

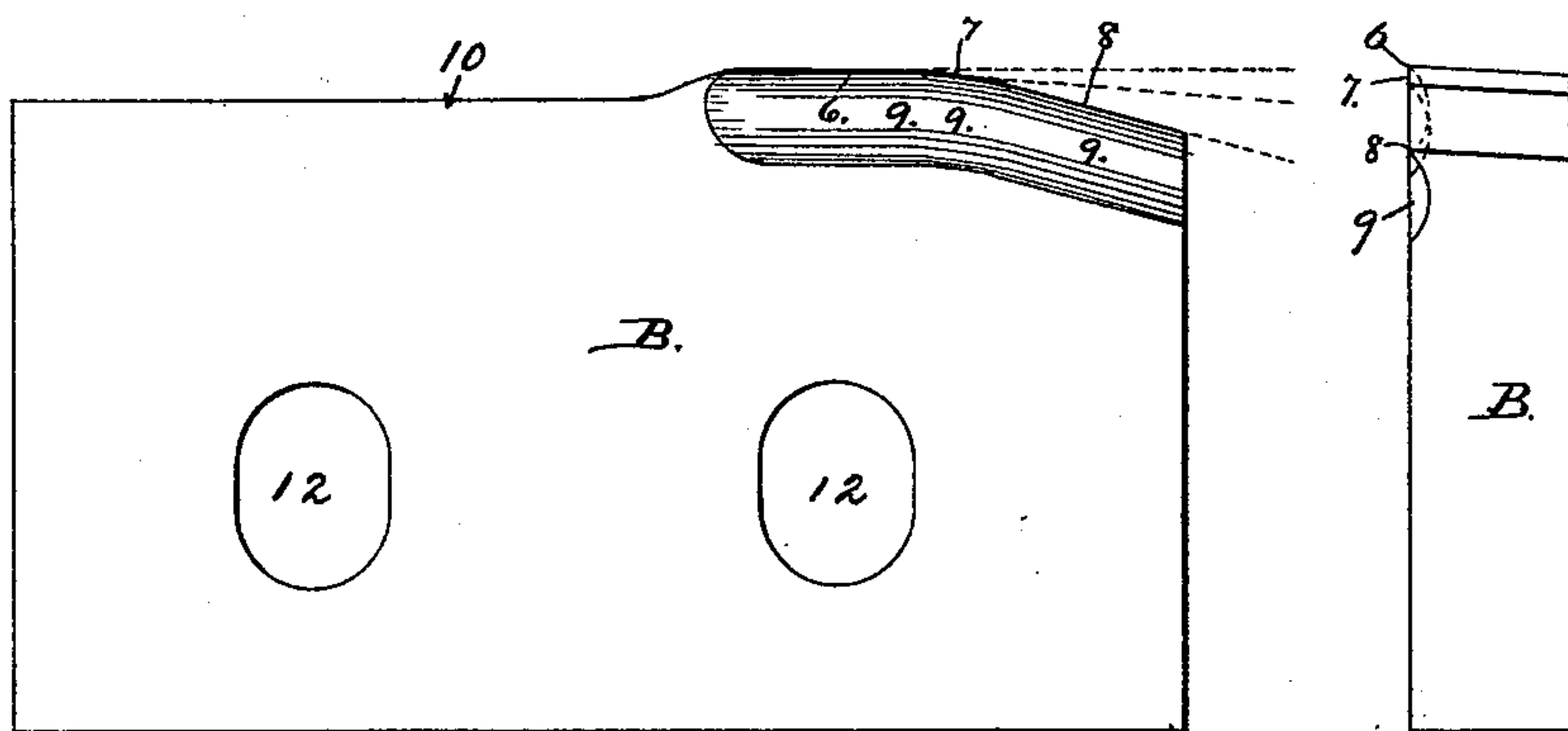
