

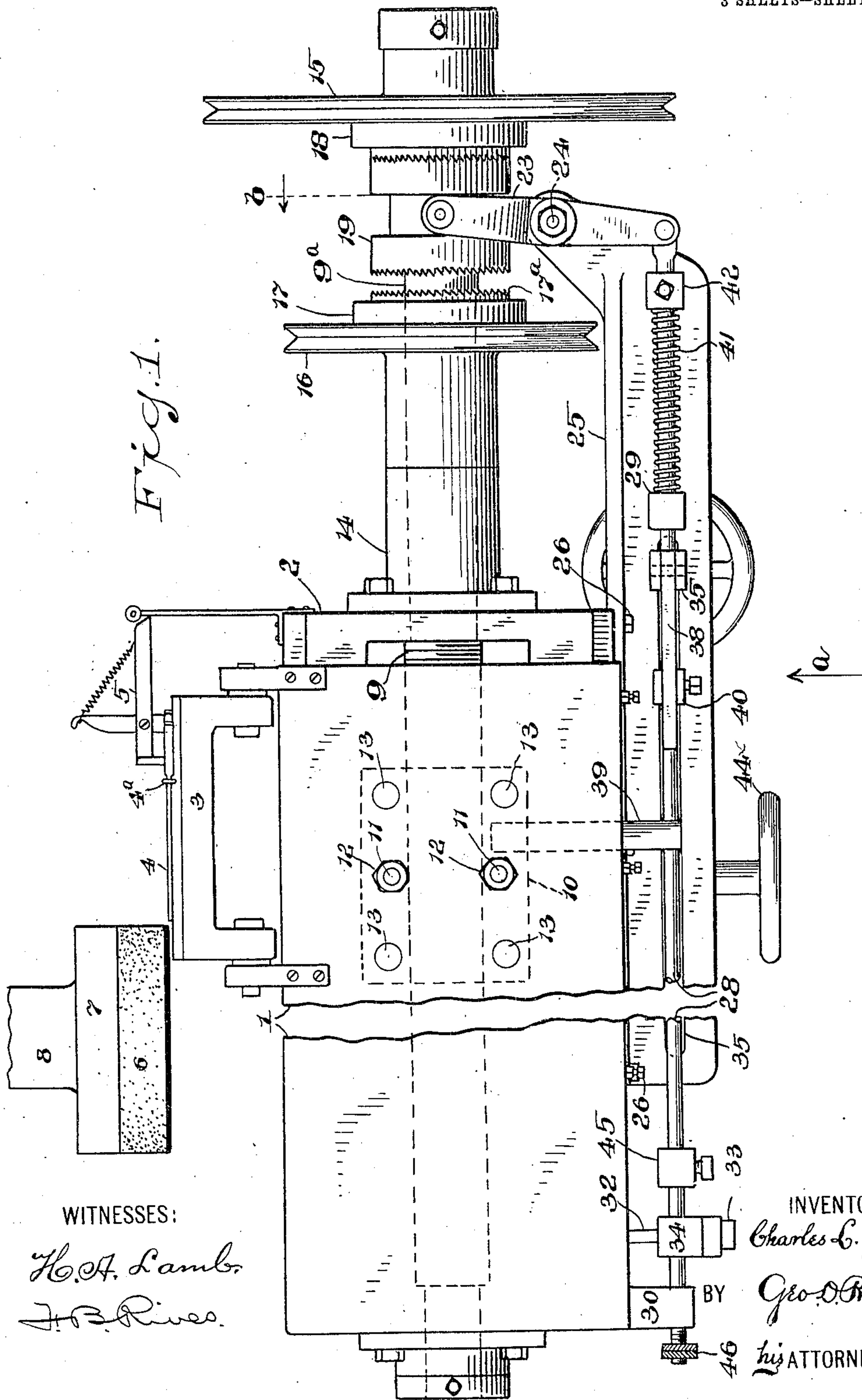
No. 844,870.

PATENTED FEB. 19, 1907.

C. L. JOY.  
CUTLERY GRINDING MACHINE.

APPLICATION FILED MAY 23, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

H. A. Lamb.  
J. B. Rives.

INVENTOR

Charles C. Joy.

