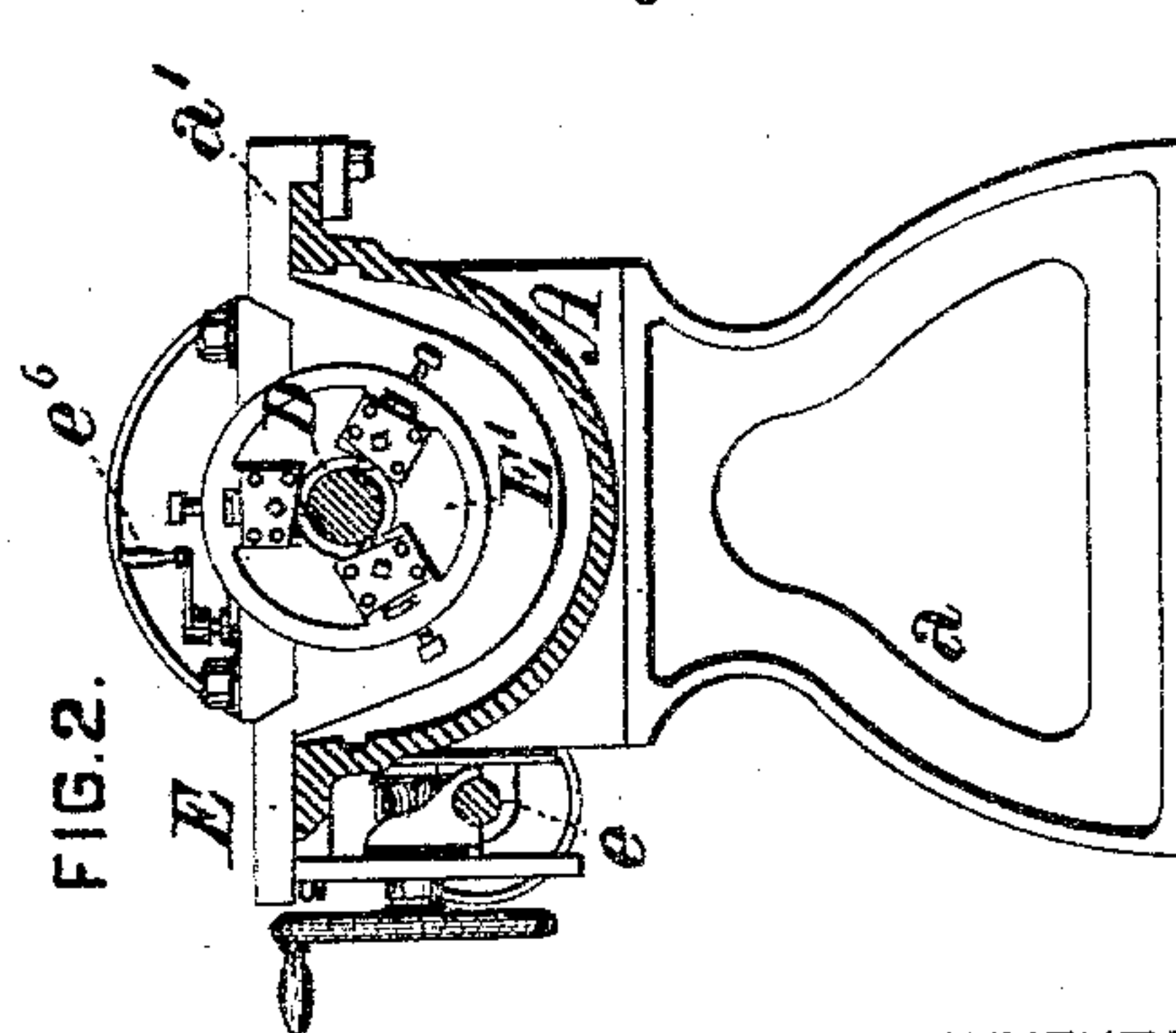
