

No. 667,230.

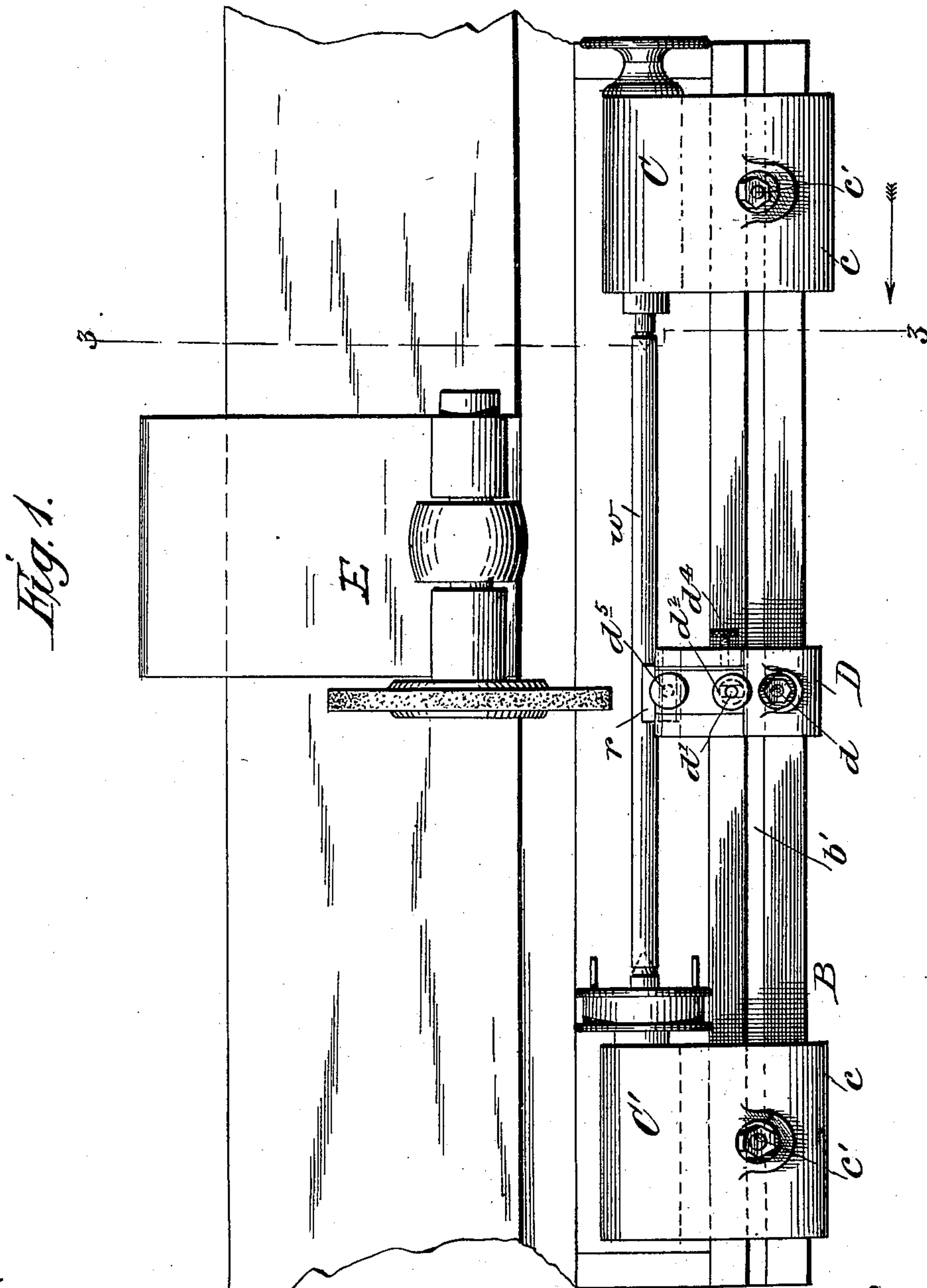
Patented Feb. 5, 1901.

