

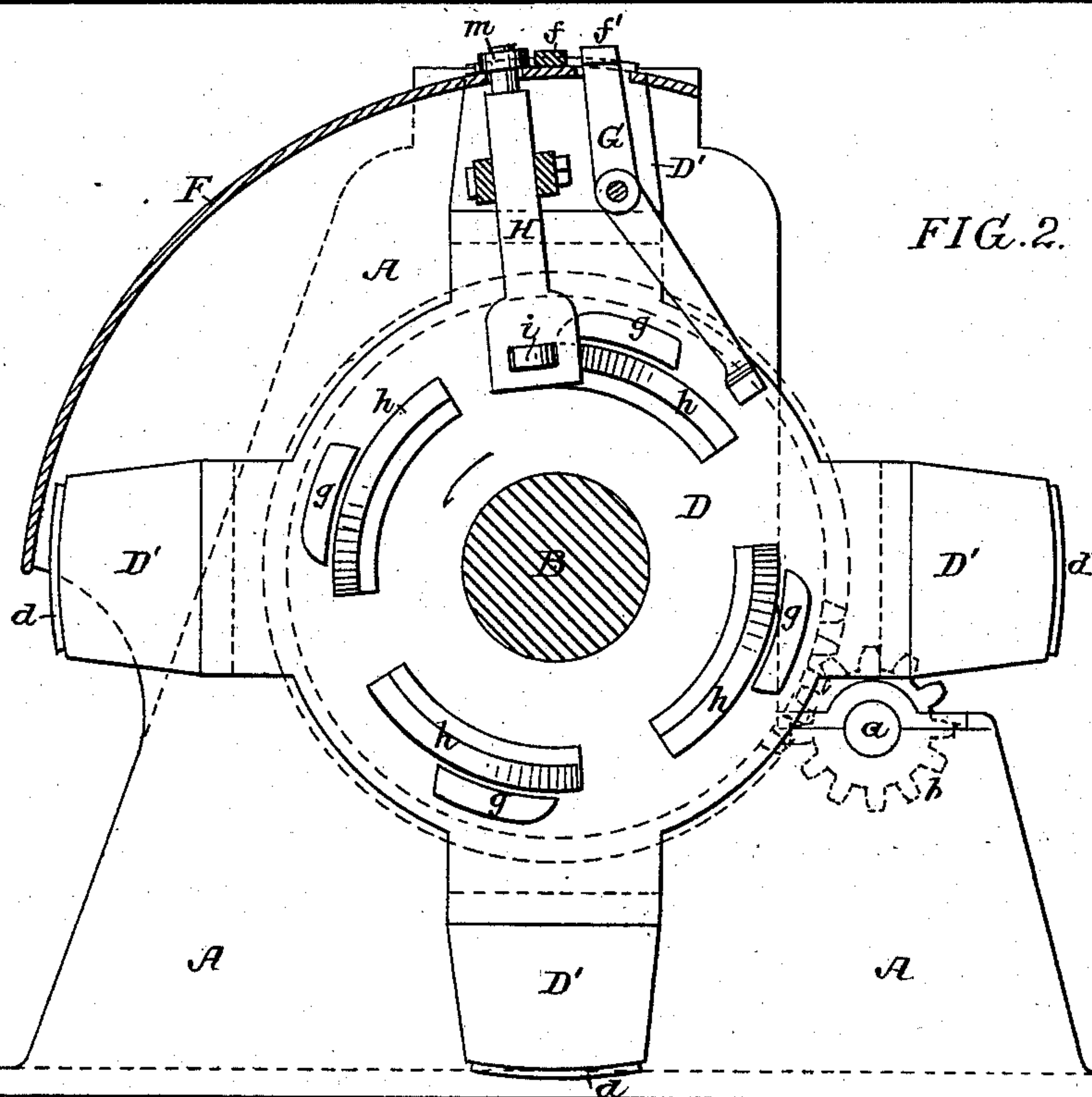
