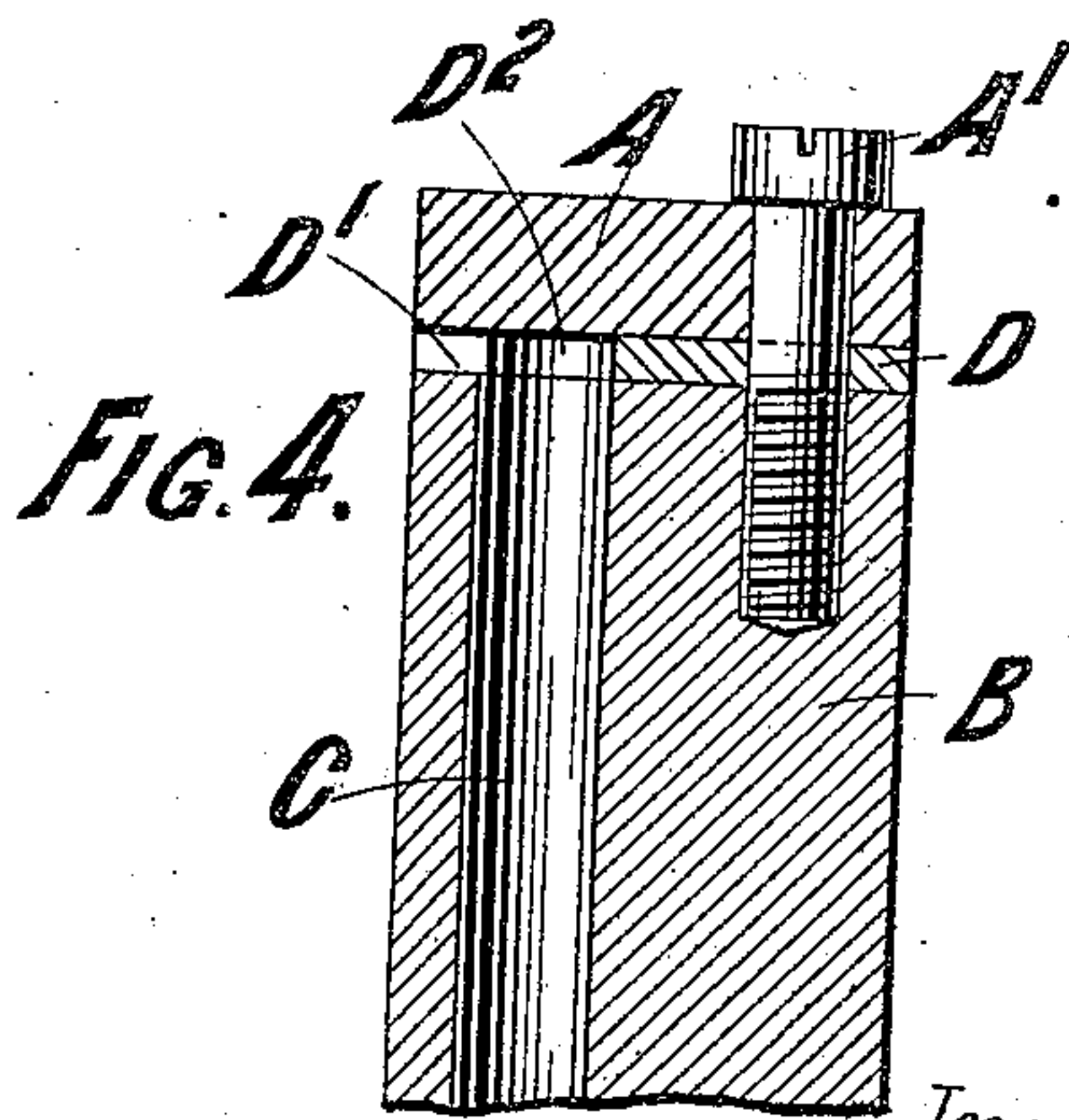