A. B. LANDIS.
GRINDING MACHINE.

(Application filed Jan. 20, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

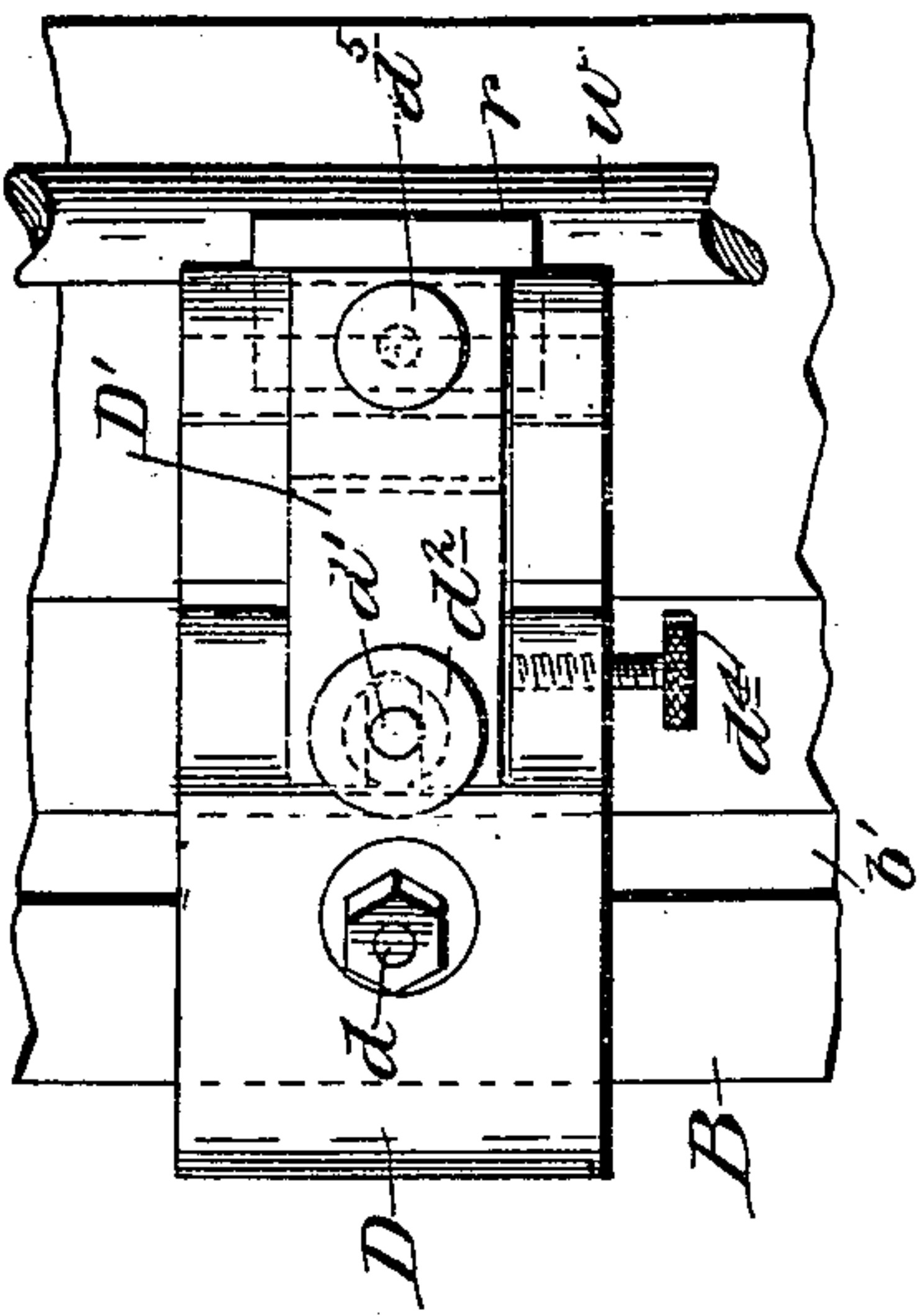


Fig. 2

Fig. 4.

