

No. 661,462.

Patented Nov. 6, 1900.

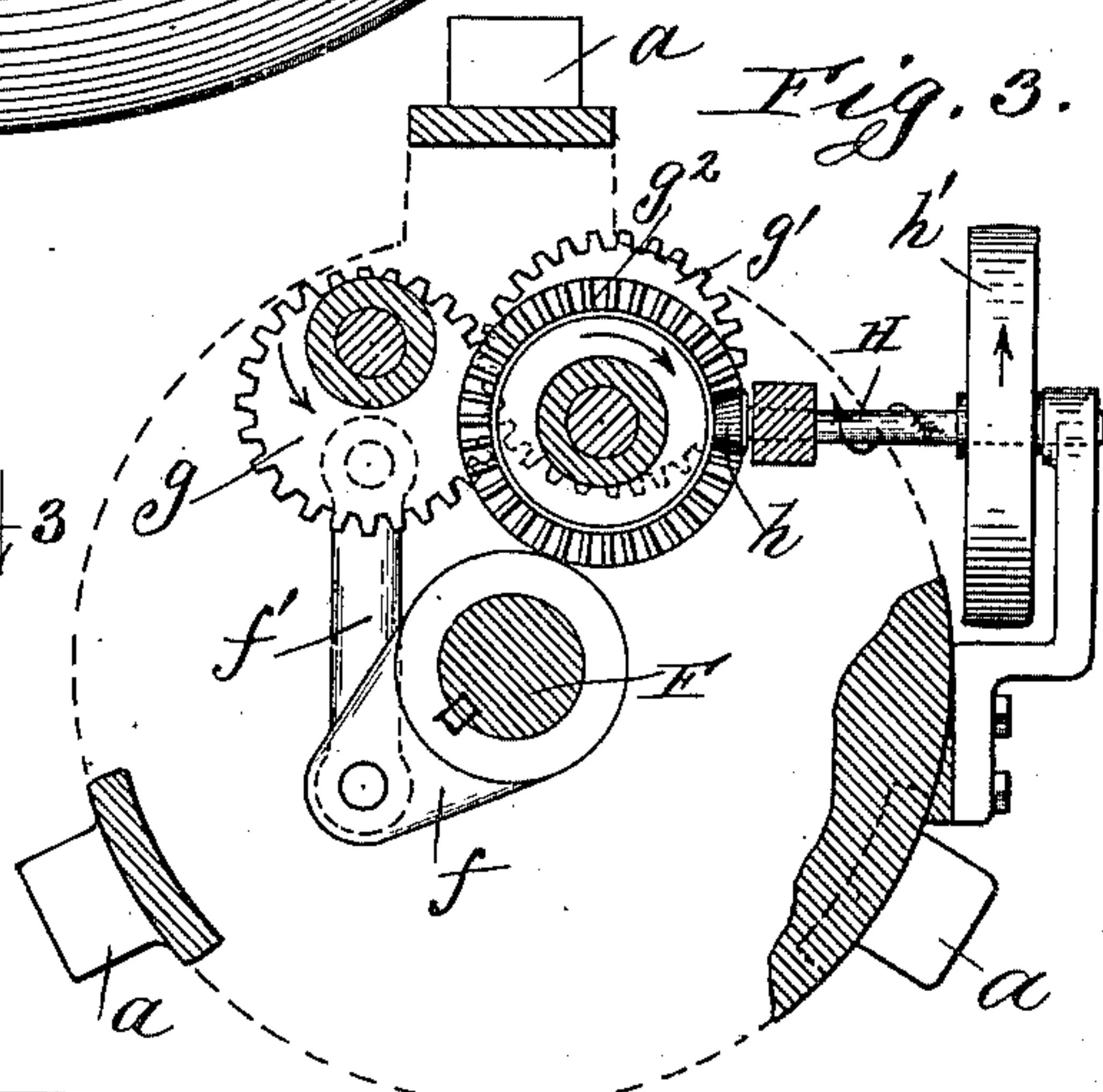