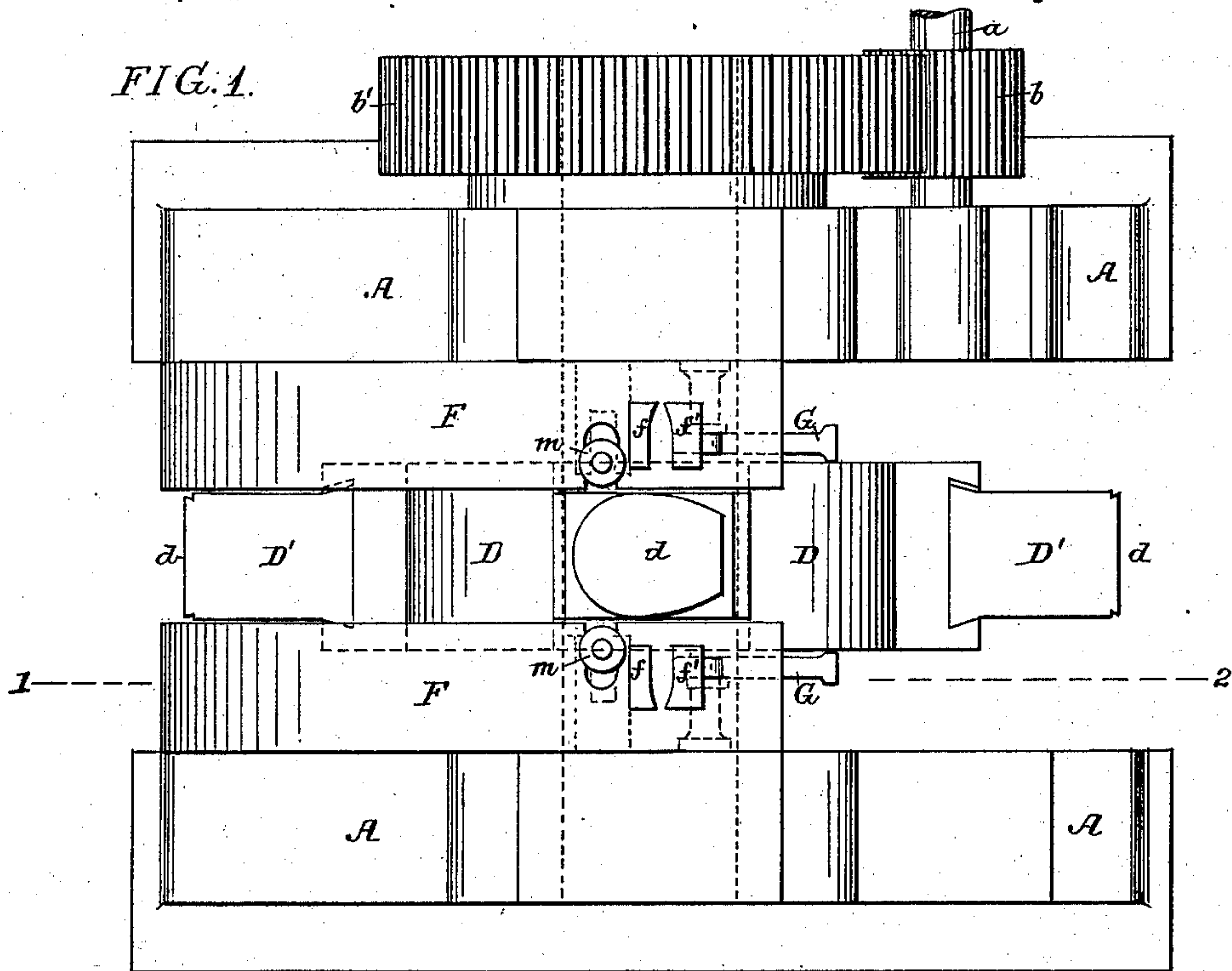
(No Model.)