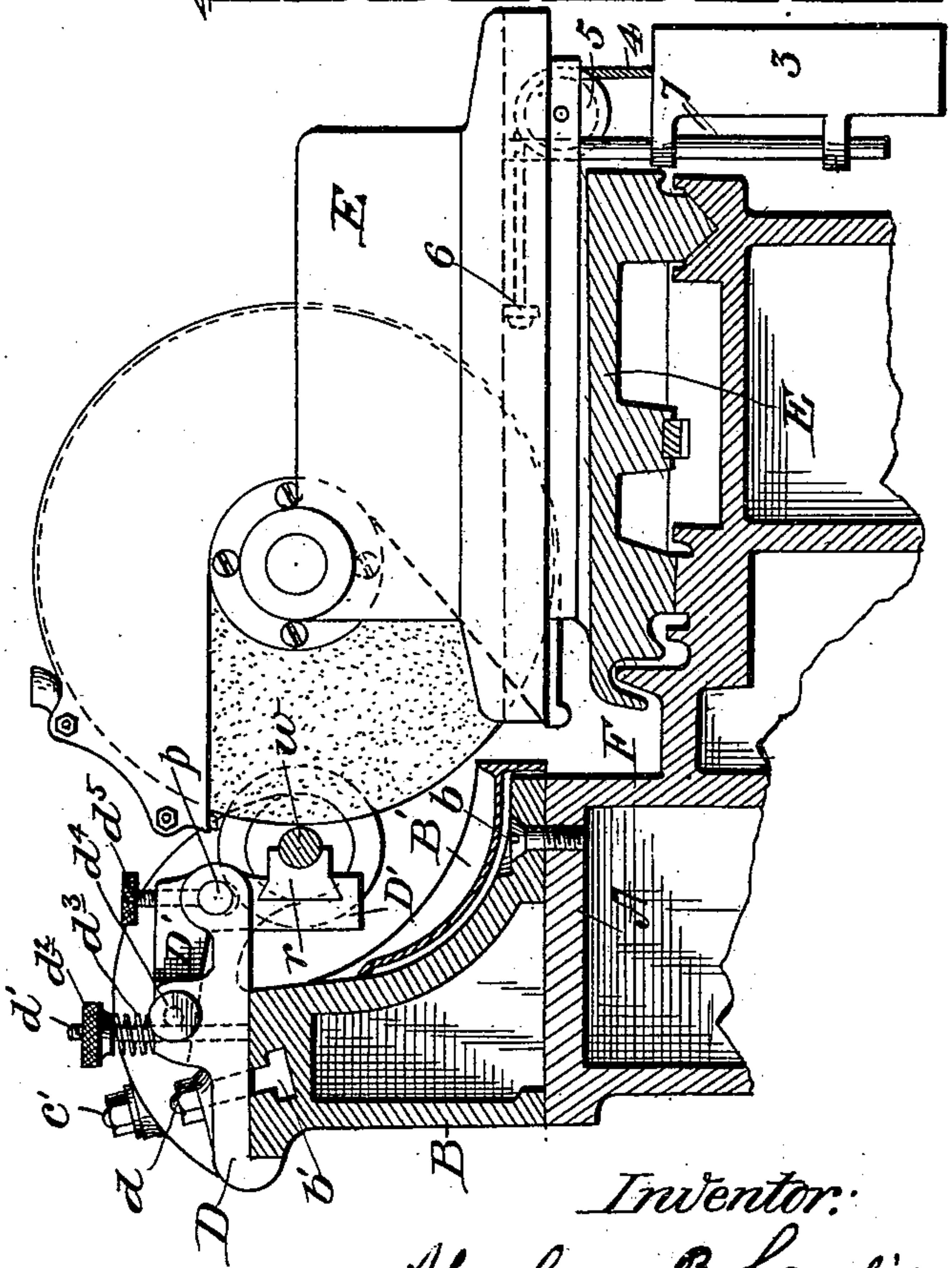