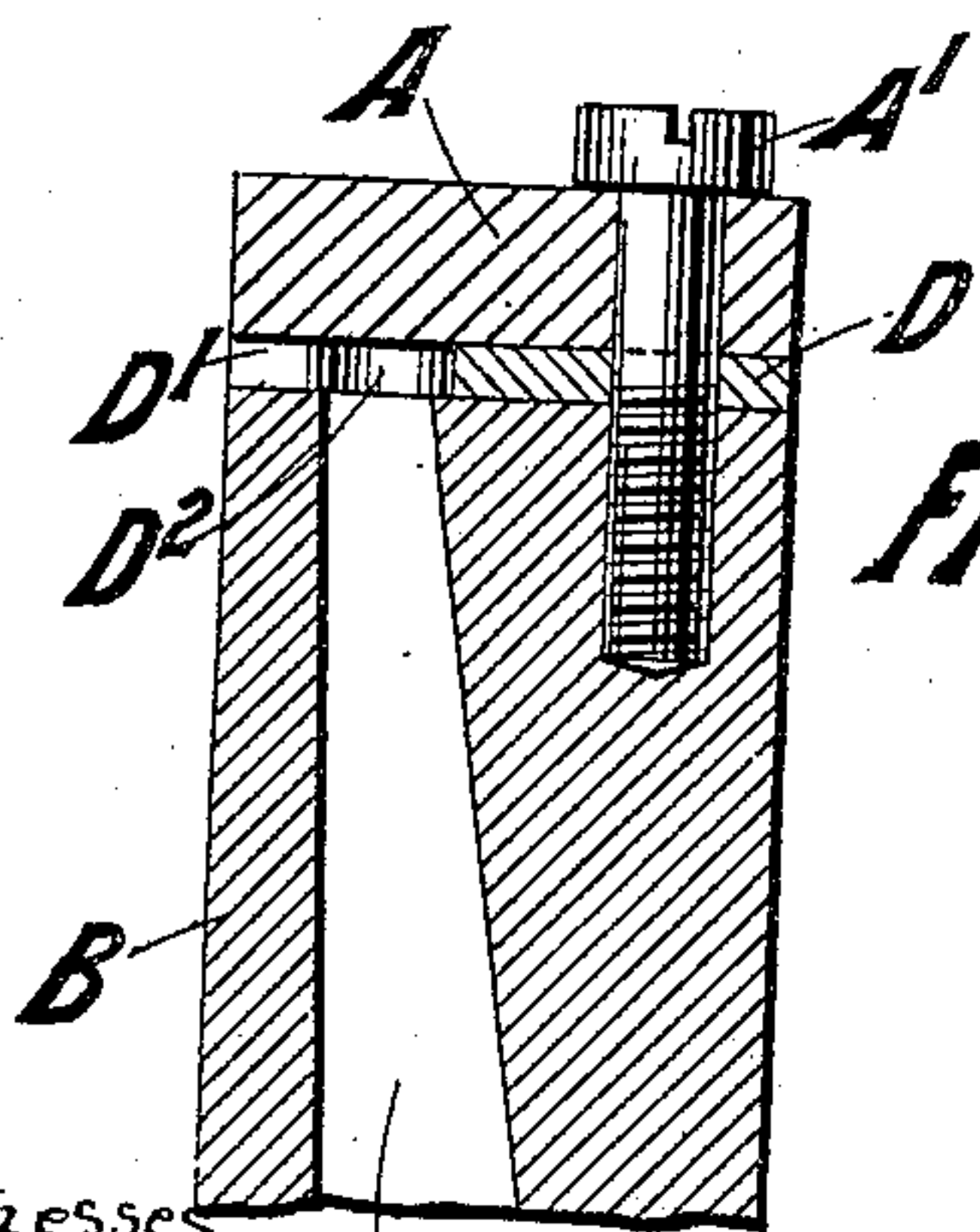
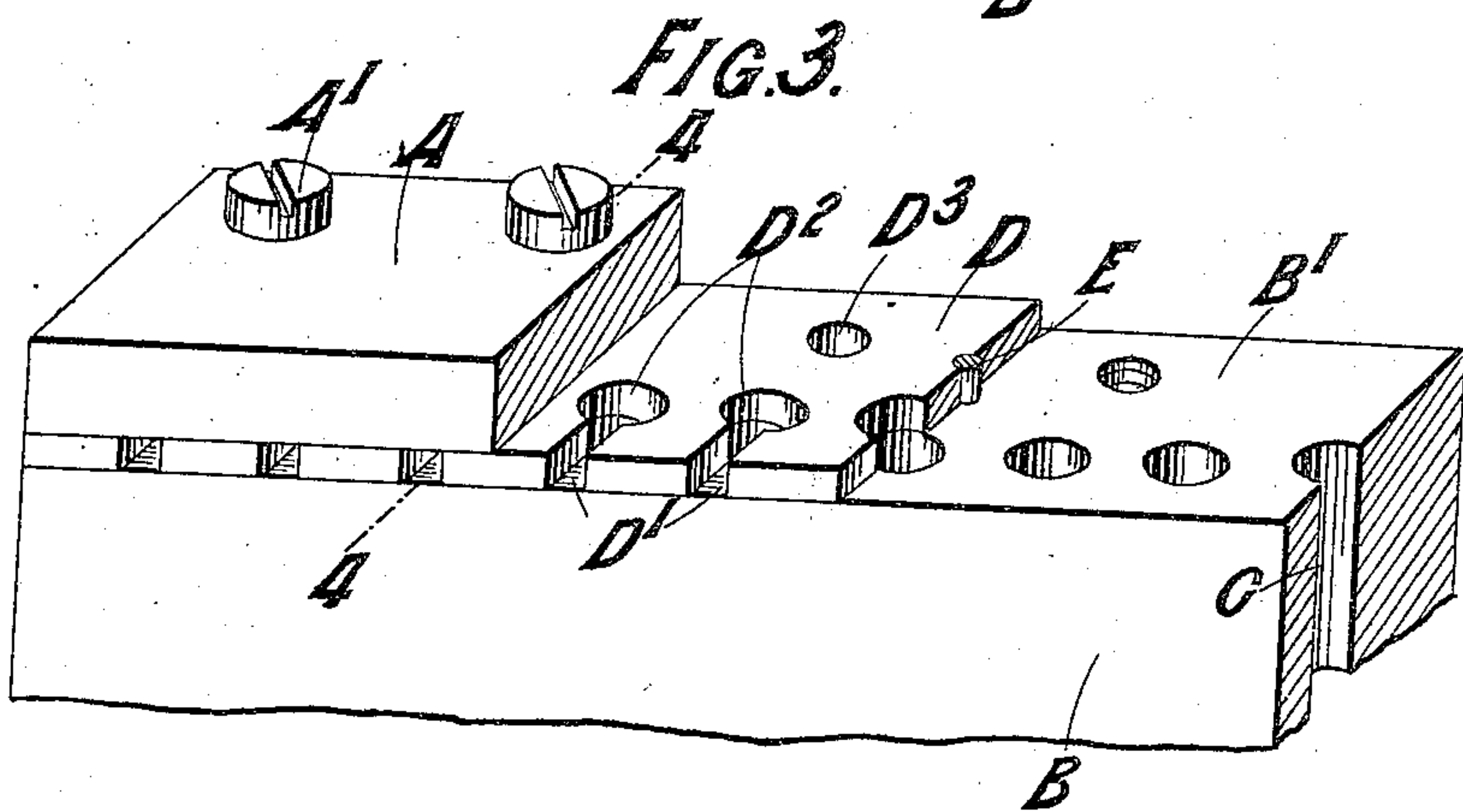
