or length, consists of a spring, D, having one end thereof attached inside the machine A. (See Fig. 1.) The loose end of the spring D is worked adjustably, by means of a proper set or hand screw, D¹, which passes through the frame A. (See Fig. 1.) Thus, also, the spring or gage D can be operated to and from the mandrel *a*¹, and the material be gaged for large or smaller dimensions.

The parts being arranged, adjusted, and secured as described and shown, their operation is therefore as follows: The wire, rod, or the like to be operated, is placed in line with the shoulder-point *c*, passed between the roller *b*² of the hand-lever B and the shoulder of the mandrel *a*¹, until one end abuts against the gage D. (See Fig. 1.) The hand-lever B is next turned, and, in doing so, its roller *b*², operating against the gaged end of the inserted metal, causes same to follow the circular movement of the said lever until same is estopped by the shoulder-stop C'. As soon as the metal is brought by the lever B against the shoulder-point *c* it will be noticed that same makes and produces the shoulder in said metal required. One end of a bail, with ear and shoulder, is thus made; and the other end can similarly be made by the same operation. Likewise, staples, hooks, and various fastening devices can, in the like operation, be quickly made.

The bails for pots and the like have, as is well known, a semi or part circular shape. To make this form or curved shape I provide the machine with the devices as follows: E represents my "former." Its vertical outer side is slightly grooved, as at *e*. (See Fig. 2.) It further is formed to have bearings at *ee'*, by means whereof it can be bolted to the top or along-side of the machine. In conjunction with the "former" E, I provide the hand-lever B with a follower, F. The follower F is of the constructive shape clearly shown in Figs. 2 and 3, so as to have the collar-bearing *f* and joint-bearing *f*¹, the object of the collar-bearing *f* being to place and slide the follower F in any position on the hand-lever B, a set-screw, *f*², passing through said collar-bearing, and engaging with the said lever, thus securing said follower in position, the purpose of the joint-bearings *f*¹ being to receive, and in which a roller, *f*³, is journaled to turn. (See Figs. 2 and 3.)

The former E, follower F, and hand-lever B are the parts that produce, form, and make the bail, wire, or rod to have its required parts cir-

cular-shaped; therefore, one end or ear of the bail, wire, or rod previously made is placed and held by a pin or lug, *f*⁴, at one end of former E, (see Fig. 1,) the other end or part being placed between said former and the roller *f*³ of the follower F on hand-lever. Then by turning the hand-lever B, and thus causing the roller *f*³ to traverse the curved former E, the bail, wire, or rod is bent or curved to the proper form.

What I claim is—

1. In combination with the casting A, the adjustable shoulder-stop C', mandrel *a*¹, lever B, and roller *b*², as described.

2. The frame F, having an orifice adapted to receive the shank of lever B, and also set-screw *f*², arms *f*¹ *f*¹, and roller *f*³, as and for the purpose described.

In testimony of said invention I have hereunto set my hand.

SYLVESTER E. SMITH.

Witnesses:

WILLIAM W. HERTHEL,
DANIEL R. HART.