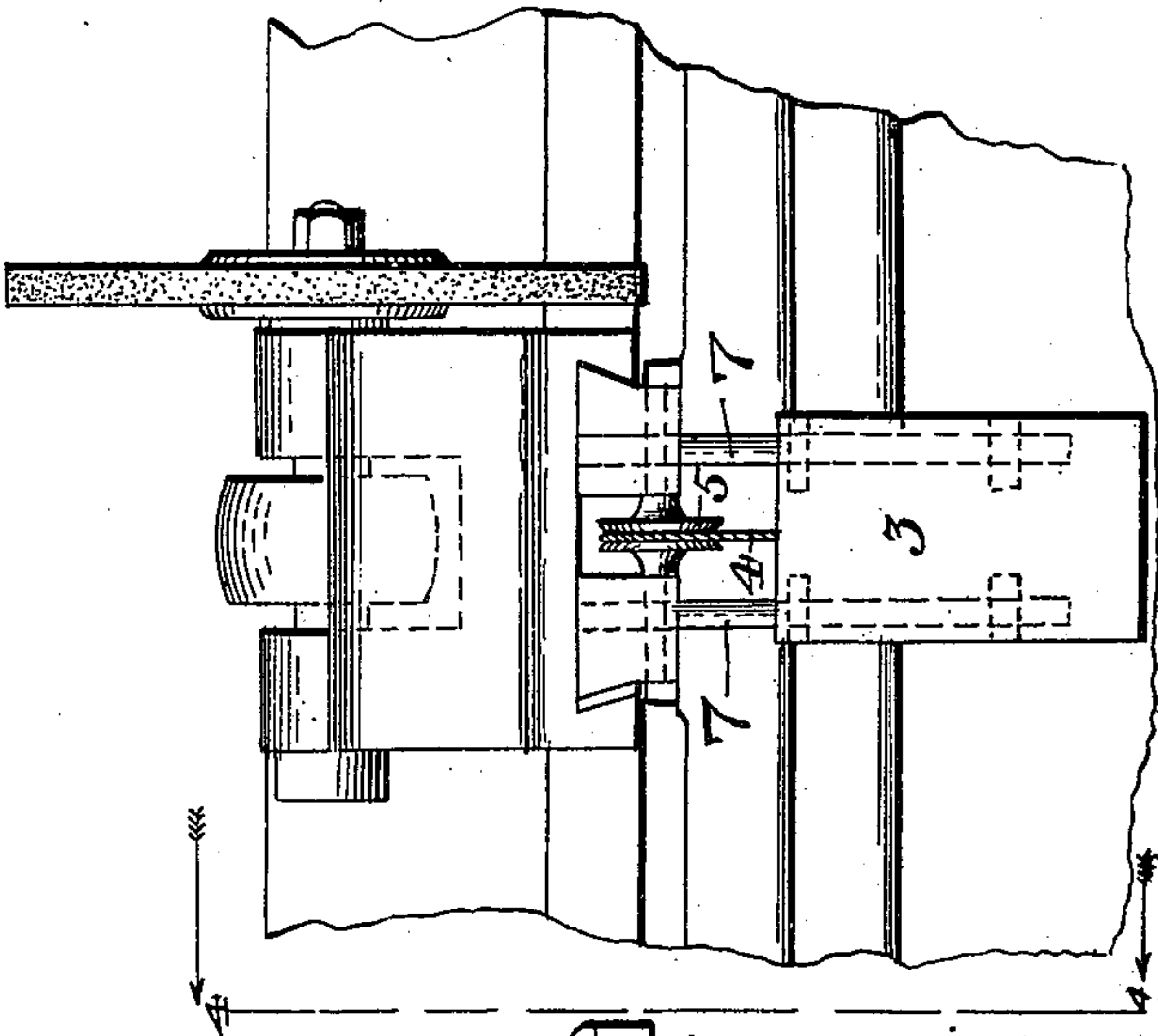