BY *Geo. D. Phillips.*

*his* ATTORNEY

No. 844,870.

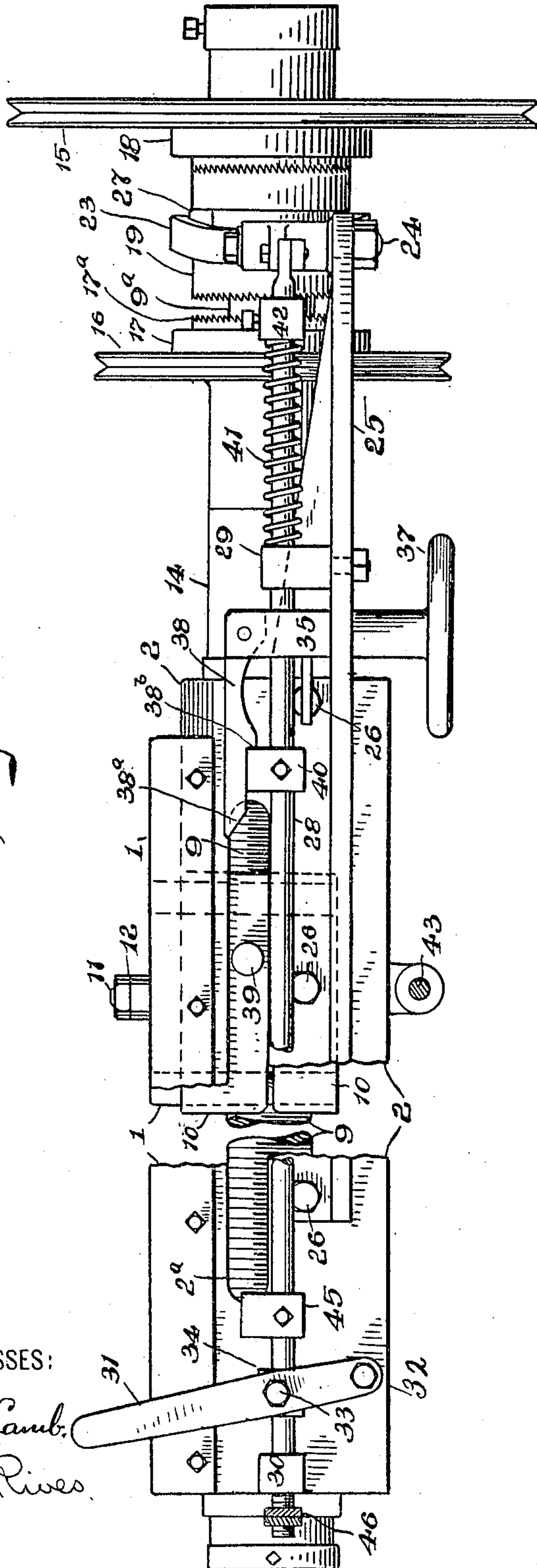
PATENTED FEB. 19, 1907.

C. L. JOY.  
CUTLERY GRINDING MACHINE.

APPLICATION FILED MAY 23, 1905.

3 SHEETS—SHEET 2.

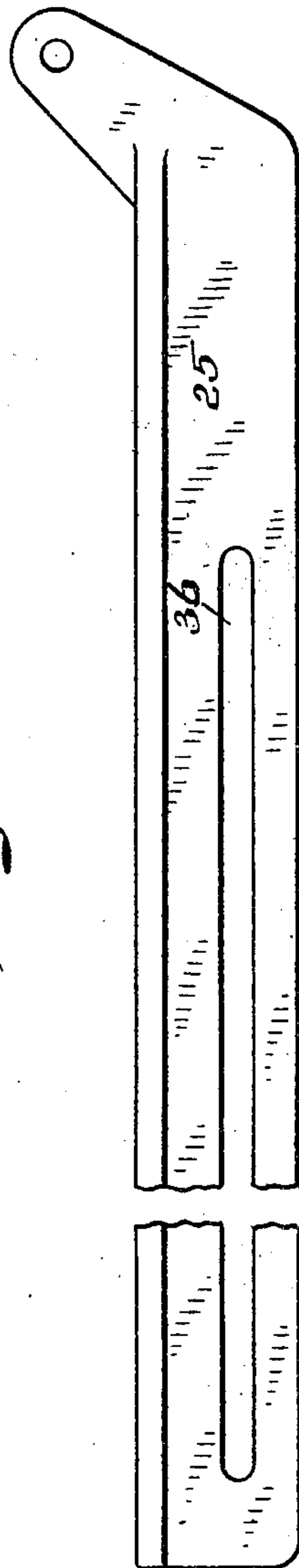
Fig. 2.



