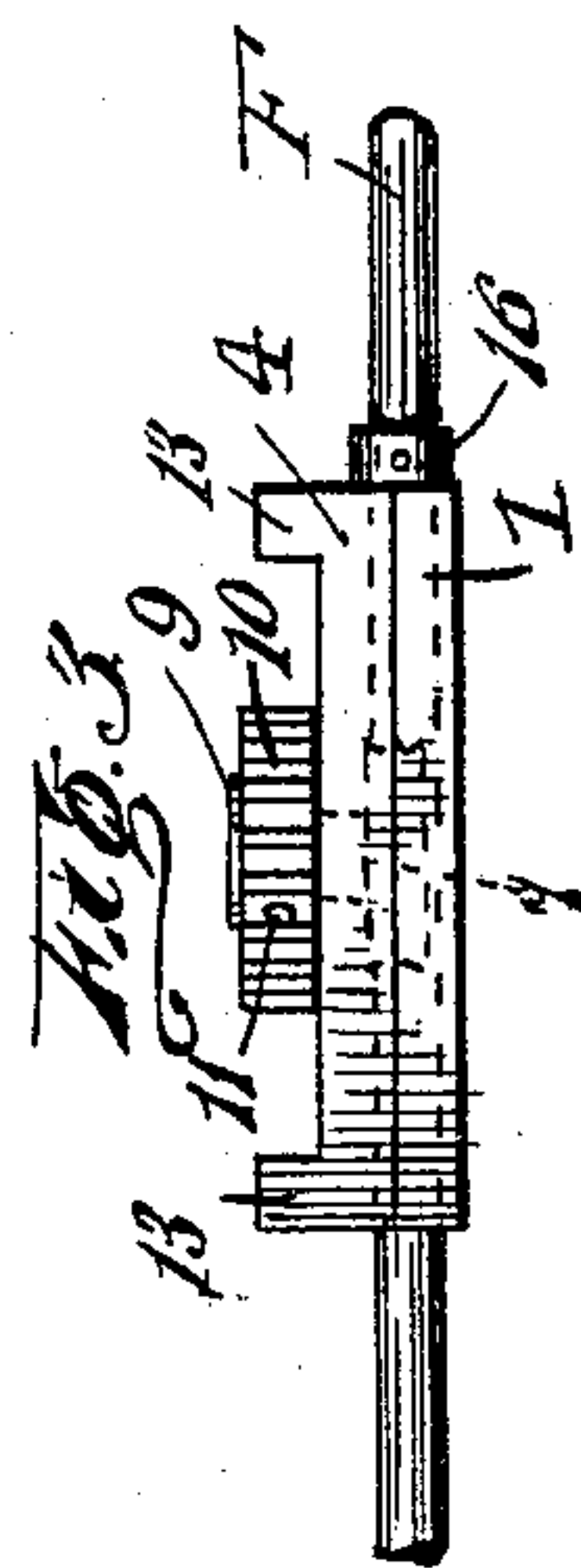
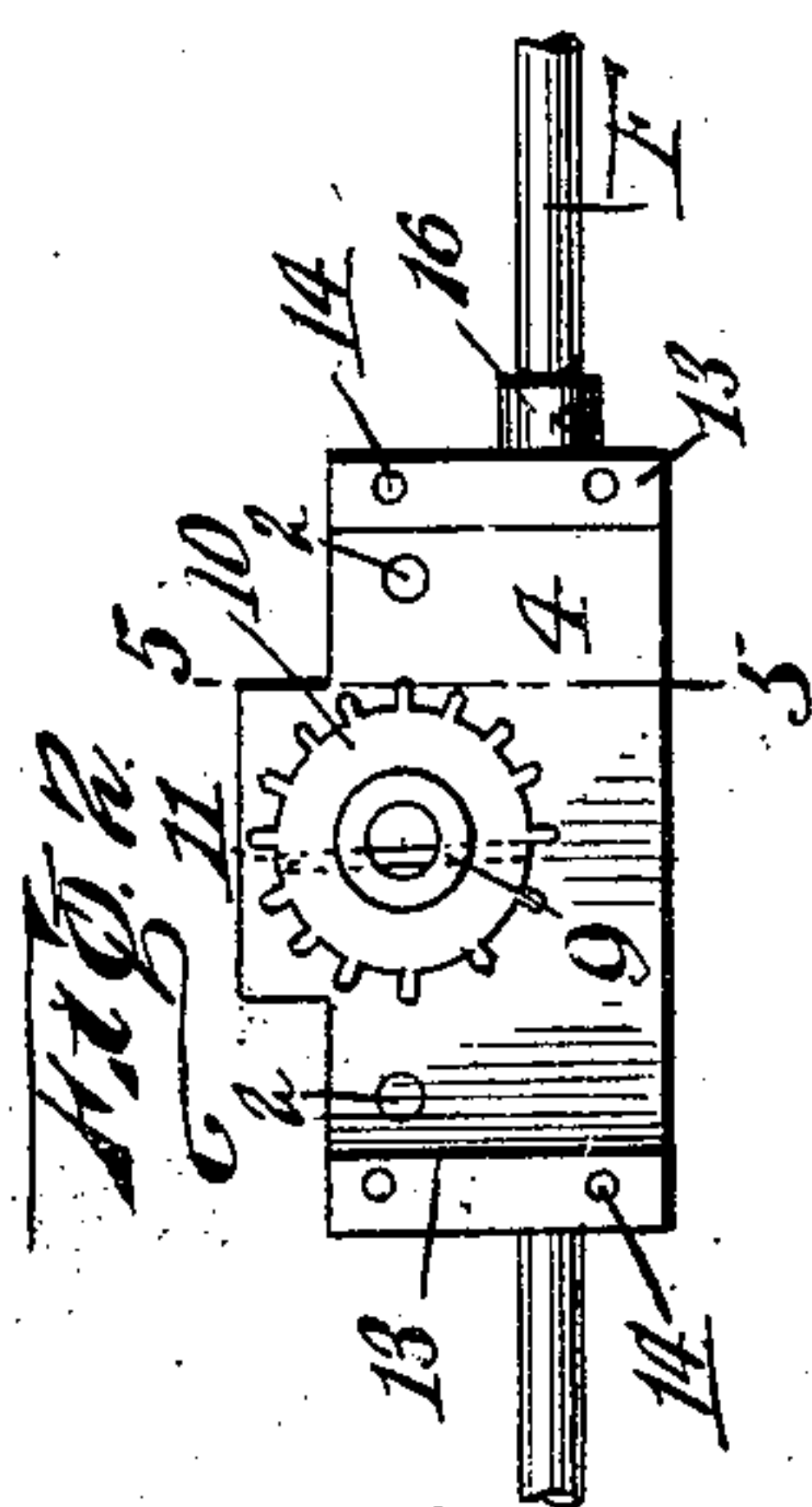