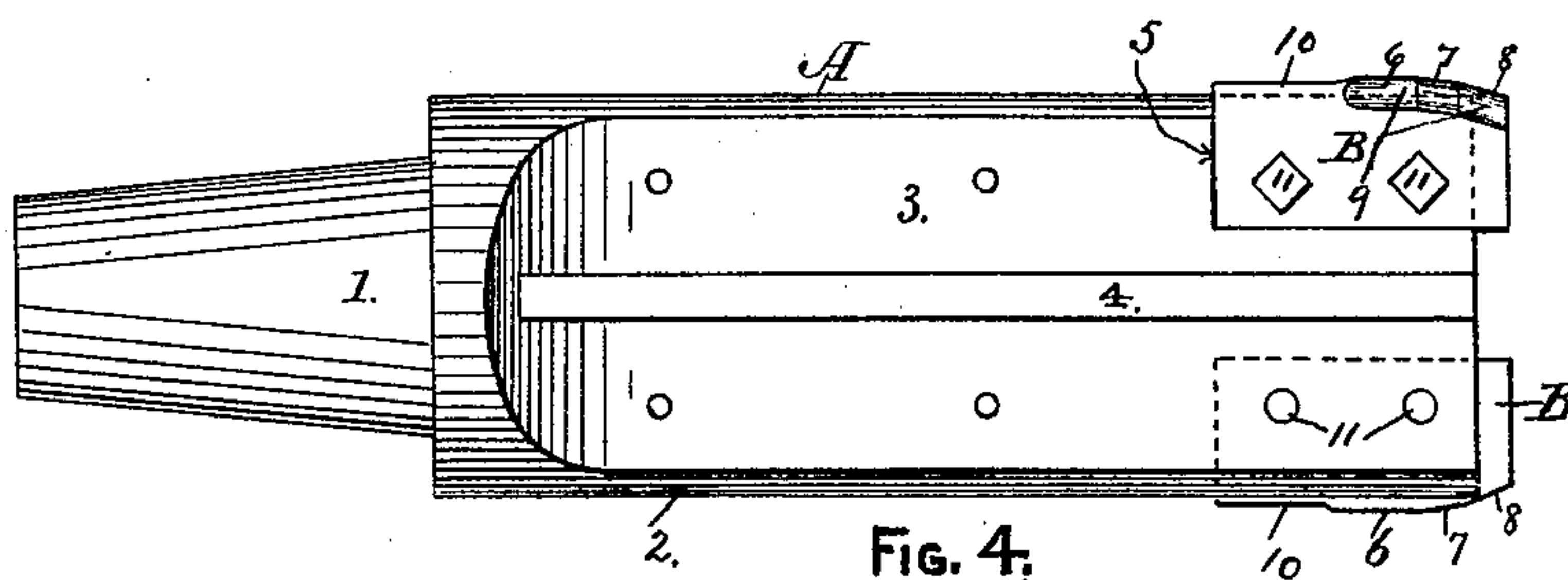
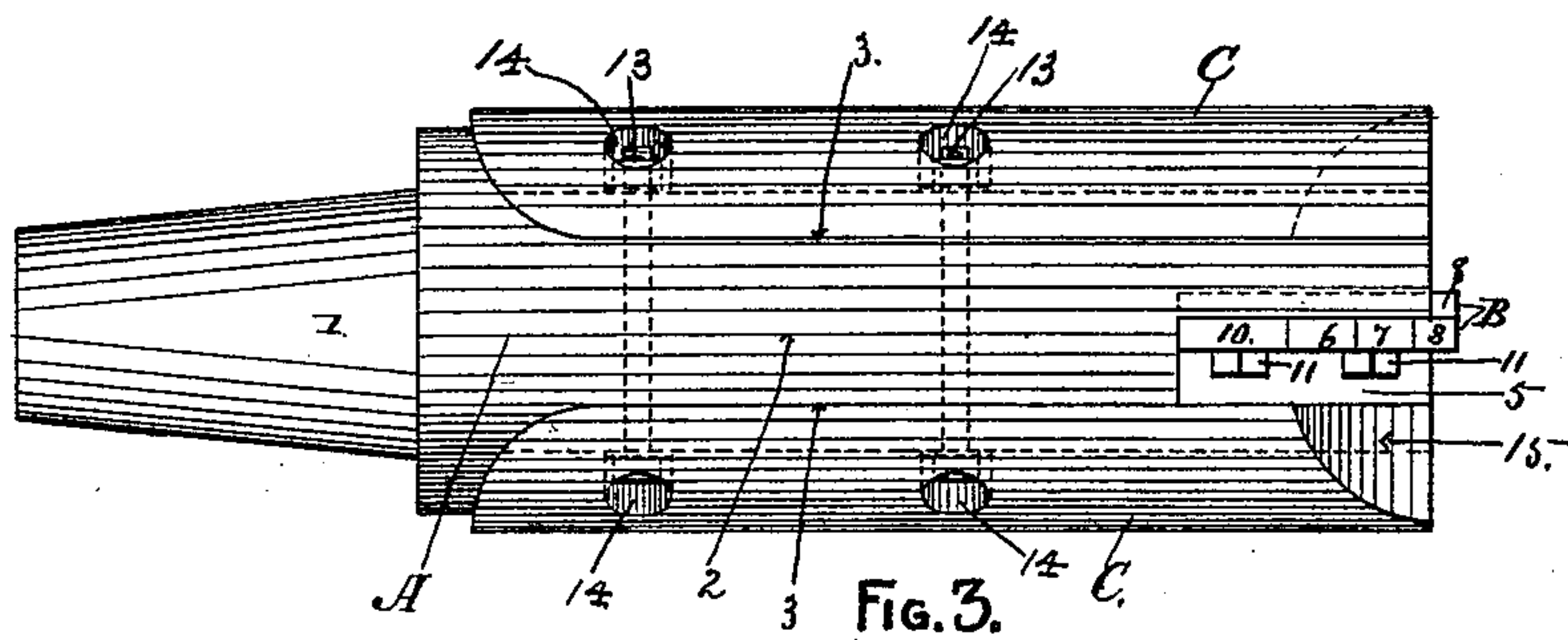