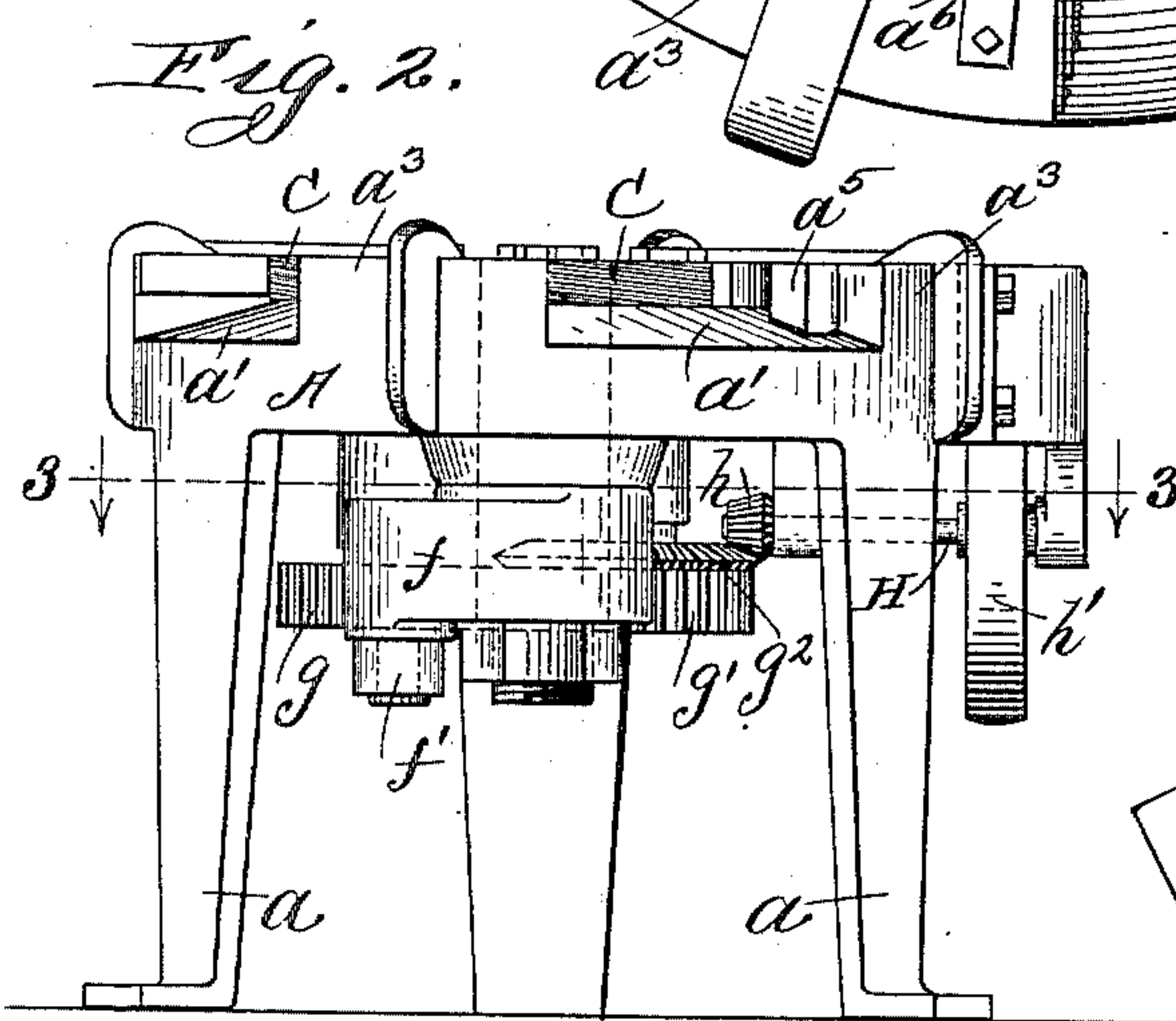