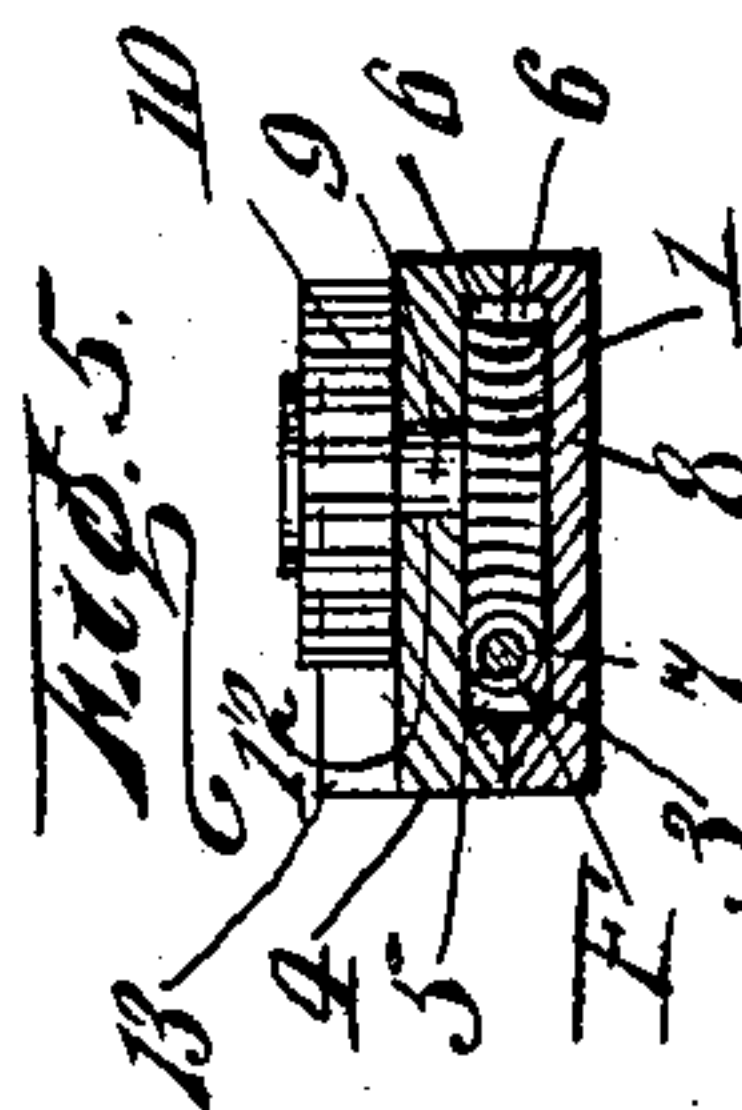