Fig. 3.

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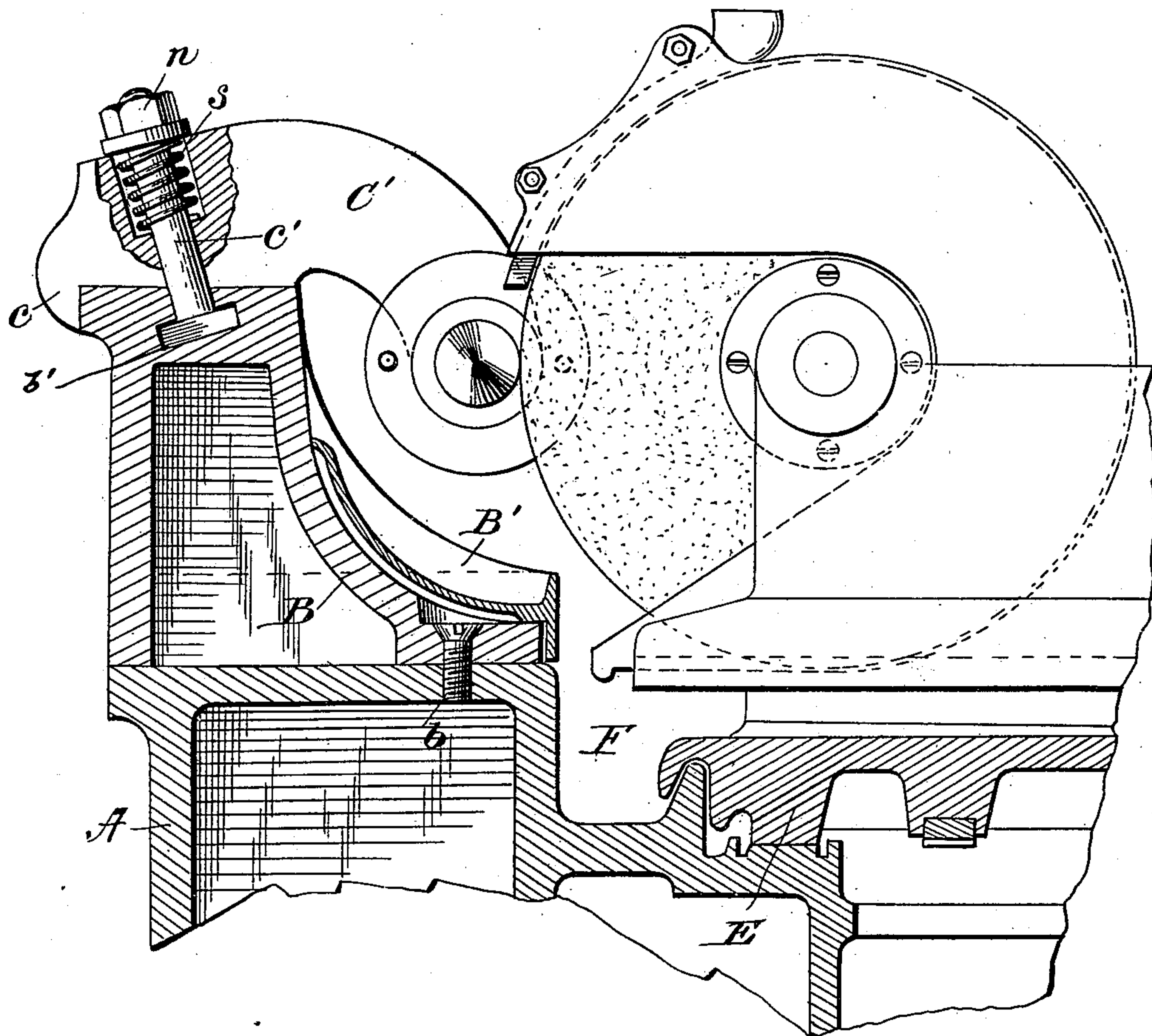
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3 Sheets—Sheet 3.