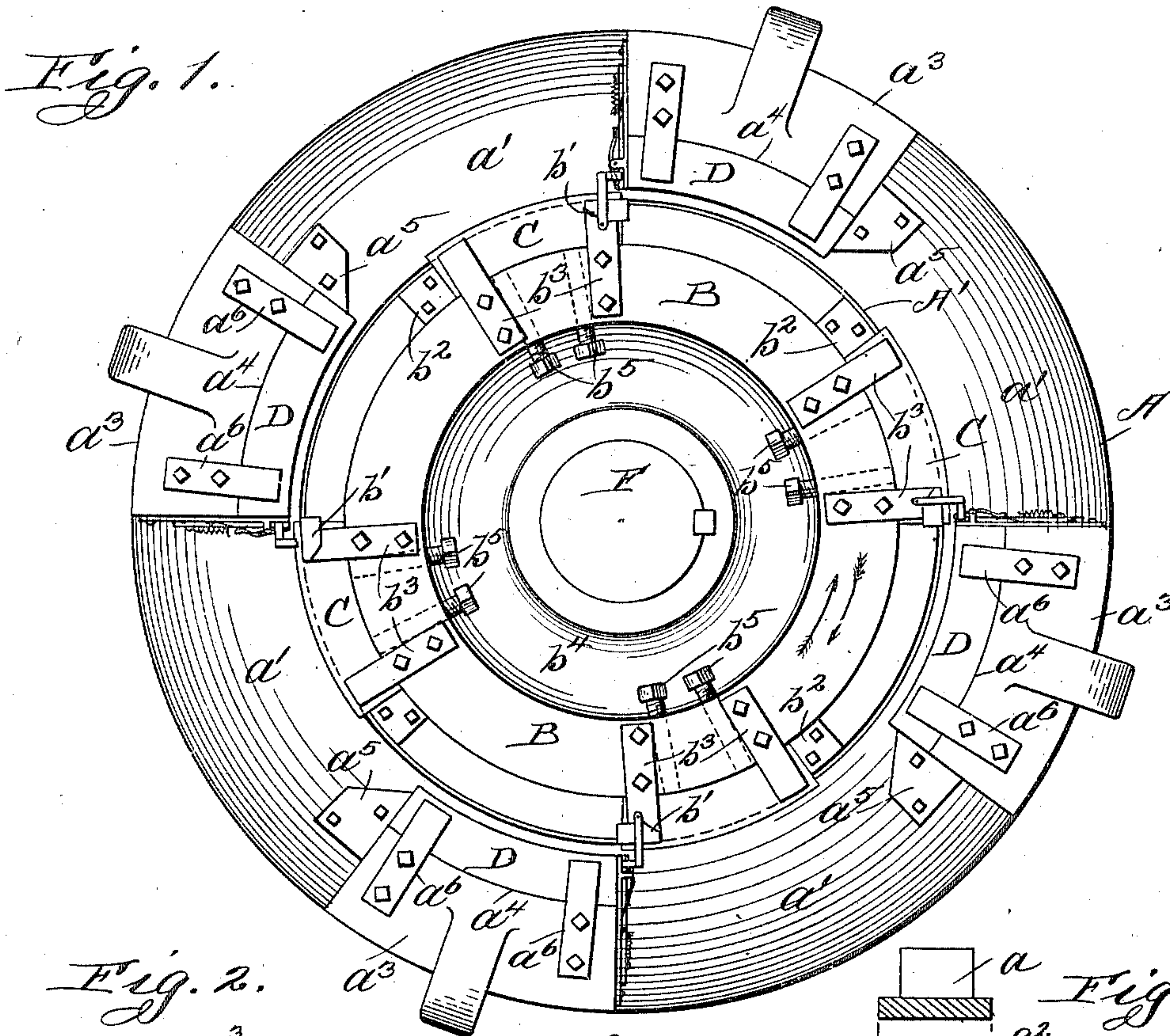
J. P. WENNERSTEN.