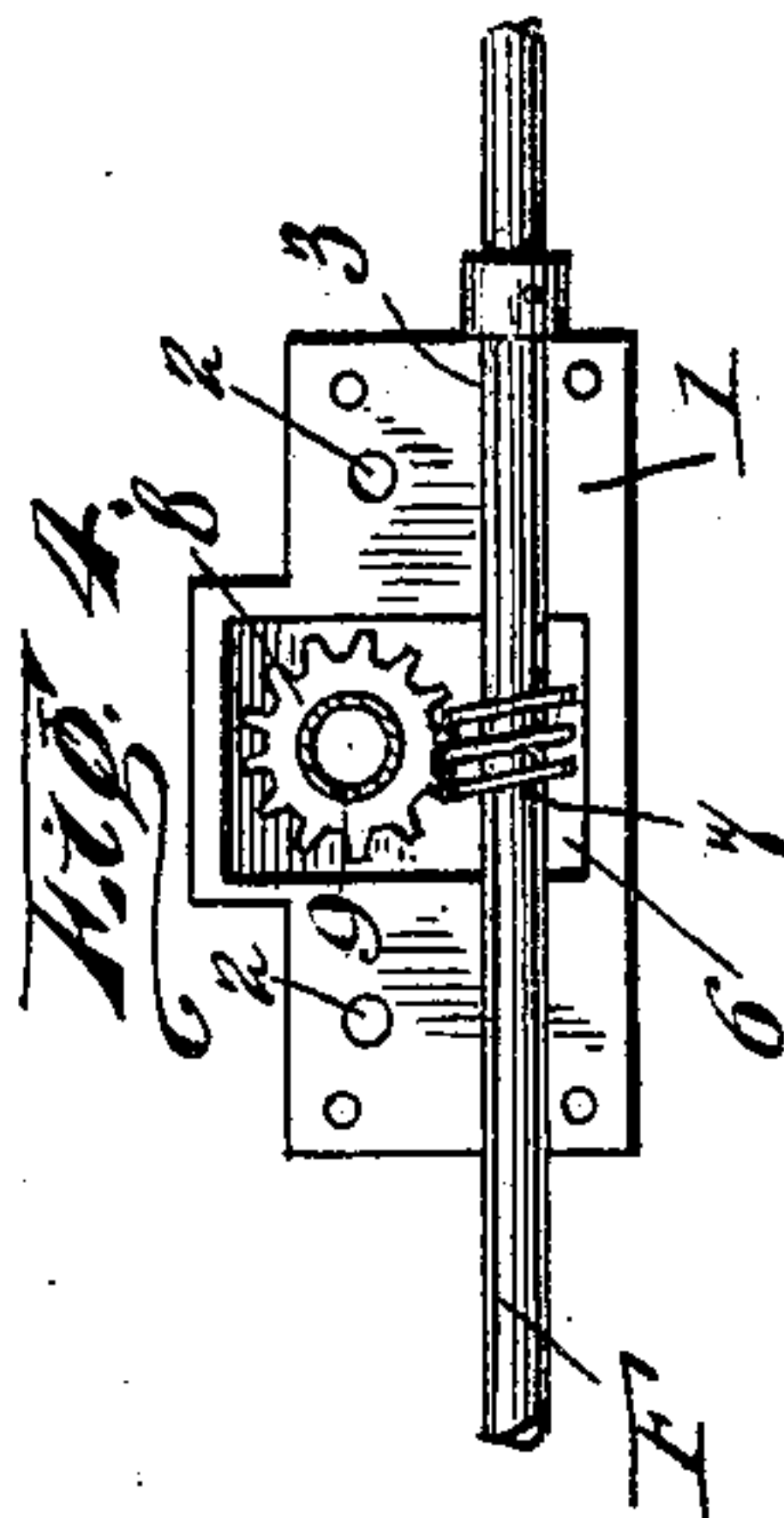
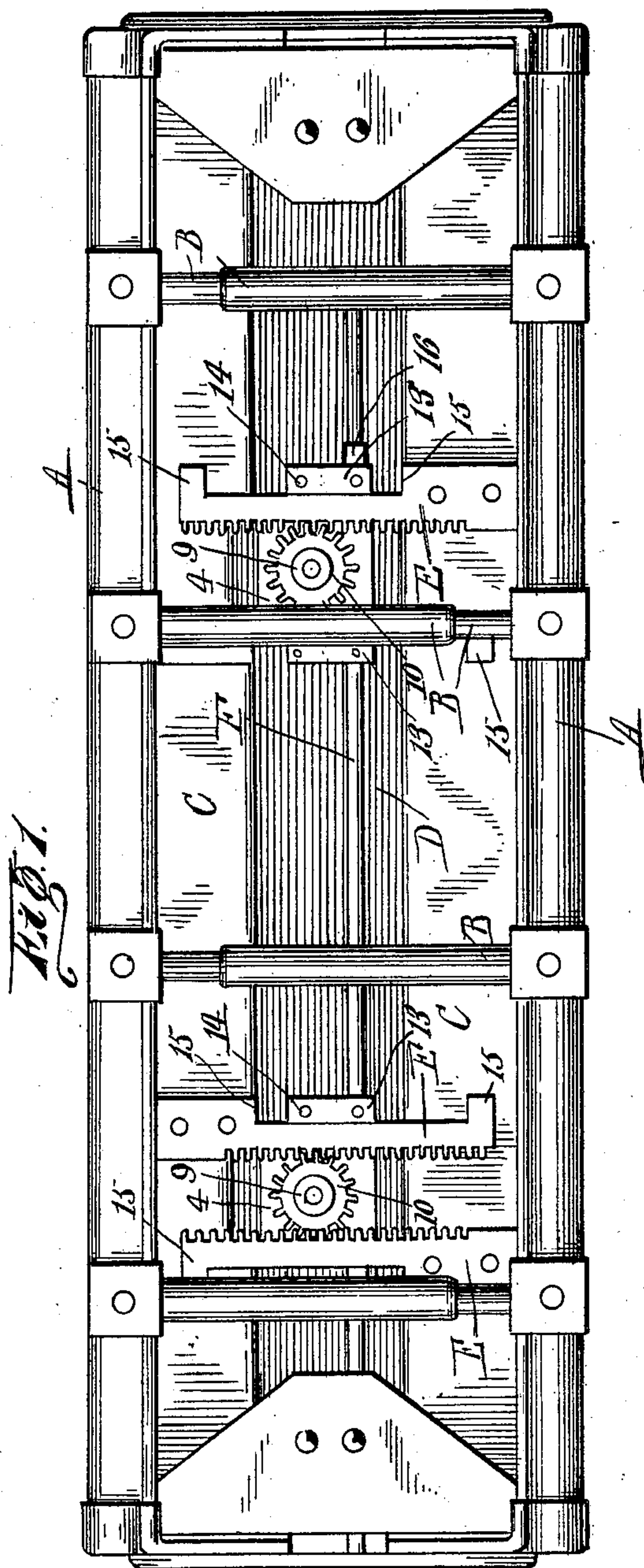