WITNESSES:

H. A. Lamb.  
J. B. Rives.

Fig. 6.



INVENTOR

Charles L. Joy.

BY Geo. D. Phillips.

his ATTORNEY

No. 844,870.

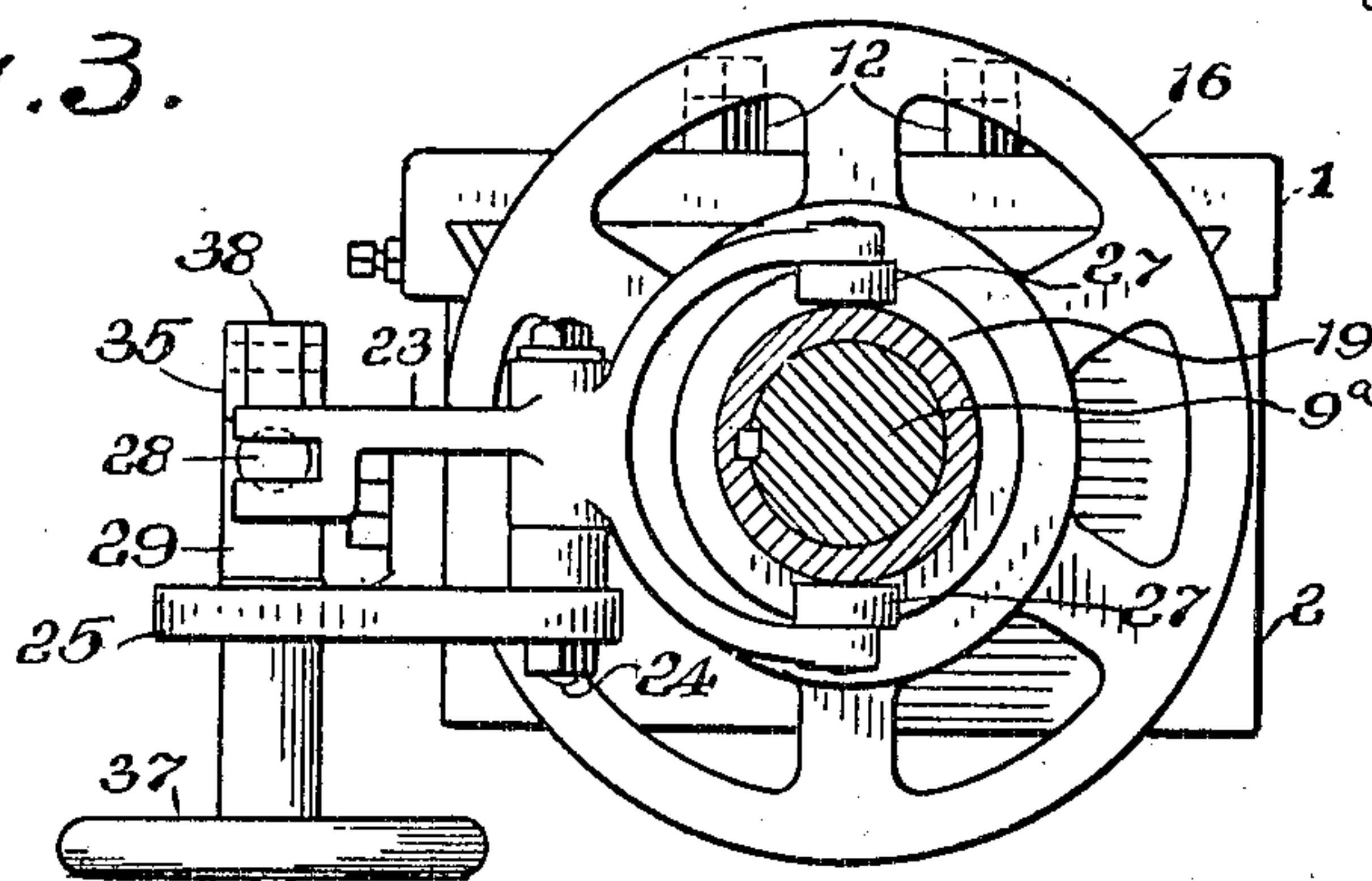
PATENTED FEB. 19, 1907.