MACHINE FOR ROLLING SCREWS OR OTHER ARTICLES.

(Application filed Dec. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 4.

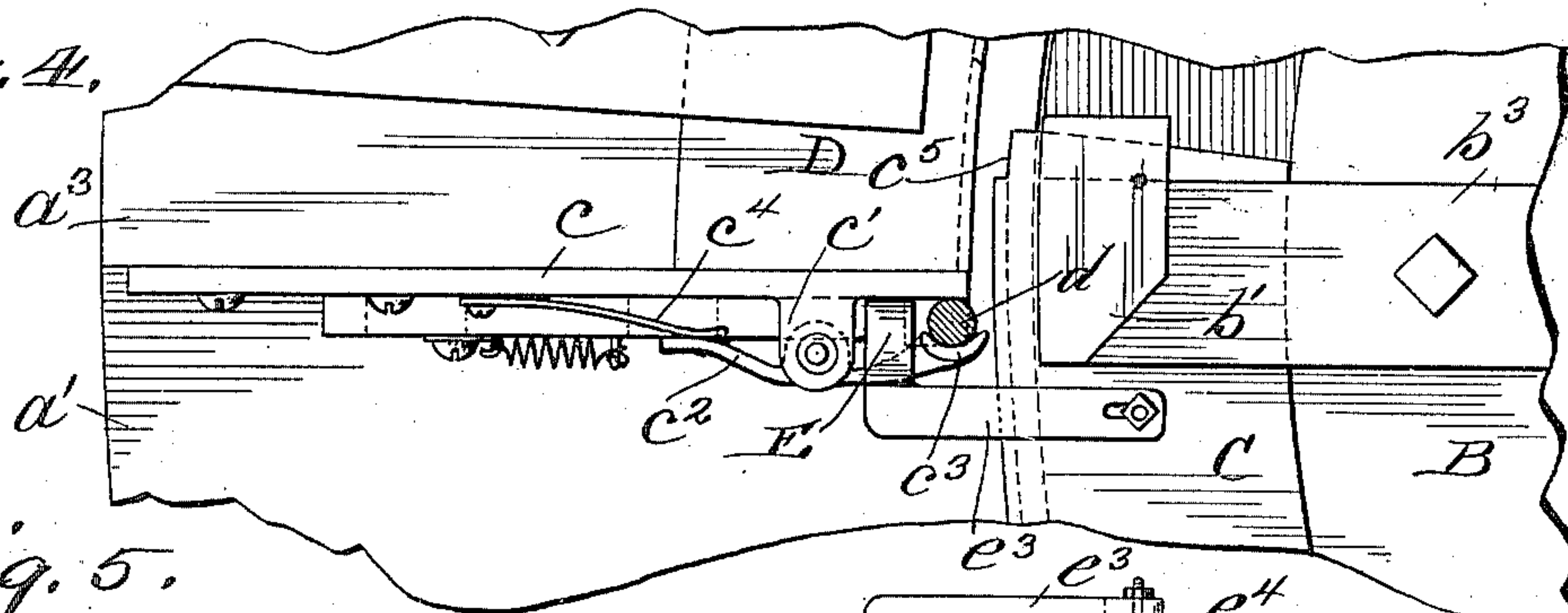


Fig. 5.