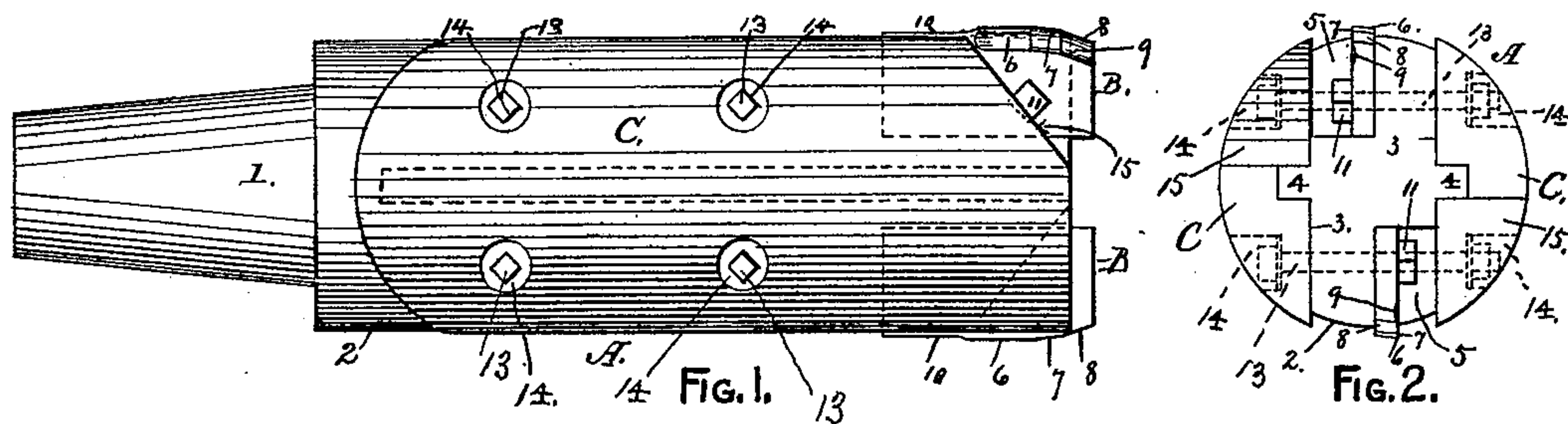
(No Model.)