Fig. 5.



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UNITED STATES PATENT OFFICE.

ABRAHAM B. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,230, dated February 5, 1901.

Application filed January 20, 1900. Serial No. 2,165. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM B. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a specification.

My said invention consists in various improvements in the construction and arrangement of parts of grinding-machines, relating particularly to machines of that general character shown in my Patent No. 640,669, of January 2, 1900, and others before granted to me, whereby the efficiency of said machine in use and operation is materially enhanced, as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a top or plan view of one of said grinding-machines embodying my said improvements; Fig. 2, a detail showing a portion of Fig. 1 on an enlarged scale; Fig. 3, a cross-section through the machine on dotted line 3 3 in Fig. 1; Fig. 4, a rear side elevation as seen looking in the direction indicated by the arrows from the dotted line 4 4 in Fig. 3, and Fig. 5 a cross-section similar to a portion of Fig. 3 with the rest D omitted.

In said drawings the portions marked A represent the bed or framework of the machine; B, the swiveled table for carrying the work; C C', the foot and head stocks, respectively; D, a rest or support for the work, and E the emery-wheel carriage.

The bed or frame A is of the usual or any appropriate form and construction for the accommodation of the various mechanisms carried thereby.

The table B is swiveled on said bed at its center on a pivot *b*. It is formed to extend above said bed a considerable distance, preferably sufficient to bring its top above the work or point of operation. Its side next to the work is formed with a sloping or concave surface from a wide bottom to a narrower top. Said surface is covered and protected by a water-pan B', which extends from end to end thereof and may be formed in one piece. Below said water-pan a water-

channel F is formed in the bed, into which the water overflows from said pan and is discharged. The top of the table B is planed true and has a channel *b'* extending longitudinally thereof in the form in cross-section of an inverted T. The front side of said table is also planed true at its top, forming a true angle with said top surface.

The foot-stock C and head-stock C' are provided with the usual holding-centers and aside from the form and manner of mounting the supporting-arm are of the usual or any appropriate construction. The supporting-arm of each is of like form, mounted in like manner, and therefore the description of one applies to both. It is formed with a true plane surface on its under side adapted to seat upon the table B and with a downwardly-projecting flange or lip *c*, which is also formed with a true face on its inside to fit perfectly to the planed upper portion of the front side. A diagonal perforation is formed in each arm, and a bolt *c'*, with its head engaged in the T-shaped groove *b'*, extends therethrough and is provided with a nut *n* on its top, by which means the arm is firmly drawn to its seat and secured in place on the table. Surrounding said bolt and mounted between the bottom of an enlarged cavity around its upper portion and a washer under the nut is a spring *s*, which serves to hold said arm to its seat when the nut has been loosened to permit the head or foot stock, or both, to be adjusted to another position on the table, as is frequently necessary as work of different lengths is operated upon.