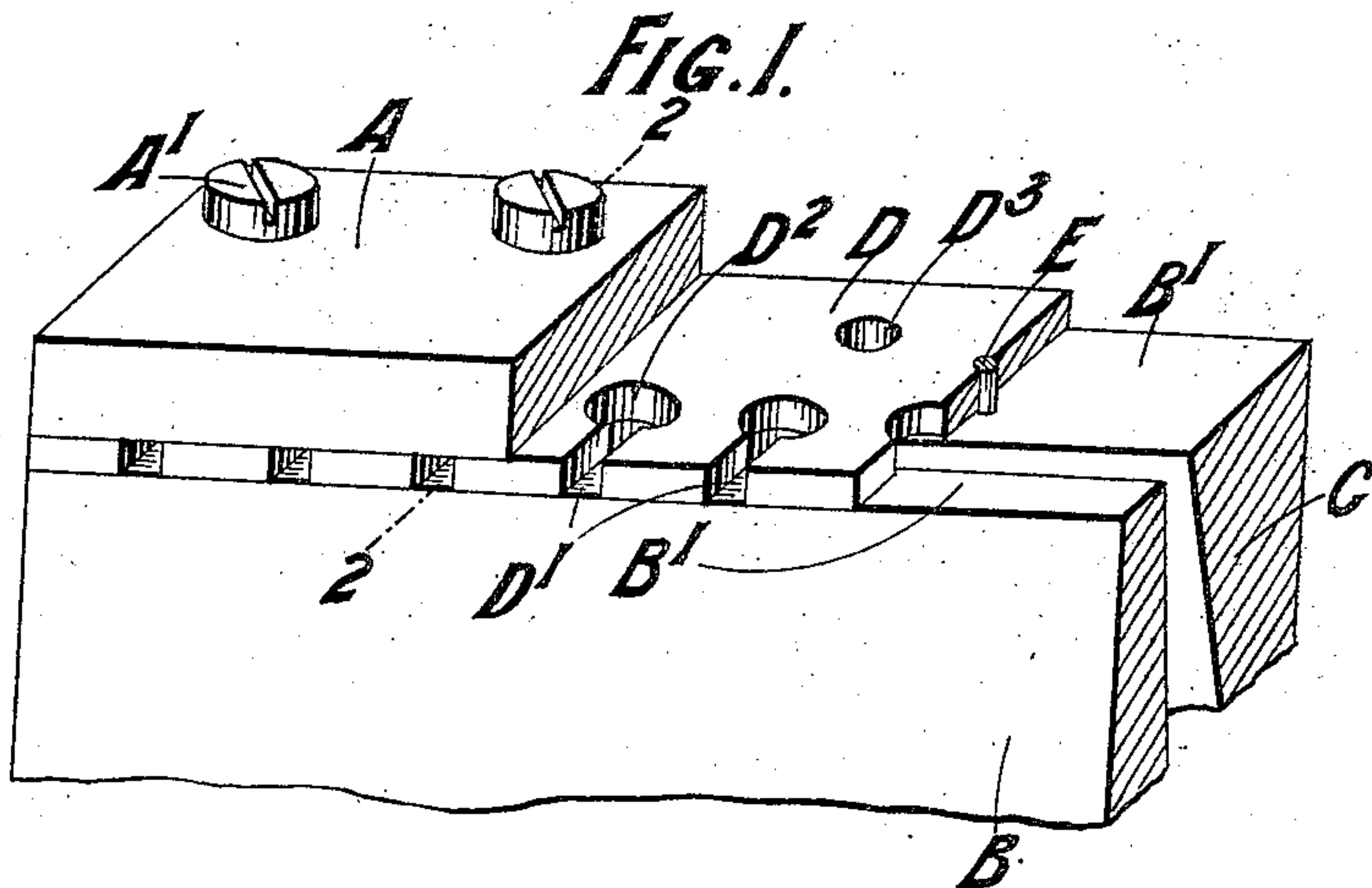