G. GERDOM.

TOOL FOR BORING BREECH LOADING ORDNANCE.

No. 481,300.

Patented Aug. 23, 1892.



WITNESSES:

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TOOL FOR BORING BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 481,300, dated August 23, 1892.

Application filed February 27, 1892. Serial No. 422,993. (No model.)

To all whom it may concern:

Be it known that I, GREGORY GERDOM, of West Troy, in the county of Albany and State of New York, have invented new and useful
5 Improvements in Tools for Boring Breech-Loading Ordnance, of which the following is a full and specific description, reference being had to the accompanying drawings, which form part of this specification, and in which—
10 Figure 1 is a side elevation of my cutter-head embodying the improvements herein set forth. Fig. 2 is an end elevation of the foremost end of the same. Fig. 3 is a plan view. Fig. 4 is a side elevation of said cutter-head
15 with the cheek-blocks removed therefrom. Fig. 5 is an enlarged side elevation of one of my improved form of cutters detached from the cutter-head, the angular cutting-edges of the cutter being shown in an exaggerated
20 form; and Fig. 6 is an end elevation of the same.

This invention relates to improvements on the boring-tool for which Letters Patent of the United States No. 466,869 were granted
25 to me January 12, 1892; and the object of this improvement is to render said boring-tool more effective in its operation and to provide facilities for discharging the chips produced by the cutters into the bore of the cannon in
30 advance of the boring-tool.

As illustrated in the drawings, A designates the cutter-head, which I preferably make of cast metal and provide it with a shank 1 or other suitable means for attaching said cut-
35 ter-head to the foremost end of a boring-bar of the form usually employed for boring breech-loading ordnance. Said cutter-head is provided with a cylindrical body 2 of a smaller diameter than the bore of the cannon
40 on which it is used, and said shank should project centrally from the rearmost end of said cylindrical body when such means of attachment is employed. A flattened member 3 extends longitudinally from the foremost
45 end of said cylindrical body and has its opposite plane faces each provided with a longitudinal tongue 4, for a purpose hereinafter explained. The foremost end of the flattened member is provided with recesses 5 for
50 receiving the detachable cutters for said cutter-head, one of said recesses being formed in

each plane face at opposite edges of said flattened member and so that the back of each recess will range substantially on the same
diametrical center line of said cutter-head. 55 The arrangement of said recesses in respect to the plane faces and edges of the flattened member 3 of said cutter-head is shown in Fig. 2.

B designates the cutters of my boring-tool. 60 Said cutters are made of steel in the form of flat plates, which after being properly shaped are properly tempered for effecting the cutting away of the metal in the process of boring the cannon. The part 6 is designed to
65 effect the finishing of the bore of the cannon in such manner that no spiral crease will be left in the bore by reason of a sharp corner at the rearmost edge of said cutter. It is made parallel to the center line of the cutter-head 70
A and of such width that the required caliber of said bore will be obtained. Immediately in advance of said part a slightly-inclined cutting-edge 7 is joined to the part
6, and in practice I find that an inclination 75 of seventy-five ten-thousandths of an inch to one inch in length gives a good result in said inclined cutting-edge. Immediately in advance of the inclined cutting-edge 7 another inclined cutting-edge 8 of greater
80 angularity is joined to the cutting-edge 7. The foremost end of the cutting-edge 8 requires to be made so that the foremost end of the boring-tool will be small enough to allow
that part to enter the preliminary bore of the 85 cannon with perfect freedom. The inclination of the cutting-edge 8 is preferably made about one-eighth of an inch in a length of one and one-half inches from a line ranging with
90 the cutting-edge 7. The parts 6, 7, and 8 form the cutting-edge of my cutters, and they form a continuous line. A groove or cutter 9 is formed in the face of each cutter to follow
the shape of said cutting-edges, and thereby a sharp cutting-edge is produced to positively 95 cut the metal to effect a smooth and uniform bore in the cannon. The part 8 will remove the greater part of the metal, the part 7 skims off a slight chip to produce the required caliber, and the part 6 will remove all trace of a
100 spiral groove that might possibly be formed by feeding the cutter-head inward into the

bore of the cannon. Immediately following the part 6 the cutter B is reduced, as at 10, to prevent that part from bearing against the bore of the cannon to effect a possible damage to said bore. Each of said cutters is secured in its appropriate recess 5 of the cutter-head A by means of bolts 11, which pass through bolt-holes 12, which are slotted, as shown in Fig. 5, to allow said cutters to be adjusted inwardly and outwardly in respect to the longitudinal center line of the cutter-head.