C. L. JOY.  
CUTLERY GRINDING MACHINE.

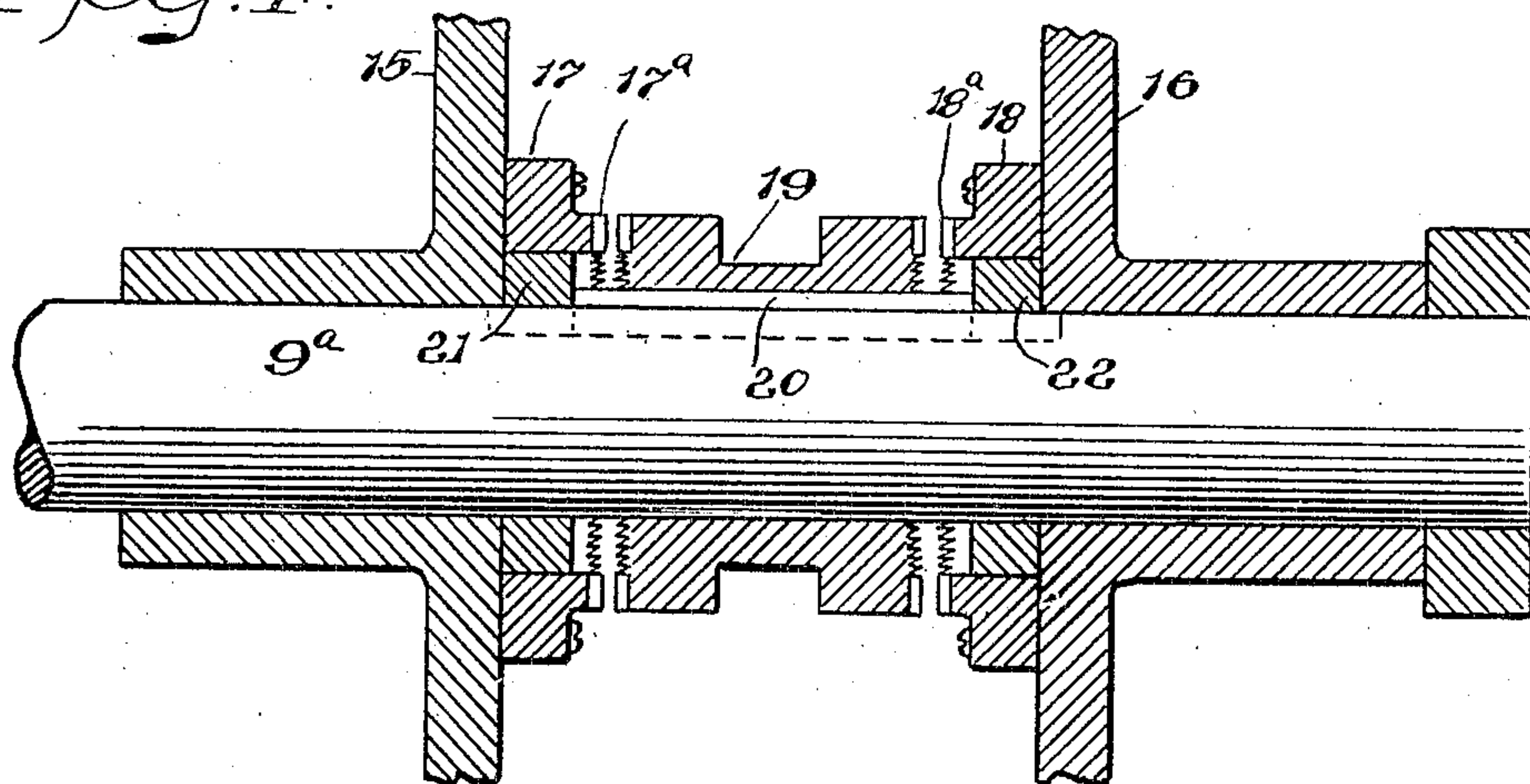
APPLICATION FILED MAY 23, 1905.