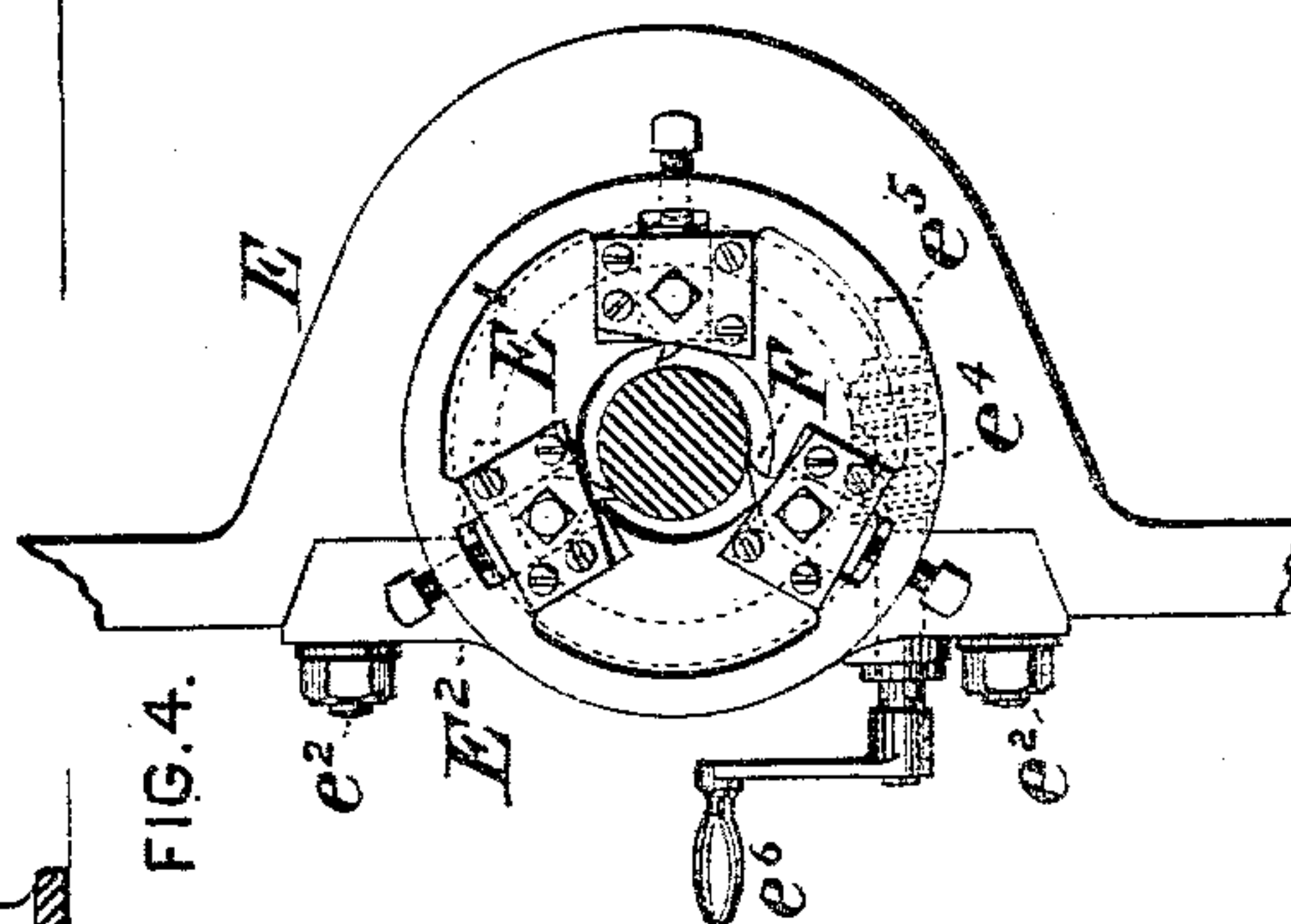