No. 862,144.

PATENTED AUG. 6, 1907.

W. J. DUNN.
LOOSE LEAF BINDER.
APPLICATION FILED JAN. 30, 1907.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM JOHN DUNN, OF MONTREAL, QUEBEC, CANADA.

LOOSE-LEAF BINDER.

No. 862,144.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed January 30, 1907. Serial No. 354,803.

To all whom it may concern:

Be it known that I, WILLIAM JOHN DUNN, a subject of the King of Great Britain, residing at the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful improvements in Loose-Leaf Binders; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to loose leaf binders; the object of my invention is to provide a bearing block to hold the actuating shaft of the binder firmly in mesh with the gear which actuates the racks attached to ordinary forms of binder sections; a further object is to provide means on the bearing block coöperating with the racks to limit the movement of the racks and their connected sections; a further object is to provide a simply constructed actuating gear for the racks; a further object is to provide means for preventing longitudinal movement of the actuating shaft; and, my invention consists of the construction, combination and arrangement of parts, as herein illustrated, described and claimed.

In the accompanying drawings, forming part of this application, I have illustrated one form of embodiment of my invention, in which drawings similar reference characters designate corresponding parts, and in which:

Figure 1 is an inside plan view of a common form of binder; Fig. 2 is an enlarged detail in plan of one of the bearing blocks and its immediately connecting parts; Fig. 3 is a side elevation of a bearing block; Fig. 4 is a plan view of the bearing block, and its immediately connected parts, the upper section of the block being removed; and Fig. 5 is a transverse vertical section on line 5—5 of Fig. 2.