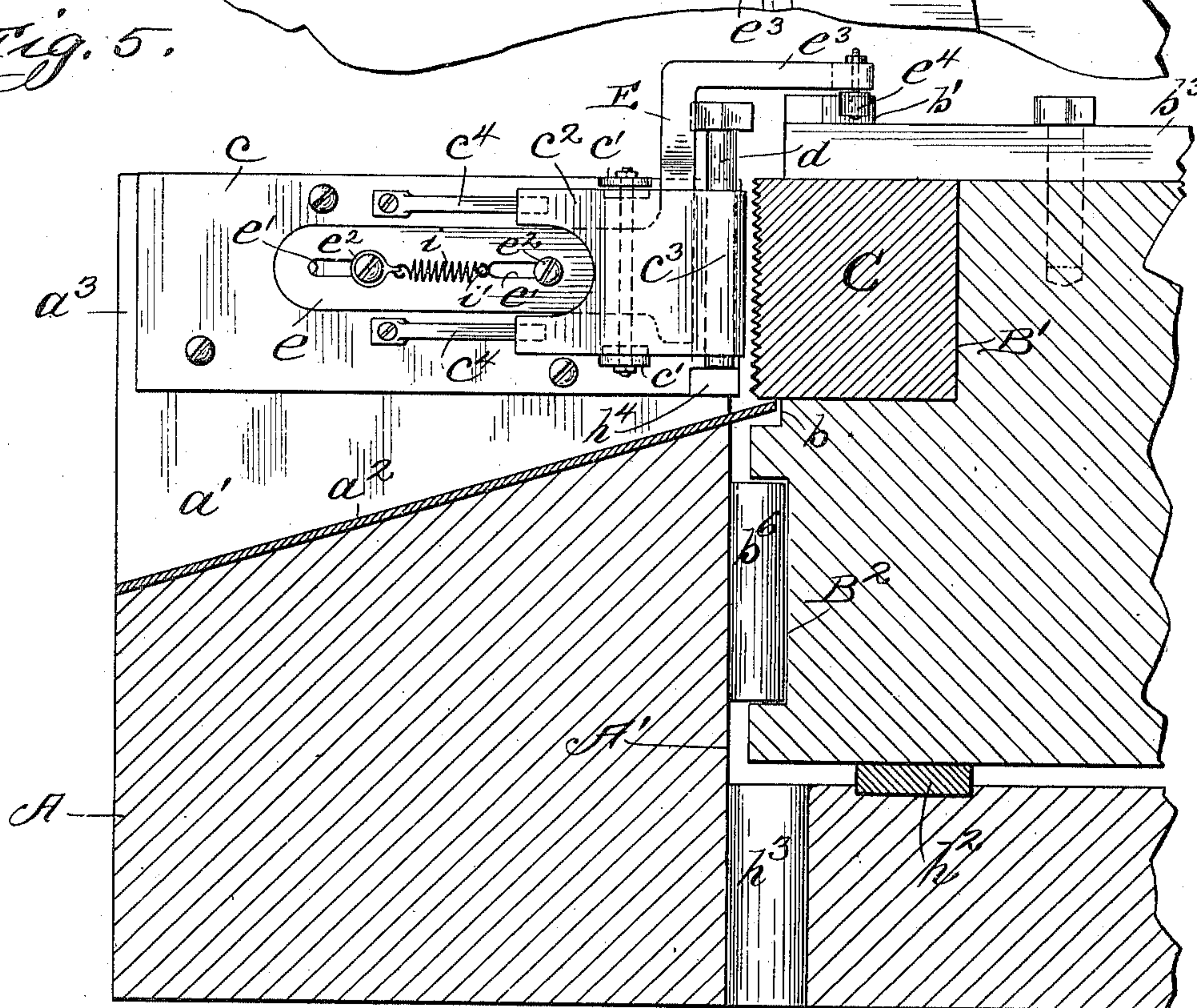


Fig. 6.



Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN P. WENNERSTEN, OF CHICAGO, ILLINOIS.

MACHINE FOR ROLLING SCREWS OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 661,462, dated November 6, 1900.

Application filed December 28, 1899. Serial No. 741,789. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. WENNERSTEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making Screws or other Articles, of which the following is a specification.