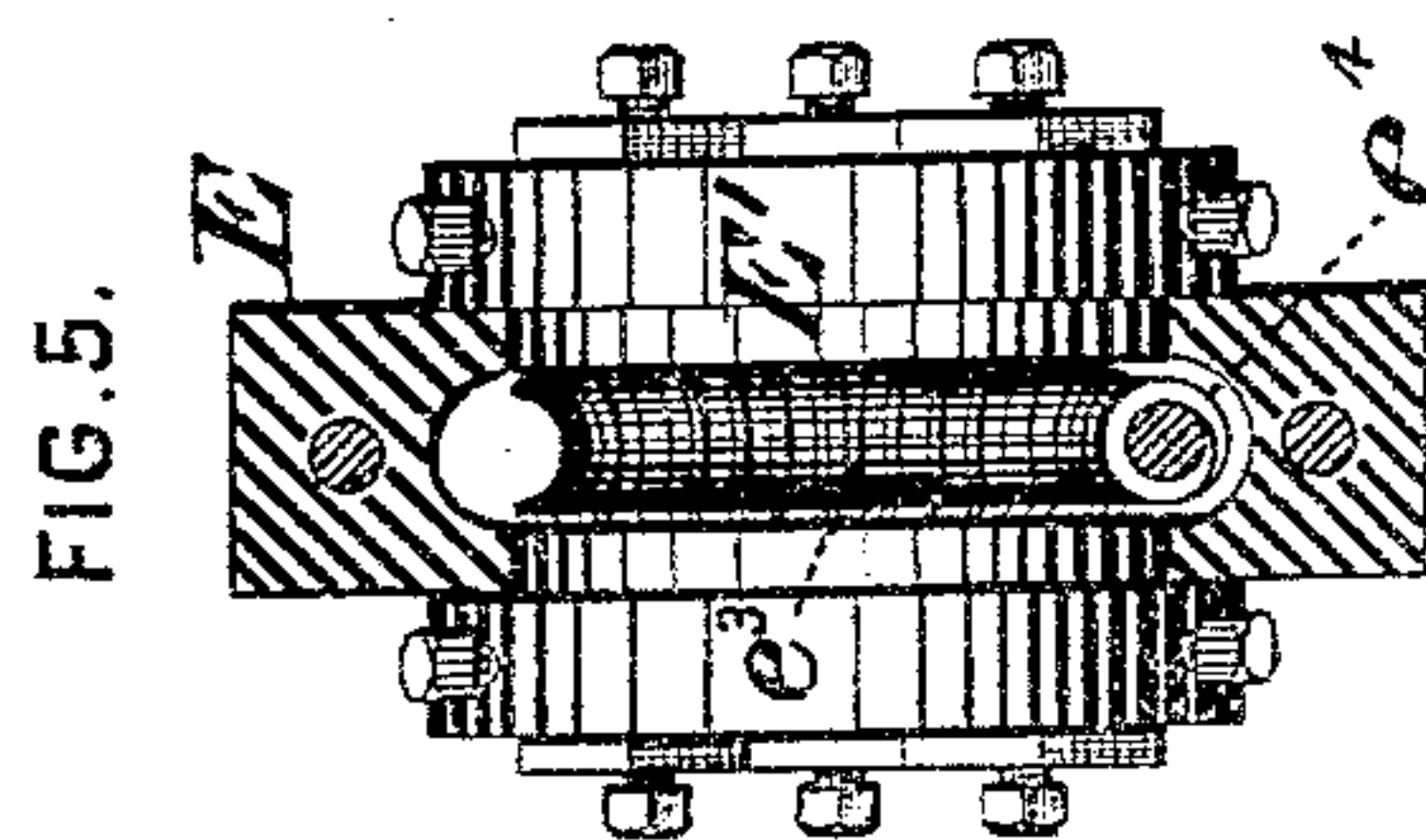