944,440.

A. G. IONIDES.
CONSTRUCTION OF JETS.
APPLICATION FILED JAN. 26, 1909.

Patented Dec. 28, 1909.
3 SHEETS—SHEET 1.

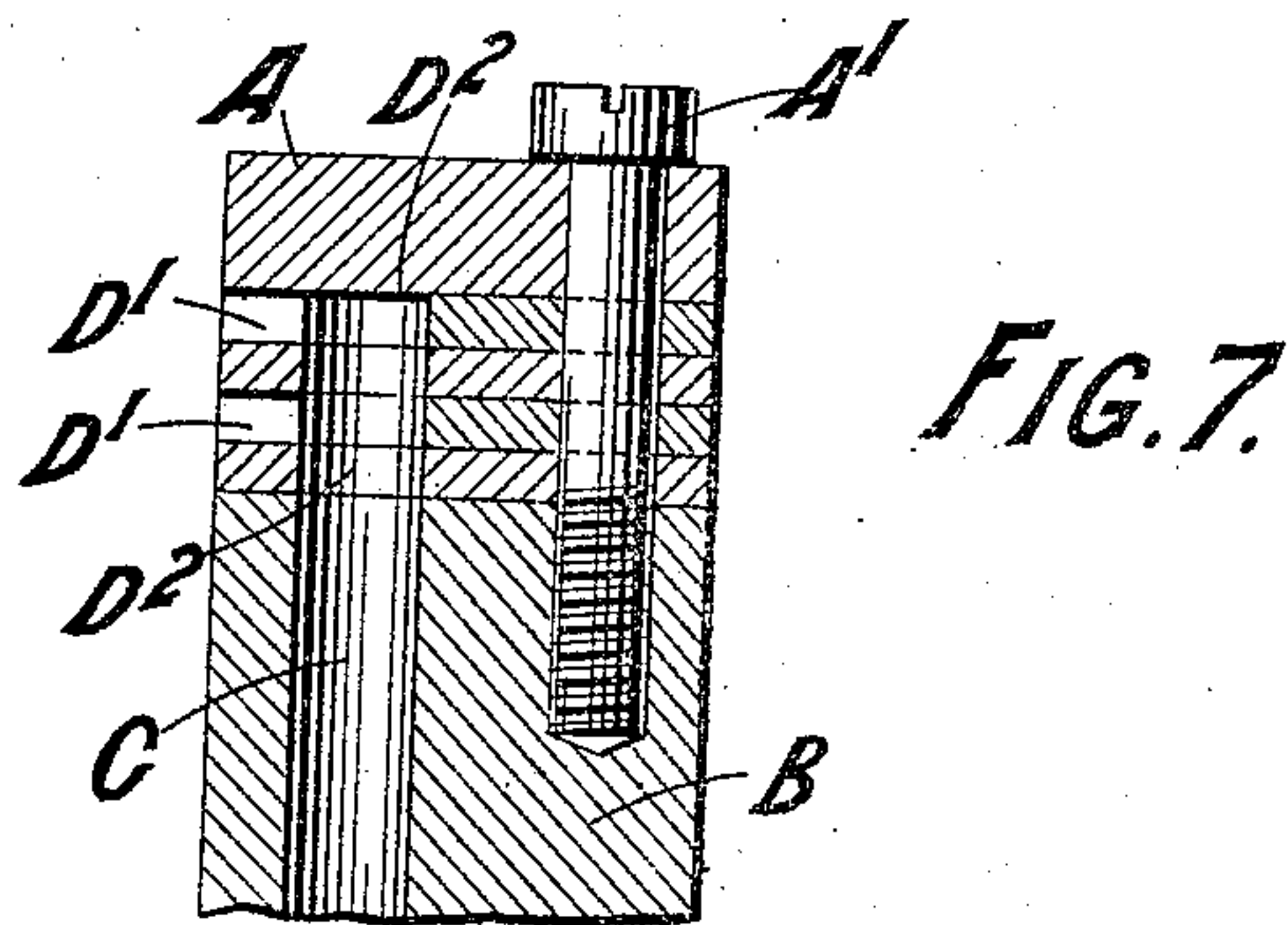
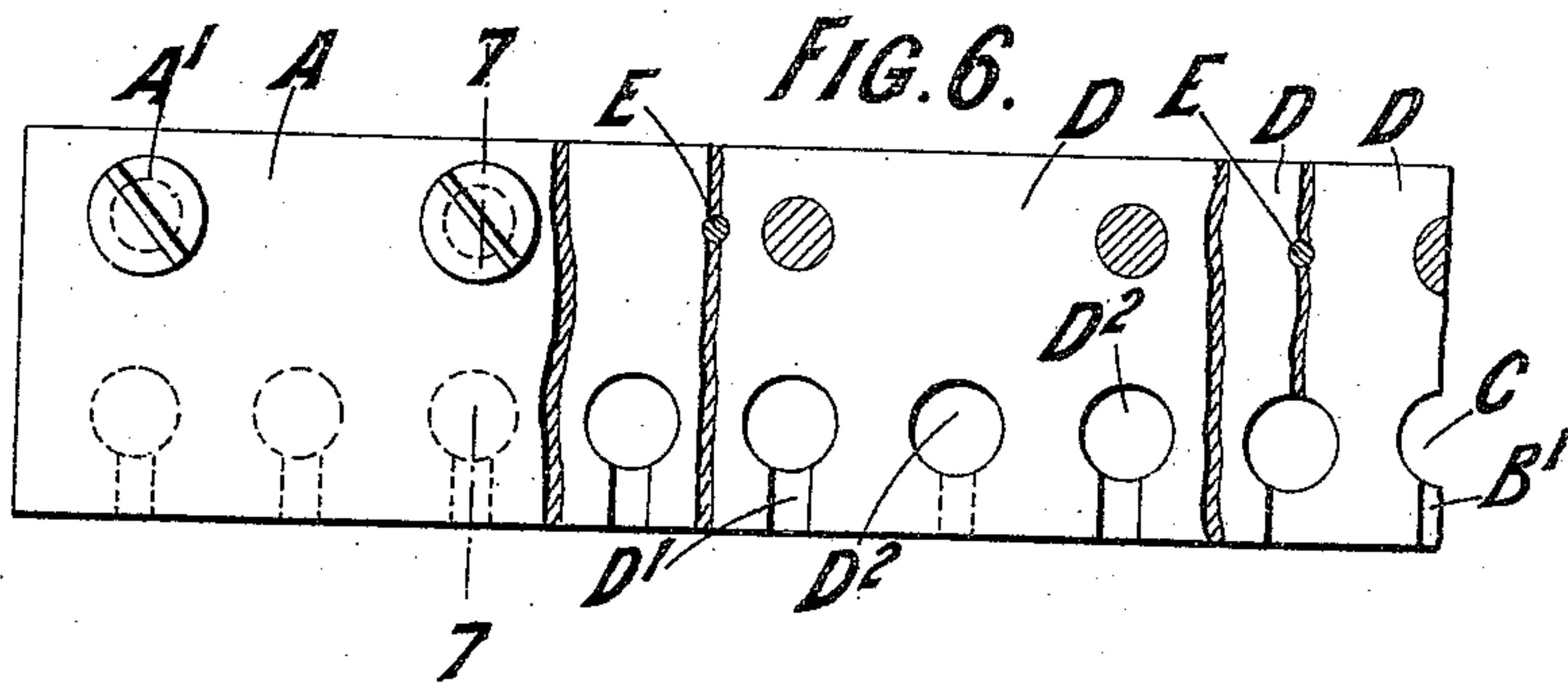
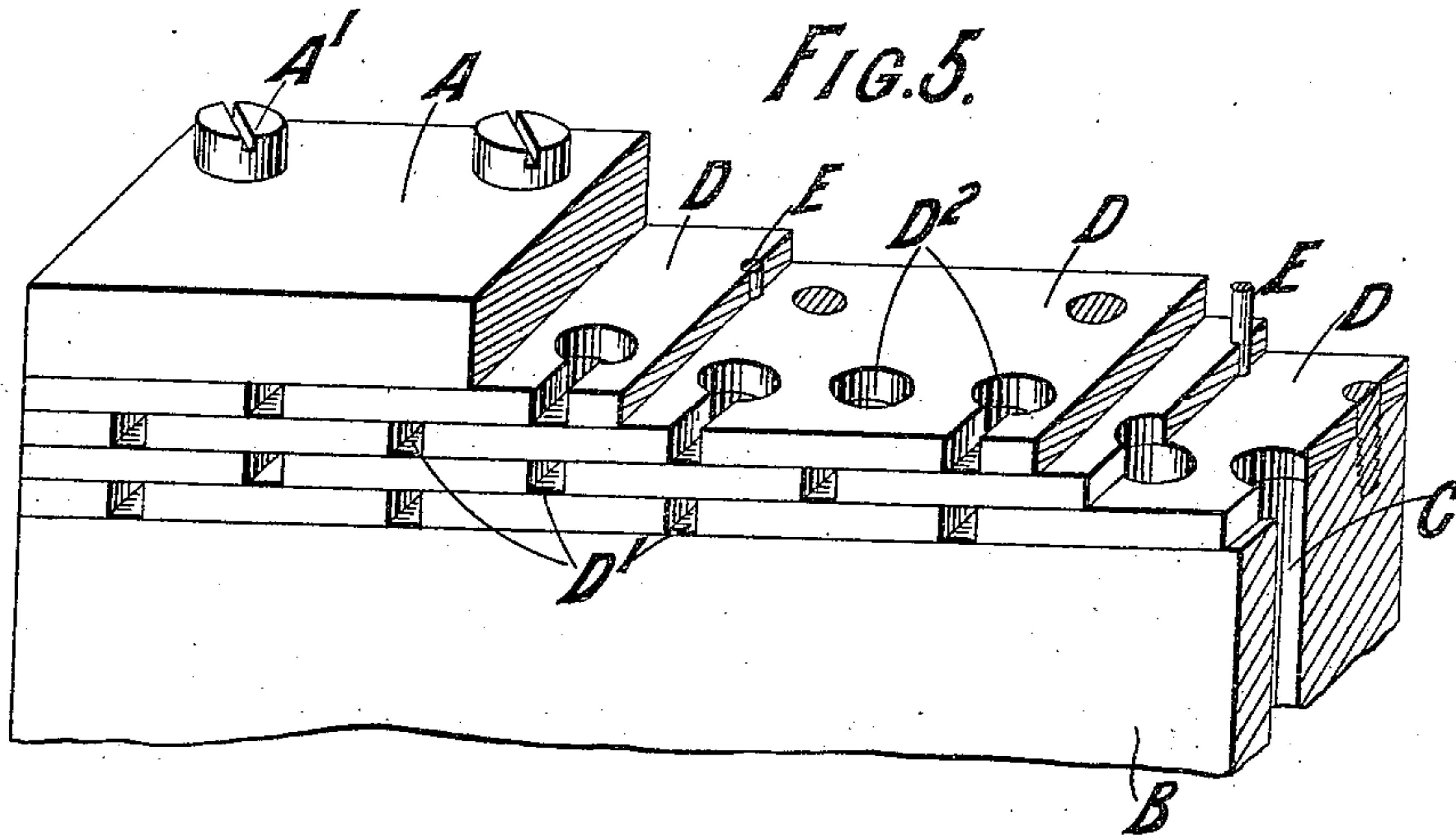