This invention relates to improvements in a machine for making screws and other articles, such as bolts, rivets, and the like; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of my invention is to provide a machine of the above-named character which will form or make screws and other articles by the cold-rolling process and which shall be simple and inexpensive in construction, strong and durable, and capable of turning out a great amount of work in a short period of time.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a plan view of the machine, showing the parts in position ready for operation. Fig. 2 is a view in side elevation thereof. Fig. 3 is a plan sectional view, partly in elevation, taken on line 3 3 of Fig. 2, illustrating the driving mechanism of the machine. Fig. 4 is an enlarged plan view of a portion of the oscillating head and a part of the frame, showing the means for supplying or feeding the stock or material of which the screws and articles are made to the dies. Fig. 5 is a vertical sectional view through a portion of the head and the supporting-frame, showing the feeding mechanism in side elevation; and Figs. 6 and 7 are face views of a pair of dies used for making screws.

Similar letters refer to like parts throughout the different views of the drawings.

A represents the main or supporting frame, which is circular in its upper portion, as shown in Fig. 1 of the drawings, and is sup-

ported at a suitable height by means of legs *a*, which may be secured to the floor or a suitable base.

The upper portion of the supporting or stationary frame A is formed with a counter-sunk circular opening A' for the reception and operation of the head B, which carries a number of dies of the desired shape and construction to form screws or other articles. The upper portion of the frame A is also provided with a number of recesses *a'*, communicating with the circular opening A' and inclined outwardly therefrom for the passage of the screws or other articles after they have been formed, as well as for the passage of clippings and shavings falling from the dies. Located in each of the recesses *a'* and resting on the bottom thereof is a piece of sheet metal *a²*, which extends some distance into the circular opening A' of the supporting-frame and into a groove *b*, just below the face of each of the dies C, which the oscillating head carries. These pieces *a²* are employed to prevent the shavings or clippings falling between the head and the inner wall of the supporting-frame, which would clog or impede the operation of the machine. Between the recesses *a'* of the main frame are upwardly-extending portions *a³*, each of which is formed on its surface adjacent to the head with a die-seat *a⁴*, usually slightly curved, as shown in Fig. 1 of the drawings. Secured against one end of each of the extensions or upright portions *a³* of the main or supporting frame is an abutment *a⁵*, used to prevent the dies D slipping. These dies are prevented from rising by means of straps or arms *a⁶*, secured to the upper portion of the extensions *a³* by means of bolts or otherwise.

Secured to that end of each of the extensions *a³* opposite the abutments *a⁵* is a plate *c*, which is provided near its inner end with lugs *c'*, on which is pivotally secured a holder *c²* for the stock *d*, of which the screws or other articles are made.

The inner end of the holder *c²* is slightly concave, as shown at *c³*, to more firmly hold the piece *d* or stock.

Between the outer end of the holder *c²* and the plate *c* are located springs *c⁴* to actuate

said holder. Located between each of the holders c^2 and plates c is a feeder E, which comprises a plate e , having slots e' , through which are passed screws e^2 to movably secure
 5 said plate to the plate c on the extensions of the main frame. Extending upwardly from the plate e , then laterally above the holder c^2 , and then inwardly is an arm e^3 , which forms a part of the feeder and which has on its inner
 10 end a friction-roller e^4 to contact with a cam-plate b' , located above each of the dies C, which the head B carries. The head B is provided in its upper portion with a circumferential recess B' , in which the dies C are se-
 15 cured.

Located diametrically opposite each other in the recess B' of the head are abutments b^2 , with straps or arms b^3 to hold the dies C in position. The head B is also provided with
 20 an annular recess b^4 to permit of access to the screws b^5 , which are located in the head and employed for adjusting the dies C, which it carries. Located in a suitable groove B^2 in the periphery of the head are antifriction-
 25 rollers b^6 , which lie between the inner walls of the main frame and the periphery of the head, as is clearly shown in Fig. 5 of the drawings.