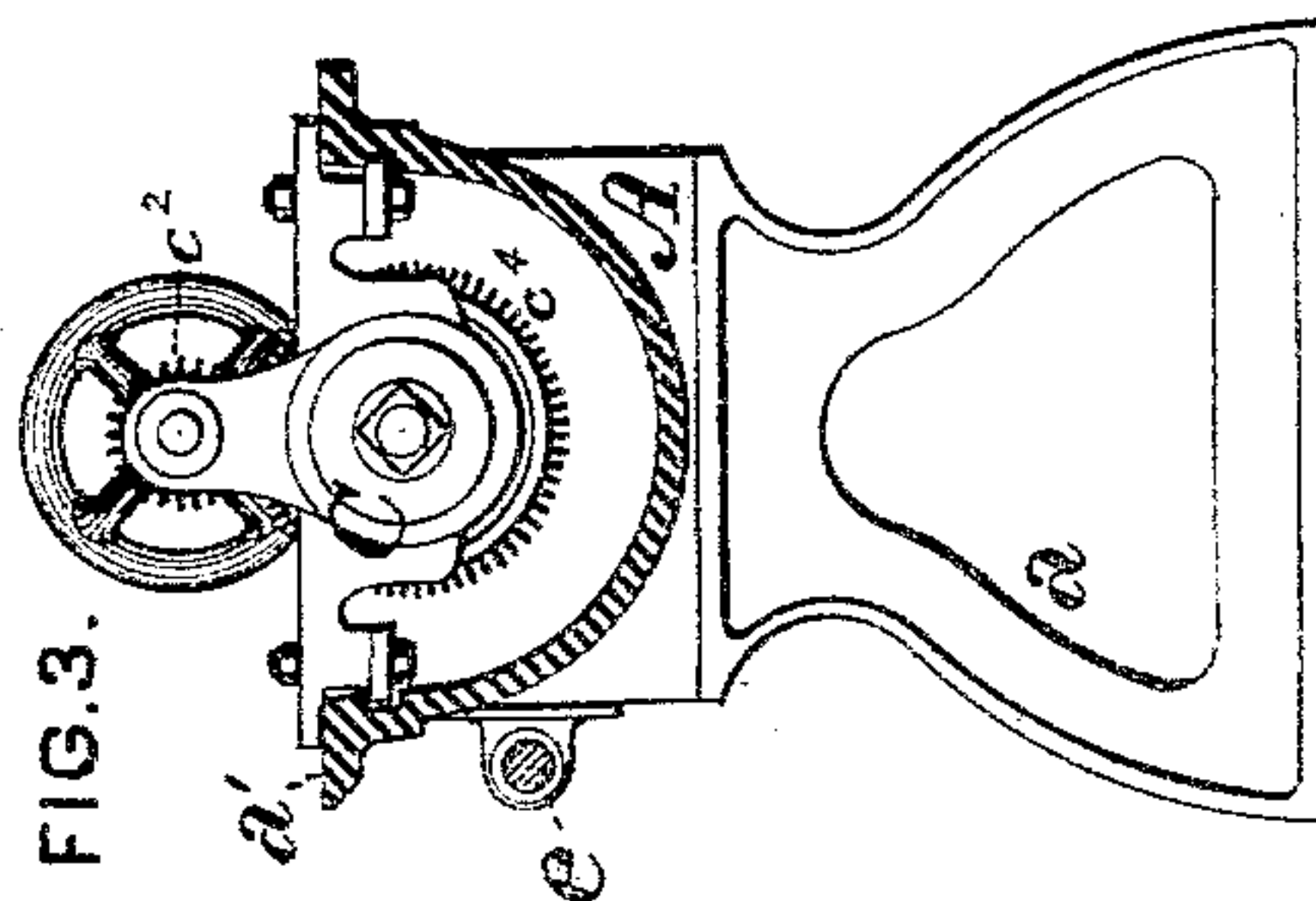