C designates the cheek-blocks of my boring-tool, which are preferably made of wood in the form of a segment of a cylinder. Said cheek-blocks are secured to the opposite plane faces of the flattened member 3 of the cutter-head by means of bolts 13, which are inserted in counterbored bolt-holes 14, so as to keep said bolts below the cylindrical surface of the cheek-blocks, and the plane faces of the latter are each provided with a longitudinal groove that is fitted to engage snugly with a tongue 4 of the cutter-head B, so as to retain the cheek-blocks in an immovable position on said cutter-head. When said cheek-blocks are secured to said cutter-head, they should be turned off in a lathe, so that their diameter will exactly correspond to the finished bore of the cannon on which the boring-tool is to be used. The foremost end of each cheek-block should be beveled backward, as at 15, at the side of the cutter B whereon the cutting-edge is formed, and said bevel should be carried backward to about the rearmost termination of the part 6 of the corresponding cutter, and thereby provision is made for discharging the chips from the cutters B into the bore of the cannon in advance of the foremost end of the boring-tool. My boring-tool is specially designed for boring breech-loading ordnance made from steel or iron forgings and in which a preliminary bore has been made of smaller diameter than the finished bore of the cannon. Said preliminary bore must extend entirely through the length of the forging and should be slightly larger than the smaller end of the boring-tool.

This invention operates differently from the boring-tool described in the Letters Patent hereinbefore referred to, for the reason that the latter increased the diameter of the preliminary bore to that of the finished bore at once by a single inclined cut, while my present invention effects the enlargement progressively, and thereby the duty of the cutting-edge 6 in finishing the bore is reduced, for the reason that the cutting-edge 7 leaves but a small thickness of metal to be removed

by the cutting-edge 6, and as a result the finished bore is completed in a much more perfect manner, as is required by the character of the use to which the cannon is to be put. In addition to the foregoing difference, the cheek-blocks C, by reason of their beveled portion at their foremost end, remove the borings from the way of the boring-tool instead of allowing said borings to crowd in between the periphery of the cheek-blocks and the bore of the cannon, thereby remedying a defect common to boring-tools whose cheek-blocks have a foremost end formed perpendicularly to the longitudinal line of their sides.

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

1. In a tool for boring ordnance, a cutter having a cutting-edge which at its foremost end is formed at an inclination to the central axis of said tool, a succeeding cutting-edge of slighter angularity to said axis, and a final or finishing cutting-edge which is parallel to said axis, all of said cutting-edges being connected continuously, as and for the purpose herein specified.

2. In a tool for boring ordnance, a cutter having a cutting-edge which at its foremost end is formed at an inclination to the central axis of said tool, a succeeding cutting-edge of slighter angularity to said axis, and a final or finishing cutting-edge which is parallel to said axis, all of said cutting-edges being connected continuously and having the form of a sharp lip, which is produced by a groove or gutter formed in the face of the cutter, as and for the purpose herein specified.

3. In a tool for boring ordnance, the combination of a cutter-head provided with a flattened member 3, provided with a longitudinal tongue 4 on each of its plane faces and recesses 5 for receiving removable cutters, said recesses being formed in opposite faces of said flattened member at diametrically-opposite edges of the same, removable cutters B, secured in said recesses, and segmental cheek-blocks C, secured to opposite faces of said flattened member and forming complementary additions thereto that will exactly fit into the finished bore of the cannon to retain the boring-tool in a true position in said bore, the foremost end of each cheek-block being beveled rearwardly, as at 15, for the purpose of displacing the chips of metal from the path of said boring-tool, as herein specified.

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Witnesses:

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