Journaled in suitable bearings on the main
 30 frame is a vertical shaft F, to which the head B is secured. The lower portion of this shaft is provided with a crank f , to which is pivotally secured one end of a pitman-rod f' , the other end of which is similarly secured to an
 35 eccentric gear g , which is suitably journaled on the main frame and meshes with another eccentric gear g' , which is also journaled on the main frame and carries a beveled gear g^2 , which meshes with a beveled pinion h on the
 40 driving-shaft H, journaled on the main frame, and which shaft carries a pulley h' , to which power for operating the machines may be applied.

Between the lower surface of the head B
 45 and the bottom of the recess A' in the main or supporting frame may be placed a ring h^2 of antifriction metal, and the lower portion of the main or supporting frame may be provided with openings h^3 , leading from the cavity
 50 A' , for the passage of clippings, shavings, and dirt which may fall into said cavity.

The operation of my machine is simple and as follows: The stock or material of which the screws or other articles are made is placed ver-
 55 tically between the inner end of the holder c^2 and the plate c , so that its lower end will rest on a projection h^4 on the lower inner portion of the plate c , when by applying power to the driving mechanism the head B will be caused
 60 to partially rotate, in which operation the rollers e on the feeder will contact with the beveled portion of the cam-plate b' , thus causing the feeder to move inwardly and force the stock d against the shoulders c^5 of the dies C
 65 on the head. As the head continues to rotate the stock d will be rolled between the

dies C and D and given the desired formation. After the stock has passed between the dies it will drop therefrom to the inclined recesses
 70 a' in the supporting-frame and roll off, when by reason of the peculiar gearing employed the head will be returned to its initial position, when a supply of stock may be inserted for the action of the dies. As soon as the
 75 rollers e^4 pass the plate b' it is apparent that the feeders E will be retracted by reason of the springs i , which are secured at one of their ends to one of the screws e^2 and at their other ends to pins i' on the plates e , constituting a part of the feeder. 80

While I have shown the machine provided with four sets of dies, yet it is apparent that I may employ any convenient number thereof and of any suitable shape so as to give the
 85 proper or desired form to the articles being made without departing from the spirit of my invention.

By reference to Fig. 3 of the drawings it will be seen that the portion of the eccentric gear g' nearest its axle will mesh with the
 90 portion of the gear g farthest from its axle, thus giving the greatest power and a comparatively slow movement while the stock is being passed between the dies, and vice versa when the head is being returned to its initial
 95 point. It will also be understood that the head B oscillates or is partially rotated and then carried back to its forward point by the said mechanism.

Having thus fully described my invention, 100 what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a main frame having upward extensions, of dies secured on said
 105 extensions, a head journaled on the main frame and located between said dies, a series of dies located on the head so as to be brought into parallelism and contiguity with the dies of the main frame, cam-plates secured to the
 110 head near the dies thereof, a spring-actuated feeder movably secured to each of the extensions of the main frame, and having a friction-roller to contact with the cam-plates, and means to operate the head, substantially as described. 115

2. The combination with a main frame having upward extensions, of dies secured on said
 120 extensions, a head journaled on the main frame and located between said dies, a series of dies located on the head, cam-plates located on the head near the dies thereof, a spring-actuated feeder movably secured to each of the extensions of the main frame and having a friction-roller to contact with the
 125 cam-plates, a spring-actuated holder secured to each of said extensions, and means to operate the head, substantially as described.

3. The combination with a main frame having upward extensions and a circular depression, of a series of dies secured on the inner
 130 faces of said extensions, a head journaled on the main frame within the said depression

thereof, a series of dies located on the periphery of the head and having a shoulder at one of their ends, cam-plates located on the head near the dies thereof, a spring-actuated
5 feeder movably secured to each of the extensions of the main frame, and having a friction-roller to contact with the cam-plates, a

spring-actuated holder secured to each of the said extensions, and means to operate the head, substantially as described.

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