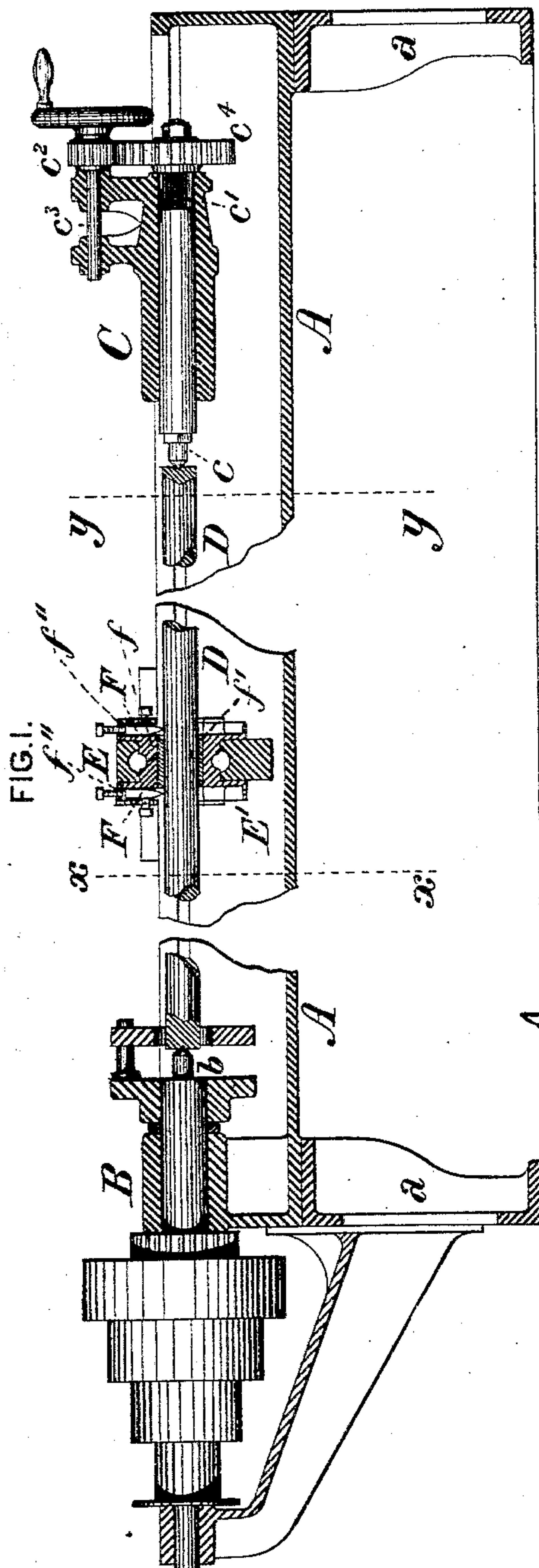