3 SHEETS—SHEET 3.

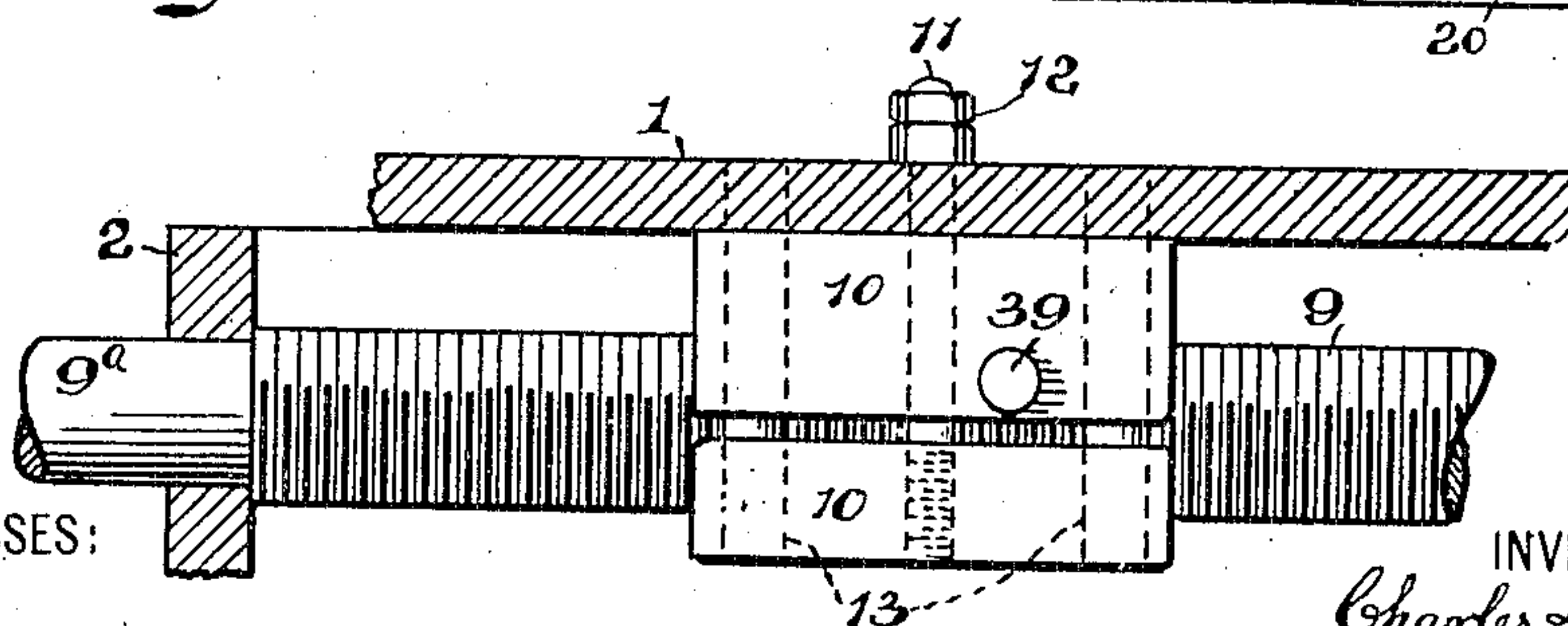
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

*H. A. Lamb*  
*J. B. Rives*

INVENTOR

*Charles L. Joy.*

BY *Geo. D. Phillips*

*his* ATTORNEY



# UNITED STATES PATENT OFFICE.

CHARLES L. JOY, OF NEW HAVEN, CONNECTICUT.

## CUTLERY-GRINDING MACHINE.

No. 844,870.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed May 23, 1905. Serial No. 261,859.

*To all whom it may concern:*

Be it known that I, CHARLES L. JOY, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Cutlery-Grinding Machines, of which the following is a specification.