2 Sheets—Sheet 1.

W. EYNON & W. SEAMAN.  
HORSESHOE BENDING MACHINE.

No. 406,713.

Patented July 9, 1889.



Witnesses:  
Alex. Barkoff  
Hamilton D. Turner.

Inventors  
William Eynon & William Seaman  
by their Attorneys  
Howson & Howson

(No Model.)

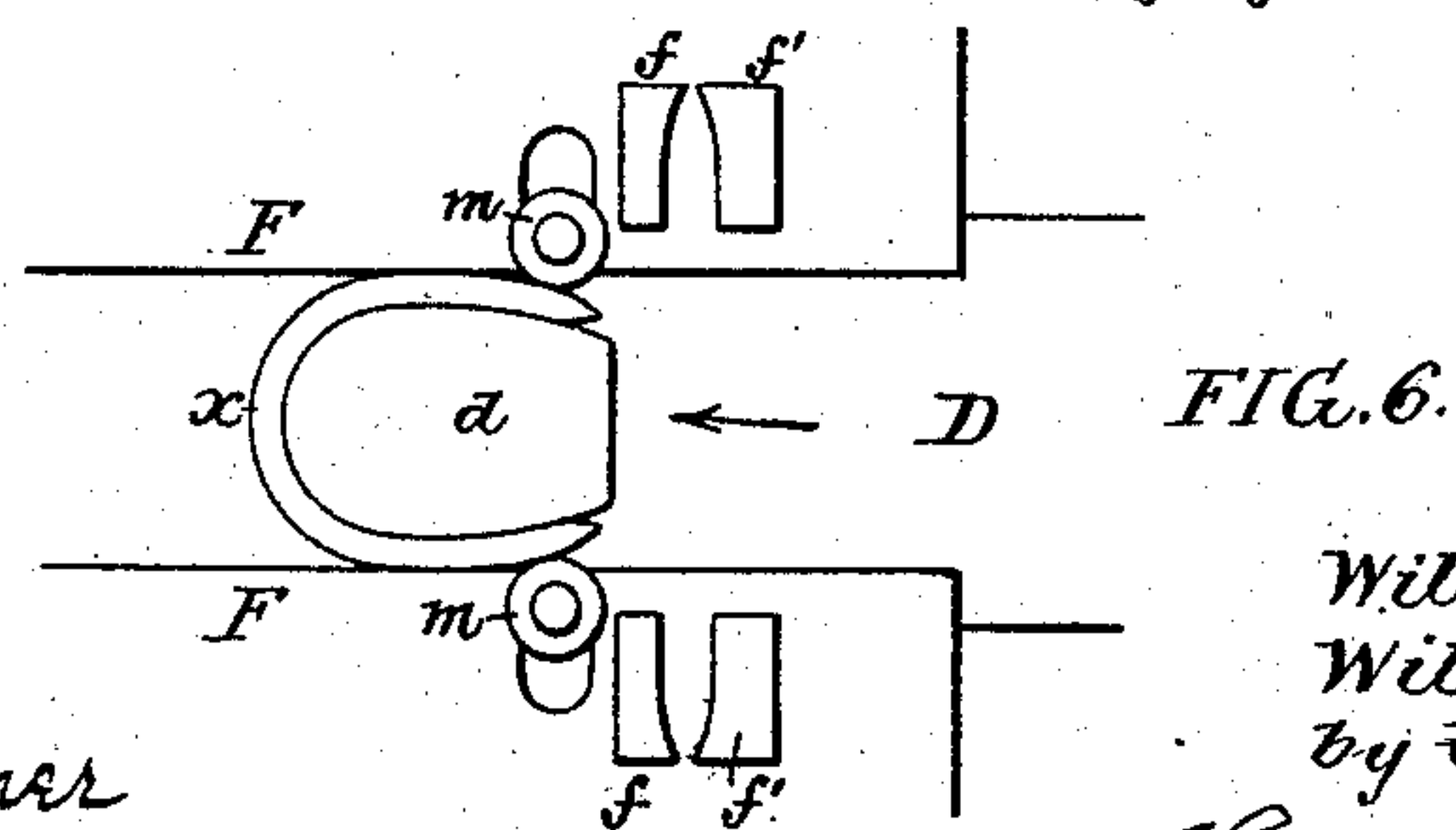