(No Model.)

N. THOMAS.
METAL TURNING LATHE.

No. 303,897.

Patented Aug. 19, 1884.



WITNESSES:

WITNESSES:
Geo. B. Collier.
Wm. R. Teller.

INVENTOR

N. Thomas,
by Collier & Bell
Attys.

UNITED STATES PATENT OFFICE.

NICHOLAS THOMAS, OF CHICAGO, ILLINOIS.

METAL-TURNING LATHE.

SPECIFICATION forming part of Letters Patent No. 303,897, dated August 19, 1884.

Application filed July 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS THOMAS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Metal-Turning Lathes, of which improvements the following is a specification.

My invention relates, particularly, to lathes designed for turning shafting or other metallic
10 cylinders of considerable length; and its object is to enable the surfaces of the work which are to be acted on to be subjected to continuous lubrication during the operation at the points of contact of the cutting-tools, and thereby to
15 admit of desired increase of speed of the lathe without heating or injuring the edges of the tools; and, further, to admit of the employment of any desired number of cutting-tools, each of which shall act upon a continuously-lubricated
20 surface, and be susceptible of insertion and removal as required without interfering with the operation of the others.

To these ends my improvements consist in a lathe-bed constructed in the form of an open-
25 topped box or trough; also, in the combination of a box or trough lathe-bed and a pair of centers whose axes are located below the top of said bed; also, in the combination of a box or trough lathe-bed and a cutter-head connected
30 to a carriage adapted to traverse longitudinally thereon, and carrying a series of cutting-tools; also, in the combination of a carriage, a cutter-head located therein, a series of cutters connected to said head, and a device for moving
35 the cutter-head axially within the carriage.

The improvements claimed are hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through
40 a lathe embodying my invention; Figs. 2 and 3, vertical transverse sections through the same at the lines *xx* and *yy*, respectively, of Fig. 1; Fig. 4, an end view in elevation and on an enlarged scale of the tool-carriage and cutter-
45 head, and Fig. 5 a transverse section through the carriage with the cutter-head in elevation.

In the practice of my invention I provide a lathe-bed, A, which is cast in the form of an open-topped and closed-ended water-tight box
50 or trough, which is preferably semi-cylindrical, and is adapted to be filled to a proper point with water, soapsuds, or other suitable

lubricating-liquid. The bed is supported, as usual, upon two or more legs or standards, *a*.

The head-stock B and tail-stock C, in lieu of
55 being elevated above the bed, as heretofore, are connected to the bed below its top, so that the axes of the live-spindle *b* and tail-spindle *c* shall be so located as will admit of the shaft or stock D, which is to be turned, being sub-
60 merged, either entirely or to any desired extent, in the liquid with which the bed is supplied.

The tool-carriage E is adapted to traverse longitudinally upon ways or shears *a'* on the upper sides of the bed A, and receives its move-
65 ments from a feed-screw, *e*, in the ordinary manner. A cutter-head, E', is fitted within a recess in the carriage, and is secured therein by a cap, E², and locking-bolts *e*³, having proper nuts. The cutter-head has a central hub, *f*,
70 which forms its bearing on the carriage, within which is a bushing or sleeve, *f'*, to fit the shaft to be turned, and a cylindrical projection or collar, *f''*, at each end of said central hub. Each of said end collars is provided with recesses
75 to receive a series of turning-tools, F, (in this instance three for each collar,) those at one end serving as roughing-out and those at the other as finishing tools, any desired number of tools
80 being used, and being secured by clamps and set-screws. The cutter-head is held stationary in the carriage by a suitably key or stop, by the removal of which it may be turned upon its axes, so as to admit of the examination and
85 removal of any one or more of the tools which may have become dulled or injured and the replacement thereof. To admit of the convenient rotation of the cutter-head for this purpose, a worm-wheel, *e*³, is formed upon the periphery of its central hub, said worm-wheel
90 being engaged by a worm, *e*⁴, upon a vertical shaft, *e*⁵, journaled in the carriage E, and having a handle, *e*⁶, at top, by which it may be turned, so as to bring either of the cutters above
95 the surface of the liquid in the bed without interrupting the operation of the lathe.

In operation, the bed A should be filled with liquid to a height slightly below the top of the shaft D, which is to be turned, so as to allow
100 of the proper inspection of the work as it proceeds, the tools being so located that the cutting-edges of all of them shall be entirely below the surface of the liquid. The screw *c'* of the tail-stock is rotated by a pinion, *c*², on a

shaft, c^3 , fitting in bearings on the upper side of the stock, and engaging a gear, c^4 , on the screw c' , thus enabling the operator to rotate the screw without the necessity of working in the liquid in the bed.

I claim as my invention and desire to secure by Letters Patent—

A lathe-bed constructed in the form of a water-tight trough or box, having an open top and closed ends, a pair of lathe-centers whose axes are located below the top of said bed, a

carriage adapted to traverse the bed longitudinally, a cutter-head having a worm-thread formed thereon, said head being connected to the carriage, and a worm-wheel to engage said thread, and journaled in the carriage, all combined and operating substantially as and for the purposes set forth.

NICHOLAS THOMAS.

Witnesses:

AND. J. BASSETT,
HARRY FOOT.