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Patented Dec. 28, 1909.
3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

FIG. 8.

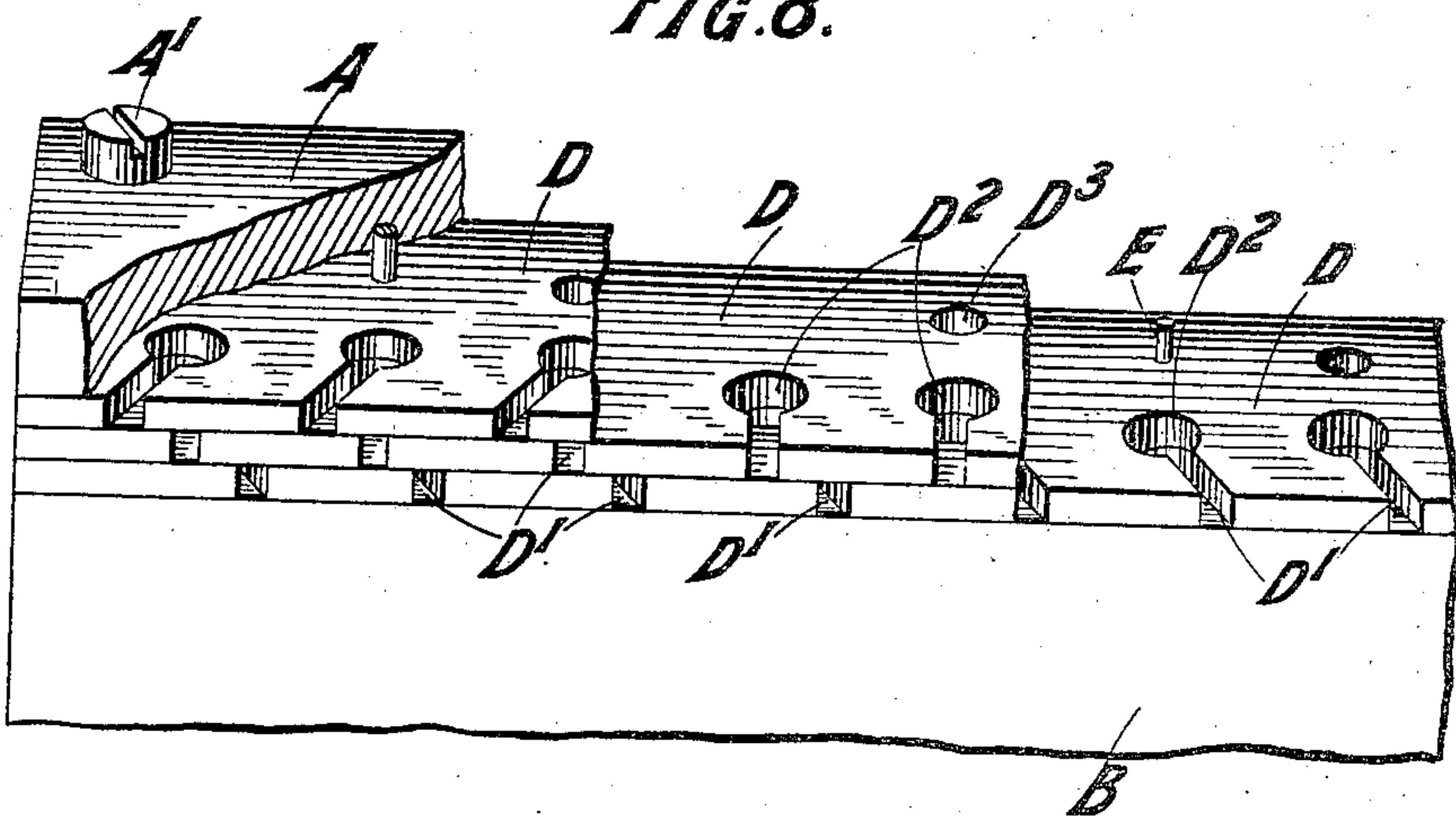
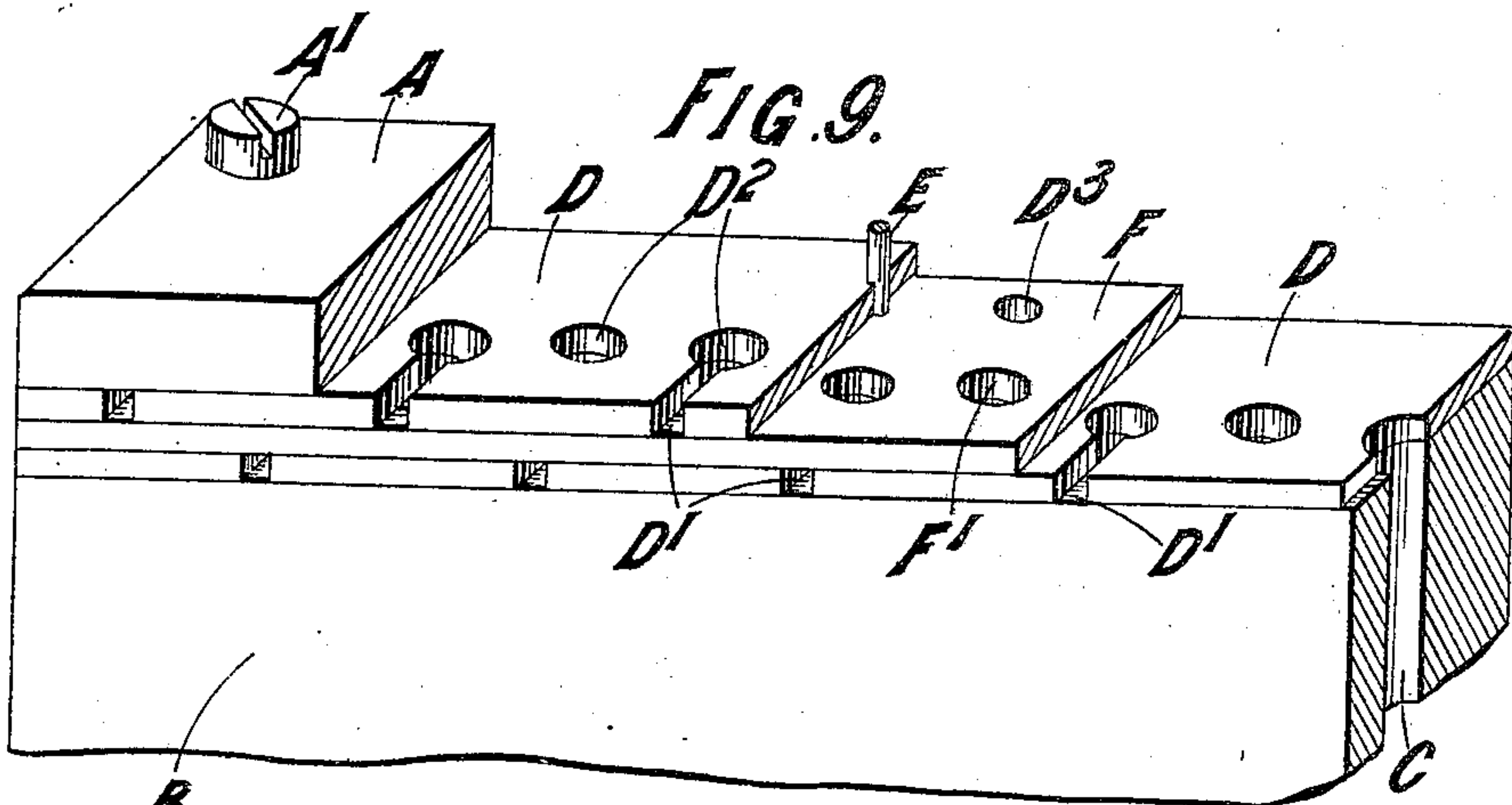