The rest D consists of a horizontal arm mounted upon the top of a table B, similarly to the head and foot stocks, being secured by a bolt *d* in the same manner. Mounted on a pivot-bolt *p* on the inner end of said arm is an angle-arm D', the vertical arm of which carries on its front face a block of wood or soft metal *r*, which serves as a rest for the work *w*. The horizontal portion of said angle-arm D' extends back between two vertical ears on each side of the arm D and is formed with an elongated perforation, through which a standard *d'*, which is secured at its lower end in the arm D beneath, extends. On the top of said standard is a thumb-nut *d''*, and between said nut and the top of the arm

D' is a spring d^3 , the tension of which may thus be adjusted to hold said rest with greater or less rigidity, as the character of the work may require. When the work is such that it is desired that the rest be absolutely rigid, the angle-arm may be locked in a fixed position by means of a set-screw d^4 , mounted in one of the vertical ears on the side of arm D and adapted to be forced to impinge against the side of the horizontal portion of the arm D' and lock the same. The perforation in the angle-arm D' by which it is mounted on pivot p is preferably elongated, and a vertical set-screw d^5 is adapted to bear upon said pivot and to adjust said arm to bring the rest r into different vertical planes, whereby it is brought into perfect alinement with the work and any liability of the work springing vertically is obviated. This rest is, however, made the subject-matter of another application, Serial No. 31,415, filed September 28, 1900, and is not therefore claimed herein.

The emery-wheel carriage E, the emery-wheel base E', and the operating mechanism are of the same construction and arrangement as shown and described in my before-mentioned patent in most particulars. To hold the wheel-base and wheel back away from the work to the limit of the adjustments and to avoid the wheel being moved into the work by the jar and tension on the operating mechanism, I attach a weight 3 by means of a cord 4, running over an idler 5 on the carriage, to the under side of the slider at 6. The weight is mounted on guides 7 and is thus held from vibration as the carriage travels back and forth.

By means of these various improvements the operation of the grinding-machine is improved in that the bearing for the head and foot stocks is brought above the point of operation and is thus kept free from the deposits of grit and water, which in the former construction may have been an annoyance, inasmuch as they were not conveniently kept removed and interfered somewhat with the true and perfect adjustments of the head and foot stocks.

The use of the weight for preventing the wheel being thrown into the work unduly by jar or accident is a most efficient means and less expensive and simpler than the former constructions.

It will be understood, of course, that instead of the table being swiveled on a pivot it may be formed as a part of the bed of the machine, as in straight grinding the swivel is not needed, and, further, that the invention applies to machines wherein the work is carried on a traveling carriage or held stationary or the emery-wheel made to travel longi-

tudinally or located in a fixed position longitudinally, the particular character of machine not being material to my present invention; which may be used on any machine to which it is found applicable.

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

1. In a grinding-machine, the combination, of a table for the foot and head stocks extending to a point above the point of operation, its top surface being formed with a seat for said foot and head stocks, and said foot and head stocks adjustably mounted on said seat, the holding-centers being carried thereby in a plane below said seat, substantially as set forth.

2. In a grinding-machine, the combination, of the table for carrying the holding devices, said table being formed to extend up in front of the work and above the point of operation, and the holding devices mounted on the top surface thereof, substantially as set forth.

3. In a grinding-machine, the combination, of the bed, a swiveled table mounted thereon and formed to extend to above the point of operation, the top face of said table being formed true and with a true angle or corner, the head and foot stocks provided with seats and adapted to fit upon said corner, and bolts adjustably connected with said table and extending diagonally through said head and foot stocks, whereby they may be drawn to and secured upon said seats, substantially as set forth.

4. In a grinding-machine, the combination, of the table, the head and foot stocks mounted thereon, by means of a T-groove in the table, and a bolt engaging therewith and passing through the arms of said head and foot stocks, and a spring interposed between a rest on said arm below its top and the nut of said bolt, substantially as described and for the purpose specified.

5. In a grinding-machine, the combination, of the table, the holding devices thereon, the wheel-base mounted on a slider, said slider mounted on a traveling carriage, and a weight connected to said slider by a flexible connection running over an idler mounted on said carriage, and guides or ways engaging said weight to hold it from vibration, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Waynesborough, Pennsylvania, this 15th day of January, A. D. 1900.

ABRAHAM B. LANDIS. [L. S.]

Witnesses:

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ALF. N. RUSSELL.