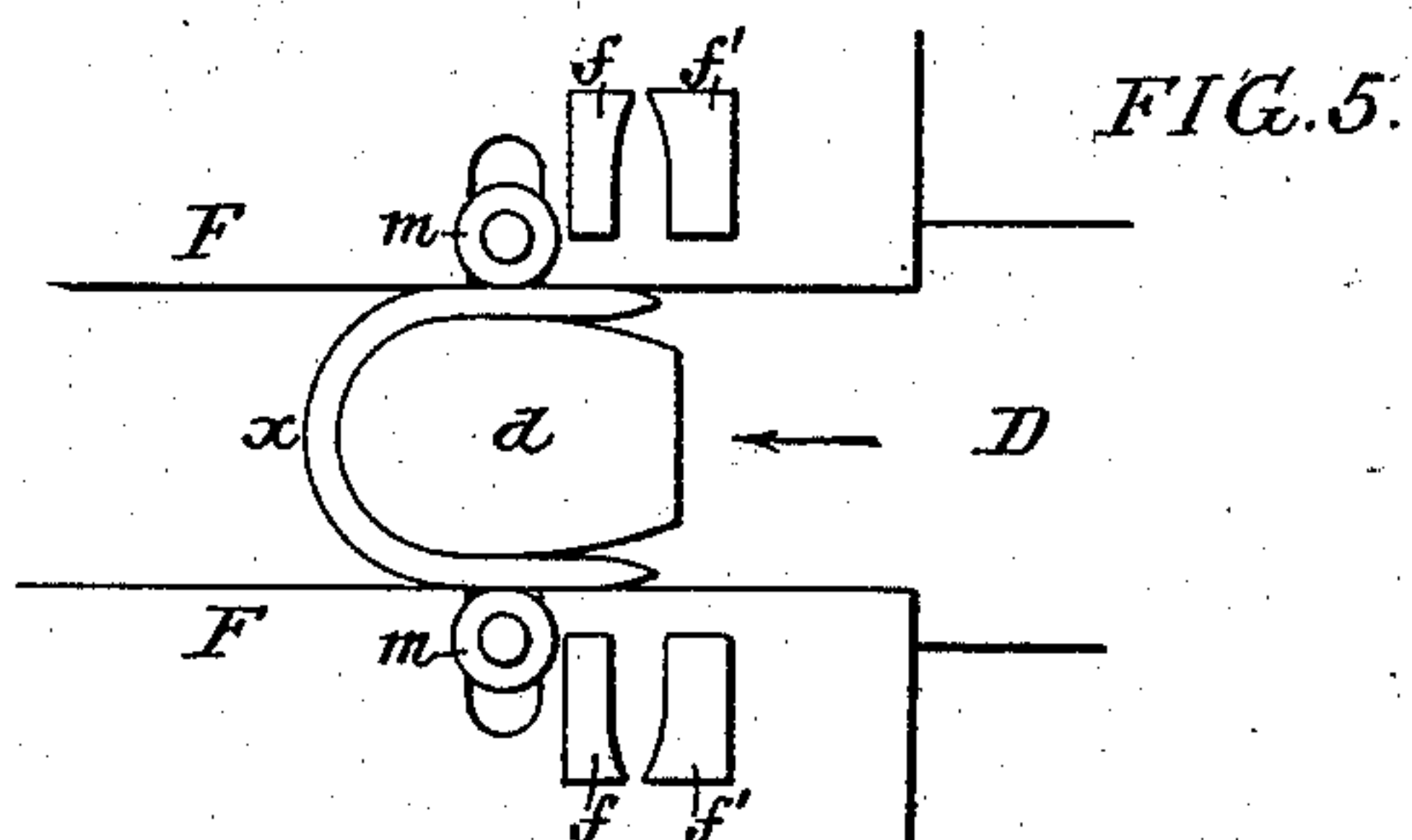
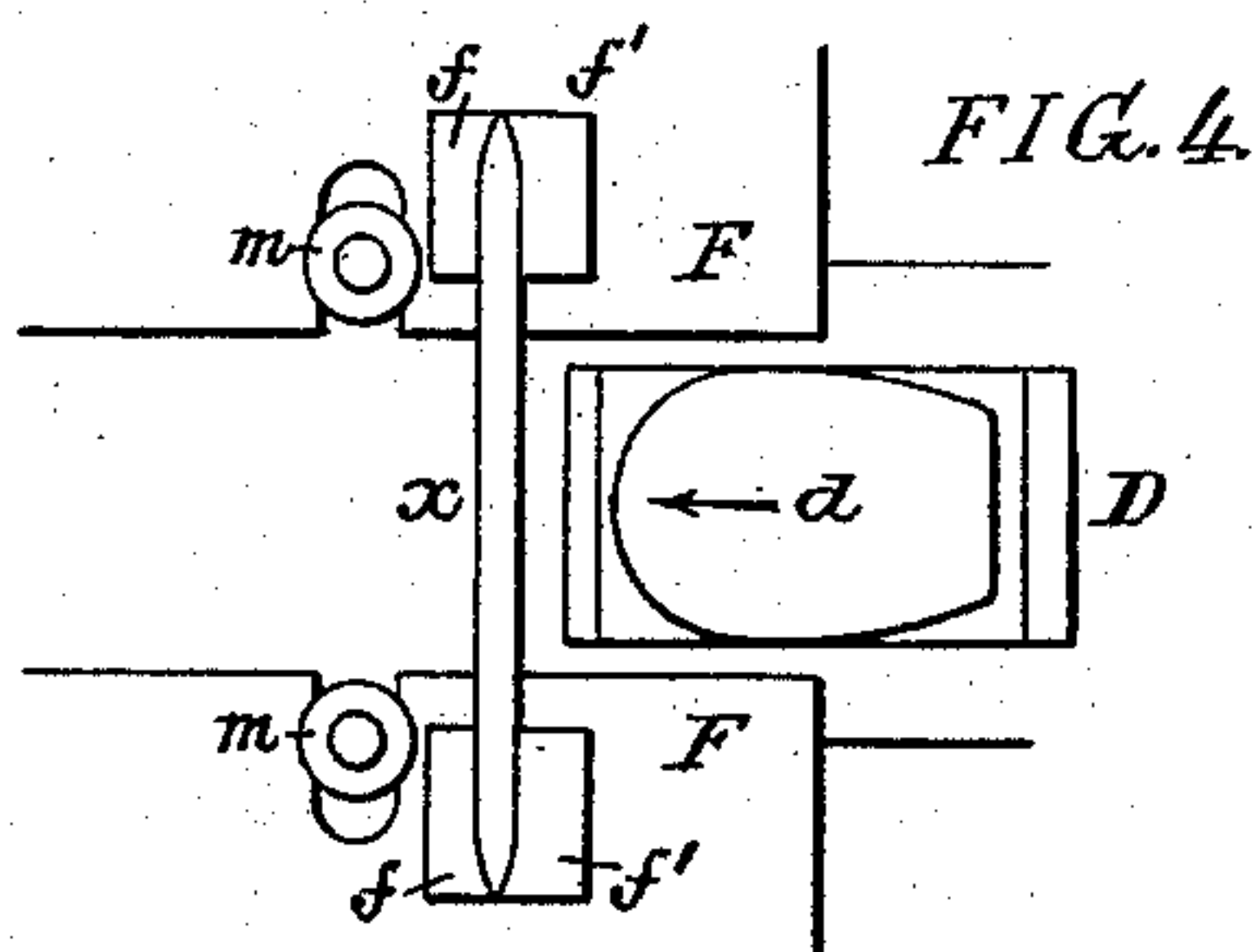
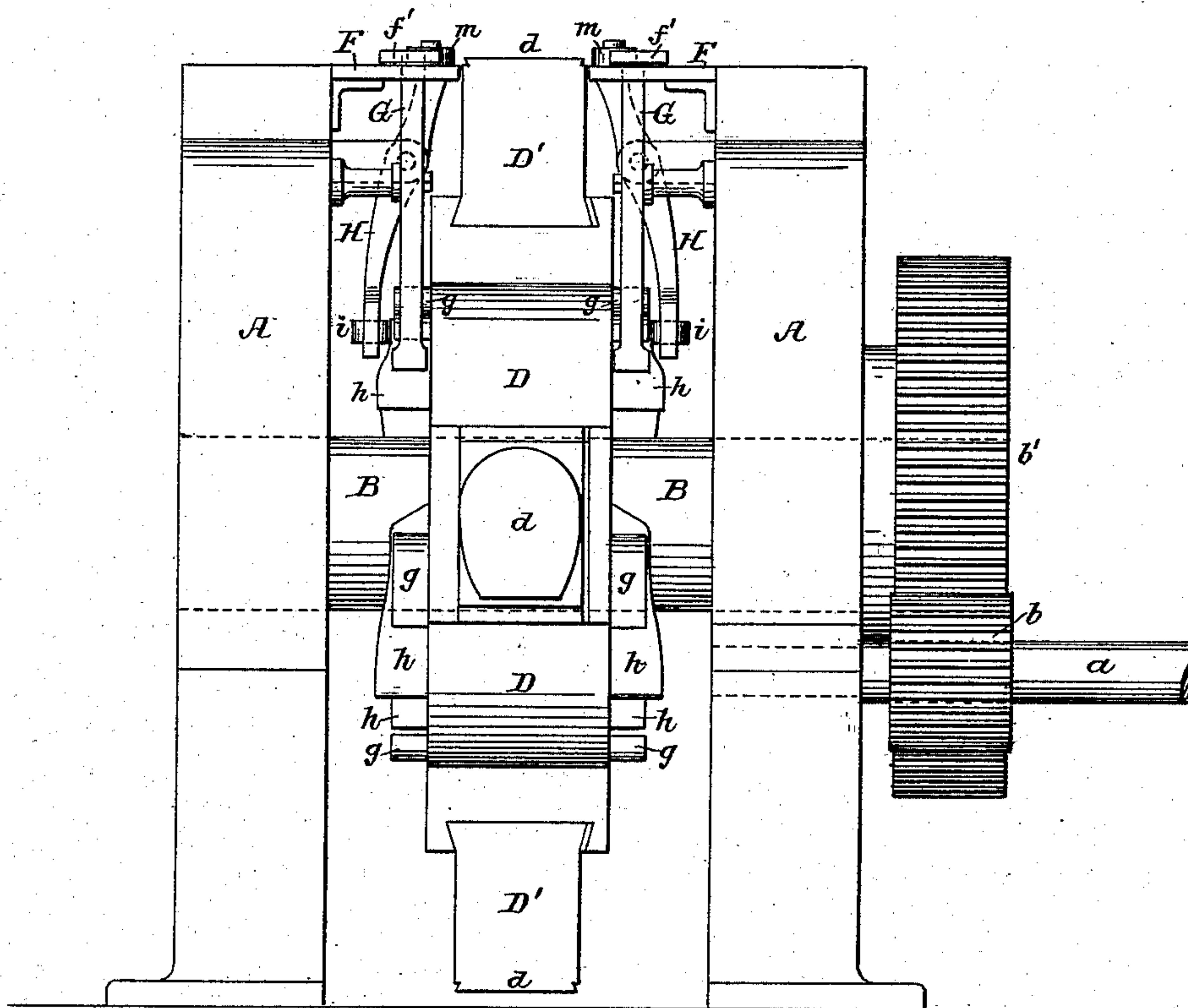
2 Sheets—Sheet 2.