FIG. 9.



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UNITED STATES PATENT OFFICE.

ALEXANDER GEORGE IONIDES, OF LEICESTER, ENGLAND.

CONSTRUCTION OF JETS.

944,440.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed January 26, 1909. Serial No. 474,355.

To all whom it may concern:

Be it known that I, ALEXANDER GEORGE IONIDES, a subject of the King of England, residing at Leicester, Leicestershire, in England, have invented certain new and useful Improvements in the Construction of Jets, of which the following is a specification.

This invention relates to the construction of jets available for various purposes and has for its principal object to enable a series of fine jets to be produced in a simple manner and to a standard gage. According to this invention a series of ducts or passages of suitable dimensions and number and leading conveniently from a common chamber open into a plane surface these openings being preferably circular and equidistant from each other. Opposed to this perforated plane surface is a second plane surface conveniently in the form of a removable plate or other member shaped as may be found desirable. There is disposed between these plane surfaces one or more plates of suitable thickness each plate having cut in its edge a series of slots whose inner ends register with the duct openings in the first plane surface. Each jet is thus formed by the opposed plane surfaces and the sides of the slots in the plate and if this plate be thin and the slots of small width the dimensions of each jet can be reduced to the desired fineness while at the same time being standardized or formed with accuracy to the required gage.

Where a single row of jets is required a single slotted plate is disposed between the plane surfaces but two or more rows of jets may be formed by employing two or more superimposed slotted plates. In this case the slots in each plate are so cut or arranged that while the inner end of each slot registers with the inner end of the corresponding slot in each of the other plates and also with one of the duct openings the outer portion of each slot in each plate is not coincident with the outer portion of any slot in another plate but lies between two plane surfaces. These plane surfaces are formed by the parts of the adjacent plates which lie between the slots and the main plane surfaces which bound the jet construction.

In the accompanying drawings, Figure 1 is a perspective view partly broken away showing one construction of jets according to this invention where all the jets are supplied from a common supply passage. Fig.

2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a view similar to Fig. 1 but showing an arrangement where each jet is provided with a separate supply passage. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a perspective view partly broken away showing a modified construction with several rows of jets superimposed, Fig. 6 is a plan of the same. Fig. 7 is a section on the line 7—7 of Fig. 6. Fig. 8 is a perspective view partly broken away of another modification similar to that shown in Fig. 5 but with the plates slotted in a different manner. Fig. 9 is a similar view of yet another arrangement where slotted plates alternate with distance pieces.

Like letters indicate like parts throughout the drawings.

It is to be noted that in the accompanying drawings the dimensions of the various parts and particularly the thickness of the slotted plates and the size of the slots therein are shown of substantial dimensions for the sake of clearness.

A member or plate A of convenient general form is provided with a plane surface, this plane surface in the constructions illustrated in the several figures appearing on the underside of this plate. The second member B also of convenient general form is provided with a plane surface B' which in the examples illustrated appears on the upper side of this member. In this member B is formed one or more passages leading from a source of supply and terminating in the plane surface B'.

In the construction illustrated in Figs. 1 and 2 a single supply passage C is shown through the member B. This supply passage may be long and narrow or may be of convenient dimensions terminating in a groove or channel in the plane surface B' of the member B. Upon the plane surface B' rests a plate D in one edge of which are formed a series of slots D'. These slots may be provided with parallel sides with their inner ends rectangular or otherwise shaped but a convenient arrangement is to perforate the plate D as at D² and cut each slot D' from the edge of the plate into the perforation D² the completed slot thus having a key-hole form. The inner ends of the slots D' that is to say the perforations D² are so positioned that when the plate D rests on the plane surface B' the inner ends of the slots will register with the opening

of the supply passage C. Dowel pins E may be provided to insure this registration. The member A is placed on the plate D and secured for example by bolts A' which pass through holes D³ in the plate D into tapped holes in the member B. The plate D may thus be clamped securely between the members A and B when jets are formed by the slots D' in conjunction with the opposed plane surfaces of the members A and B. It will be noted that the member A can readily be detached when the plate D can be removed or exchanged for a plate of different thickness or having slots of different dimensions so that the size of the jets can in a simple manner be varied and at the same time access can be had to them for cleansing purposes or repairs.