In binders of the character herein illustrated and described, there has been difficulty in guiding the side sections so that they would not bind one upon the other, and there has been difficulty in securing a connection so that the actuating shaft would remain in mesh with the actuating gear for reciprocating the side sections of the binder. To obviate these difficulties, I have provided a simple block adapted to maintain the actuating shaft firmly in mesh with the gear, and at the same time I have provided on the block guiding means, which are also adapted to limit the movement of the racks, so that the side sections will not bind, and cannot be actuated too close together or too far apart so as to separate the sections from the rest of the binder.

Referring to the drawings, A, A designate side sections having telescoping fingers B, flanges C and a re-

movable back section D, the latter of which is secured to a binder proper. Carried by the flanges C are oppositely projecting actuating racks E, and disposed longitudinally of the back section D is an actuating shaft F, all of said parts being of common and ordinary construction and purchasable on the open market.

Disposed beneath the racks E on the back D, is a lower section 1 of a bearing block, adapted to be secured by means of the rivets 2. The lower section 1 of the block is provided with a longitudinal recess 3, in which is disposed the longitudinal shaft F. Disposed on the lower section 1 of the bearing block is an upper section 4, provided with a longitudinal recess 5 (Fig. 5) corresponding to the recess 3 in the upper block and adapted to receive the shaft F, said recesses forming a bearing in which said shaft may be freely rotated, but which effectually prevents lateral movement of the shaft. The sections 1 and 4 are provided with coinciding recesses 6, in which rotates the worm 7, cut directly on the shaft F. The object of having the worm 7 cut directly on the shaft instead of having a sleeve with a worm thereon, is that the former construction is stronger and cheaper, and requires the use of fewer parts.

Disposed in the recesses 6 is a pinion 8, having a hollow neck 9 projecting upwardly through the upper section 4. Disposed on the hollow neck 9 is a gear 10, in mesh with the racks E. The gear 10 is secured in position on the neck by turning down or rolling over the upper end of the neck, so that a slight flange is formed. The gear is further secured by means of the horizontal pin 11 inserted therethrough and working into the neck 9. A suitable opening 12 is provided in the upper section 4 to form a bearing for the neck 9. The neck 9 having a bearing in this opening, and the upper face of the pinion 8 and the lower face of the gear 10 working against the upper and lower faces of the upper block 4, the gear 10 is firmly held against movement except rotation. The shaft F being rotated, the worm 7 engaging the pinion 8 causes rotation of the gear 10 and causes reciprocation of the racks E.

Formed on each end of the upper section 4 are shoulders 13. Against these shoulders bear the smooth sides of the racks E, so that the racks have no torsional movement with relation to the binder, and the sections A are caused to move away from and towards each other parallel to each other, thus preventing any binding between the telescoping parts B. Suitable pins or rivets 14 are disposed transversely through the shoulders 13 and through the lower section 1, by means of which the parts of the block are held together.

The shoulders 13 are adapted to abut against the lugs 15 formed on the racks E, so that movement of the racks E in either direction is limited, so that the sections

A of the binder cannot be jammed too close together nor can they be so far separated as to permit their removal from the binder without taking the parts of the structure to pieces.

- 5 A collar 16 is pinned on the shaft F adjacent the end of one of the bearing blocks, so that longitudinal movement of the shaft F is prevented.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, 10 is:—

1. A bearing block for loose leaf binders, comprising sections provided with shaft and gear receiving recesses and one of the sections being provided with an opening, and means for securing the sections together.
- 15 2. A bearing block for loose leaf binders, provided with shaft and gear receiving recesses and the upper section being provided with a vertical opening, and being provided with a vertical shoulder at each end.
3. A bearing block for loose leaf binders, comprising sections having shaft and gear receiving recesses and said sections being superposed and the upper section being provided with a vertical opening, and rivets disposed through the sections.
- 20 4. In combination with a binder having reciprocable sides and racks carried by the sides, a bearing block carried 25

by the binder, a shaft disposed through the block and provided with a worm, a pinion disposed within the block in mesh with the worm, and a gear connected with the pinion and in mesh with the racks.

5. In combination with a binder having reciprocable sides and racks secured to the sides, a bearing block carried by the binder, a shaft disposed through the block and provided with a worm, a pinion disposed within the block in mesh with the worm and provided with a hollow neck projecting from the block, and a gear secured on the neck 30 and disposed in mesh with the racks. 35

6. In combination with a binder having reciprocable sides and racks secured to the sides, a bearing block carried by the binder, a shaft disposed through the block and provided with a worm, a pinion disposed within the block in mesh with the worm and provided with an integral hollow neck projecting from the block, and a gear disposed on the outer end of the neck in mesh with the racks, said neck being rolled over the gear, and a pin disposed through the gear and working into the neck. 40 45

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM JOHN DUNN.

Witnesses:

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