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FIG. 3.



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William Seaman  
by their Attorneys  
Howson & Howson



# UNITED STATES PATENT OFFICE.

WILLIAM EYNON AND WILLIAM SEAMAN, OF WILMINGTON, DELAWARE.

## HORSESHOE-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 406,713, dated July 9, 1889.

Application filed February 15, 1889. Serial No. 300,037. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM EYNON and WILLIAM SEAMAN, both citizens of the United States, and residents of Wilmington, New Castle county, Delaware, have invented certain Improvements in Horseshoe-Bending Machines, of which the following is a specification.

The object of our invention is to construct a machine of a simple character for rapidly bending into horseshoe form straight blanks, the latter being preferably creased beforehand, so that after being subjected to the action of the bending-machine they form finished shoes, with the exception of the nail-holes.

In the accompanying drawings, Figure 1 is a plan view of a horseshoe-bending machine constructed in accordance with our invention, the cams on the die-carrier being omitted to avoid confusion. Fig. 2 is a longitudinal section on the line 1-2, Fig. 1, showing the greater portion of the machine in elevation. Fig. 3 is an end view of the machine; and Figs. 4, 5, and 6 are diagrams illustrating the operation of the machine.

A A represent the opposite end frames or housings of the machine, having suitable bearings for a shaft B, to which a rotating movement is imparted from a counter-shaft *a*, through the medium of a spur-pinion *b* and spur-wheel *b'*, as shown in Figs. 1 and 3, the shaft *a* being driven in any suitable manner.