In the construction shown in Figs. 3 and 4 there are formed in the member B a series of supply passages C the number of which corresponds with the number of slots D' D² formed in the member D. In this case the size of the perforations D² in the plate D which constitutes the inner end of each slot D' is conveniently the same as the size of the supply passage opening in the plane surface B'. All the supply passages C preferably are fed from a common source and may communicate one with the other in some convenient manner.

In the construction shown in Figs. 5, 6 and 7 a series of slotted plates are superimposed upon the plane surface of the member B so as to form several series of jets. In order to insure that each slot in any one plate is bounded by plane surfaces each plate is perforated as at D² the number of these perforations corresponding to the number of the supply passages C, the number of slots in each plate however is less than the number of perforations, thus for example as shown in the figures referred to a slot D' is cut to only each alternate perforation D² the alternation of these slots and perforations differing in plates which are to be immediately adjacent to each other so that the jets are staggered or alternate in the manner illustrated in Fig. 5. In this way a jet is formed by a slot in one plate being bounded by those plane surfaces which lie between the adjacent slots in the plates next above and below. Any number of these plates may be superimposed in this way so as to provide a large number of jets.

The constructions shown in Figs. 8 and 9 illustrate alternative arrangements whereby slotted plates may be superimposed to provide several series of jets. In the arrangement shown in Fig. 8 in place of the slots being cut at right angles to the edge of the plates D as in Fig. 5 there is a slot for every perforation but all the slots D' in one plate are cut at an angle to the edge of the plate. In the plate which is superimposed upon this

first plate the slots are cut say at right angles. In the next plate the slots again run at an angle to the edge of the plate this angle for example differing or the slots running in a different direction to those in the plate first described. Thus while the inner end of each slot in one plate registers with the inner end of the corresponding slot in each other plate and also with one of the supply openings yet the outer portion of each slot in each plate does not coincide with the outer portion of any slot in another plate but lies between two plane surfaces. It will be obvious that in place of cutting the slots in different directions in three adjacent plates it would suffice to provide two series of plates one with the slots running at an angle in one direction and the other with the slots running at an angle in another direction. Again the same effect may be obtained by making the perforations D² of such size in relation to the desired width of the slots that the slots may be all cut at right angles to the edges of the plates but will alternate in adjacent plates.

In the further arrangement shown in Fig. 9 the plates D are perforated and slotted as in the construction shown in Fig. 3 but a series of these plates are employed with a series of plates F which are perforated as at F' but not slotted alternating with them. The plates F thus provide the necessary plane surfaces to bound the jet slots of the adjacent plates while the perforations F' constitute passages to the slots in the superimposed plates, thus the arrangement may be regarded as a duplication of that shown in Fig. 3. In this case the jet orifices need not alternate but may be positioned one above the other.

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

1. In a jet construction, the combination of a member having a plane surface, a second member having a plane surface and a passage therethrough terminating at one end in the plane surface and at the other communicating with a source of supply, a plate having a slot running inward from one edge of the plate and disposed between the plane surfaces of the aforesaid members, and means whereby the two members can be connected together with their plane surfaces opposed, and the slotted plate clamped between them substantially as set forth.

2. In a jet construction, the combination of a member having a plane surface, a second member having a plane surface and a plurality of passages therethrough terminating at one end in the plane surface and at the other communicating with a common source of supply, a plate having a plurality of slots running inward from one edge of the plate and disposed between the plane surfaces of the aforesaid members with the

inner ends of the slots in registration with the openings in the plane surface, and means whereby the two members can be connected together with their plane surfaces opposed, and the slotted plate clamped between them substantially as set forth.

3. In a jet construction, the combination of a member having a plane surface, a second member having a plane surface, and a plurality of passages therethrough terminating at one end in the plane surface and at the other communicating with a common source of supply, a plurality of plates disposed between the plane surfaces, each plate having a plurality of slots running inward from one edge of the plate, the slots in adjacent plates being so disposed that each slot forms a separate jet orifice in communication with one of the openings in the plane surface, and means whereby the two members can be connected together with their plane surfaces opposed, and the slotted plates clamped between them, substantially as set forth.

4. In a jet construction, the combination of a member having a plane surface, a second member having a plane surface and a plurality of passages therethrough terminating at one end in the plane surface and at the other communicating with a common source of supply, a plurality of plates each having a plurality of perforations corresponding in number to and registrable with the passage openings in the plane surface of the second member, each plate having a plurality of slots running inward from one edge, each slot running to and terminating in one of the perforations, but the number of slots in any one plate being less than the number of perforations in that plate, and the slots being so disposed in the several plates

that when these plates are superimposed the slots will alternate, and means whereby the two members can be connected together with their plane surfaces opposed, and the slotted plates clamped between them, substantially as set forth.

5. In a jet construction, the combination of a member having a plane surface, a second member having a plane surface and a plurality of passages therethrough terminating at one end in the plane surface and at the other communicating with a common source of supply, a plurality of removable and interchangeable plates each having a plurality of perforations corresponding in number to and registrable with the passage openings in the plane surface of the second member, each plate having a plurality of slots running inward from one edge, each slot running to and terminating in one of the perforations, but the number of slots in any one plate being less than the number of perforations in that plate, and the slots being so disposed in the several plates that when these plates are superimposed the slots will alternate, means for insuring the registration of the perforations in the plates with the passage openings in the plane surface of the second member, and means whereby the two members can be detachably connected together with their plane surfaces opposed, and the slotted plates clamped between them, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEXANDER GEORGE IONIDES.

Witnesses.

WALTER W. BALL,
F. HOOD.