My invention relates to cutlery-grinding machines, and is an improvement on the machine shown in my former application, filed January 21, 1904, Serial No. 190,019; and it consists in certain details of construction to be more fully set forth in the following specification and such features believed to be new particularly pointed out in the claims.

To enable others to understand my invention, reference is had to the accompanying drawings, in which—

Figure 1 is a broken upper plan view of the improved portion of the grinder and broken view of the grinding-wheel shaft. Fig. 2 is a broken side elevation looking in the direction of arrow *a* of Fig. 1. Fig. 3 is a cross-section of the forward end of the feed-screw through line *b* of Fig. 1. Fig. 4 is an enlarged broken view of the forward end of the feed-screw, broken sectional view of the driving-pulleys for said shaft, sectional view of the clutch and clutch-rings. Fig. 5 is a broken sectional view of the carriage and its support, broken view of the feed-screw, also side elevation of the feed-screw nut. Fig. 6 is a broken detail view of a supporting-bracket for a portion of the shipping mechanism. Fig. 7 is a detail view of the key connected with the clutch mechanism.

Only such portion of the grinding-machine is shown as is necessary to explain my present improvement.

1 represents the carriage, slidably mounted on the support 2, which support is adapted to be connected to the bed of the machine. (Not shown.)

3 is the knife-support, connected with the movable carriage. 4 is a table-knife mounted on said support, and 5 is the spring-actuated retaining-finger for said knife.

6 is the grinding-wheel, secured to its head 7, which head is mounted on the end of the shaft 8. This shaft is supported and rotated in bearings on the machine-bed. (Not shown.)

9 is the feed-screw, journaled in the ends of carriage-support 2. 10 is a divided feed-nut for said screw, and it is supported to the under side of the carriage as follows: 11 are two

studs or bolts, as the case may be, anchored in the lower half of the feed-nut and projecting freely through holes in the upper half and carry at their upper threaded ends the nuts 12. This arrangement enables the wear of the nuts or feed-screw to be taken up on the exterior of the carriage, thus obviating the necessity of removing the carriage for this purpose. 13 are guide-pins anchored in the upper surface of the carriage and extend downward freely through holes in the two halves of the feed-nut, whereby the alignment of the said halves are effected. The forward end 9<sup>a</sup> of the feed-screw is also (see Figs. 1 and 2) journaled in the bearing 14, secured to the forward end of the carriage-support 2. 15 and 16 are driving-pulleys loosely mounted on the forward end of the feed-screw. Each of these pulleys are independently rotated in opposite directions from a source of power. (Not shown.) 17 and 18, Fig. 4, are rings attached to the inside vertical faces of these pulleys and are provided with the teeth 17<sup>a</sup> and 18<sup>a</sup>, adapted to be alternately engaged by the teeth on the vertical faces of the clutch 19, which clutch is slidably mounted on the part 9<sup>a</sup> of the feed-screw and is rotated therewith by means of the key 20. This key (see also Fig. 7) has its ends 20<sup>a</sup> reduced to the cylindrical surface of the part 9<sup>a</sup> of the feed-screw. 21 and 22 are collars within the toothed rings 17 and 18, which collars surround the reduced portions 20<sup>a</sup> of the key to hold the key down, while the projecting ends of the key abut against the vertical faces of said collars.

23, Figs. 1, 2, and 3, is a clutch-lever pivotally supported on the stud 24, projecting from the bracket 25, which bracket is secured to the carriage-support 2 by the bolts 26. One end of this clutch-lever carries the rolls 27 to engage with a groove of the clutch 19, while the opposite end of said lever is pivotally connected with the shipper-rod 28. This rod is slidably mounted in the standard 29 of the bracket 25 and the bracket 30, projecting from the carriage-support 2.