Secured to the shaft B is a disk D, which has a series of projections, each carrying a die-block D', the bases of these die-blocks being beveled, and the projections of the disks being provided with dovetailed recesses for the reception of said beveled bases, so that the die-blocks can be readily secured to or removed from the disk, as required, each die-block having on its outer face a former-die *d*, of the proper shape for the shoe to be bent.

Projecting inward from the opposite end frames or housings of the machine are curved benches or tables F, which are slightly eccentric in respect to the axis of the die-carrying disk, for a purpose described hereinafter. On the upper portion of each of these tables F is fixed a die *f*, beveled near its outer end, counter-dies *f'* working in conjunction with said fixed die *f*, being carried by the upper ends of longitudinally-swinging levers G, which are

suitably hung to bearings on the end frames of the machine, and are acted upon by cams *g* on the opposite faces of the die-carrying disk D, as the disk D revolves in the direction of the arrow, Fig. 2. On the ends of the die-carrying disks are other cams *h*, acting upon anti-friction rollers *i*, carried by the lower ends of transversely-swinging levers H, which are hung to bearings in the end frames of the machine and carry at their upper ends rolls *m*.

The operation of the machine is as follows: The dies *f'* being withdrawn to their farthest extent from the dies *f*, a blank *x* is laid upon the opposite tables F F, in front of the dies *f* and in advance of the approaching former-die *d*. The dies *f'* are then advanced by the action of the cams *g* upon the levers G, so that the ends of the blank are nipped and squeezed between the beveled ends of the dies *f f'*, and the proper taper is thereby imparted to said ends of the blank, as shown in Fig. 4. The advancing former-die *d* now strikes that portion of the blank which bridges the space between the opposite tables F F, and the dies *f f'* having receded from the fixed dies *f*, the blank is carried forward, the ends of the blank passing clear of the dies *f'* and being bent around the former-die *d* into a position parallel with the plane of movement of said die, as shown in Fig. 5. As the former-die *d* is passing the rolls *m* at the upper ends of the levers H, the anti-friction rollers carried by the lower ends of said levers are acted upon by the cams *h* of the die-carrying disk, and said rolls *m* are caused to advance, so as to press the rear ends of the blank inward against the contracted rear portion of the former-die *d*, as shown in Fig. 6. The blank thus bent around the former-die overhangs the inner edges of the side tables F, and as the die continues its movement the shoe is stripped off the same by reason of the eccentric plane of the said side tables, the shoe falling into a receptacle suitably placed. By mounting the dies upon a rotating die-carrier as many of these dies as desired may be used in a single machine, and but one set of squeezing and bending devices is necessary for the entire number of dies used, the machine being perfectly automatic in its operation—that is to say, no manipulation of the blank being re-



quired other than the placing of it in proper position on the machine in the first instance.

Having thus described our invention, we claim and desire to secure by Letters Patent—

5 1. The combination of the rotating die-holding disk, supports for the opposite ends of the blank, beveled pressing-dies for acting on said opposite ends and tapering the same before the blank is bent around the former-die  
10 as the latter advances, levers carrying the movable pressing-dies, and cams upon the disk for actuating said levers as the disk rotates, substantially as specified.

15 2. The combination of the rotating die-holding disk, supports for the opposite ends of the blank to be bent, dies for pressing the ends of the blank, rolls for pressing said ends inward against the contracted rear portion of the former-die, levers carrying the movable dies  
20 and rolls, and cams at the ends of the die-carrying disk for actuating said levers, substantially as specified.

3. The combination of the rotating disk having dovetailed projections, with the dies having dovetailed bases secured within the dovetailed recesses of the projections, substantially as specified. 25

4. The combination of the rotating die-carrying disk, and the dies rigidly mounted thereon, bearings for the opposite ends of the blank, acting to bend the blank around the former-die as the latter advances, and supporting shelves or tables eccentric in respect to the axis of rotation of the die-holding disk, whereby the shoes are stripped from the former-die, 30 substantially as specified. 35

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WM. EYNON.  
WM. SEAMAN.

Witnesses:

BENJ. E. HEFFNER,  
JAMES MAGAHERN.