31 is a handle-lever pivotally supported at its lower end on the bolt 32, projecting from the carriage-support 2. 33 is a bolt connecting this lever with the block 34, secured to the shipper-rod. By this arrangement said shipper-rod is moved in its supports to effect the movement of the clutch 19 as follows: is a standard movably supported on the bracket, for which movement the elongated



slot 36, Fig. 6, is provided. 37 is a hand-wheel adapted to secure said standard in any of its adjusted positions. In the upper end of this standard is pivotally supported the  
 5 pawl 38, having the inclined end 38<sup>a</sup>, adapted to be engaged by the stud 39, projecting from the upper half of the feed-nut through the elongated slot 2<sup>a</sup> of the carriage-support 2, while the shoulder 38<sup>b</sup> is adapted to rest  
 10 against the face of the adjustable block 40 on the shipper-rod. 41 is a spring on this rod, located between the adjustable block 42 on said rod and the adjustable standard 29 on the bracket 25.

15 43, Fig. 2, is a shaft connected with mechanism (not shown) to adjust the position of the grinding-wheel, Fig. 1, with respect to the knife 4, and 44, Fig. 1, is the hand-wheel on said shaft, whereby the shaft is rotated.

20 In operating the machine the blade to be ground is placed in position on its support, as shown at Fig. 1. Then the lever 31 is thrown to the left, as shown at Fig. 2, to carry the shipper-rod to the left and bring the pawl 38  
 25 back of the block 40 and the clutch 19 into engagement with the continuously-running pulley 15. When the carriage 2 has been advanced far enough to complete the grinding of the knife-blade, the pin 39 will engage the  
 30 pawl 38 and release the shipper-rod, and when so released the tension stored up in the spring 41 will throw the clutch 19 in contact with the continuously-running pulley 16, which will reverse the travel of the carriage,  
 35 and when it has been returned far enough for the knife-blade to clear the grinding-wheel the pin 39 will engage the block 45, adjustably located on the shipper-rod, and carry the said rod far enough to the left to  
 40 disengage the clutch 19 from the pulley 16, which will place said clutch into a central position between the pulleys 15 and 16 and bring the carriage to a standstill and in readiness to receive another knife.

45 The adjustable nuts 46 on the free end of the shipper-rod 28 is set to bring up against the bracket 30 when the clutch 19 is brought into engagement with the pulley 15 to prevent a sudden shock by such engagement.

50 In the construction above described there are but few moving parts, and those of the simplest character. The carriage can be accurately timed to stop at any predetermined point within the limit of its travel.

55 This is a very important feature, as the grinding of the knife-blade is carried as close to the shoulder 4<sup>a</sup>, Fig. 1, as possible without

actually coming forcibly in contact with such shoulder. Therefore it is important that the forward movement of the carriage 60 should be brought to a sudden stop just the instant this shoulder touches the grinding-wheel. The mechanism to determine the travel of the carriage in both directions is capable of such nice adjustment that said 65 carriage can be instantly halted at any point, as before mentioned, within the limit of its travel.

Having thus described my invention, what I claim as new, and desire to secure by Letters 70 Patent, is—

1. A cutlery-grinding machine comprising a reciprocating knife-supporting carriage, a support therefor, a feed-screw journaled therein, a divided feed-nut attached to said 75 carriage and engaging said screw, means for adjusting said nut to compensate for wear, for the purpose set forth.

2. A cutlery-grinding machine comprising a reciprocating knife-supporting carriage, a 80 support therefor, a feed-screw journaled therein, a divided feed-nut embracing said screw, means for adjusting said nuts to compensate for wear, guide-pins projecting from said carriage and extending through said 85 feed-nut, for the purpose set forth.

3. A cutlery-grinding machine comprising a traveling knife-supporting carriage, a grinding-wheel, a support for said carriage, a feed-screw journaled in said support and pro- 90 jecting outside of the same, a feed-nut for said screw, differentially-running driving-pulleys loosely mounted on the projecting end of said screw, a clutch operatively located between said pulleys, a lever engaging 95 said clutch, a bracket on which said lever is pivotally supported, a shipper-rod connected to said lever, means for operating said rod to effect a forward movement of the carriage, a pawl for locking said rod, said pawl adjust- 100 ably supported on said bracket, means connected with the carriage to release said pawl, a spring to actuate the clutch to effect a return movement of the carriage, and means to bring the carriage to a standstill on its re- 105 turn, for the purpose set forth.

Signed at New Haven, in the county of New Haven and State of Connecticut, this 27th day of April, A. D. 1905.

CHARLES L. JOY.

Witnesses:

GEORGE A. TYLER,  
 CAROLINE STREIT.