No. 771,019. PATENTED SEPT. 27, 1904.

F. KOBER.

MACHINE GUN.

APPLICATION FILED APR. 6, 1904.

NO MODEL. 4 SHEETS—SHEET 1.

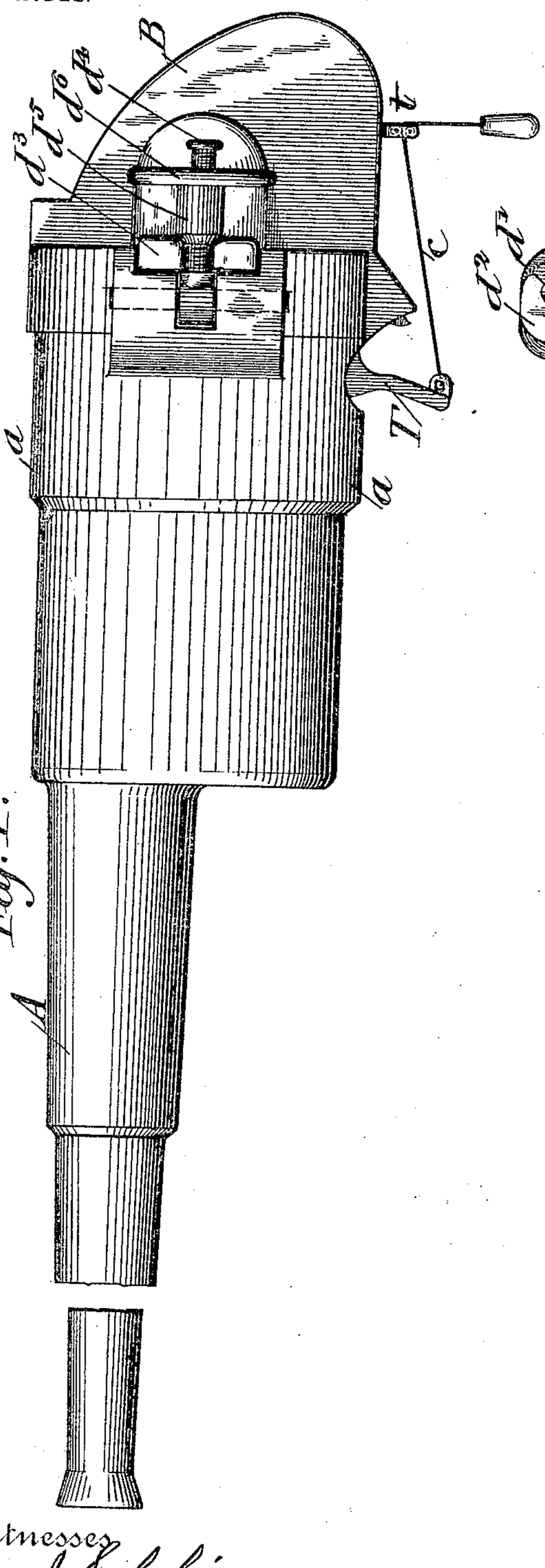

Fig. 1.

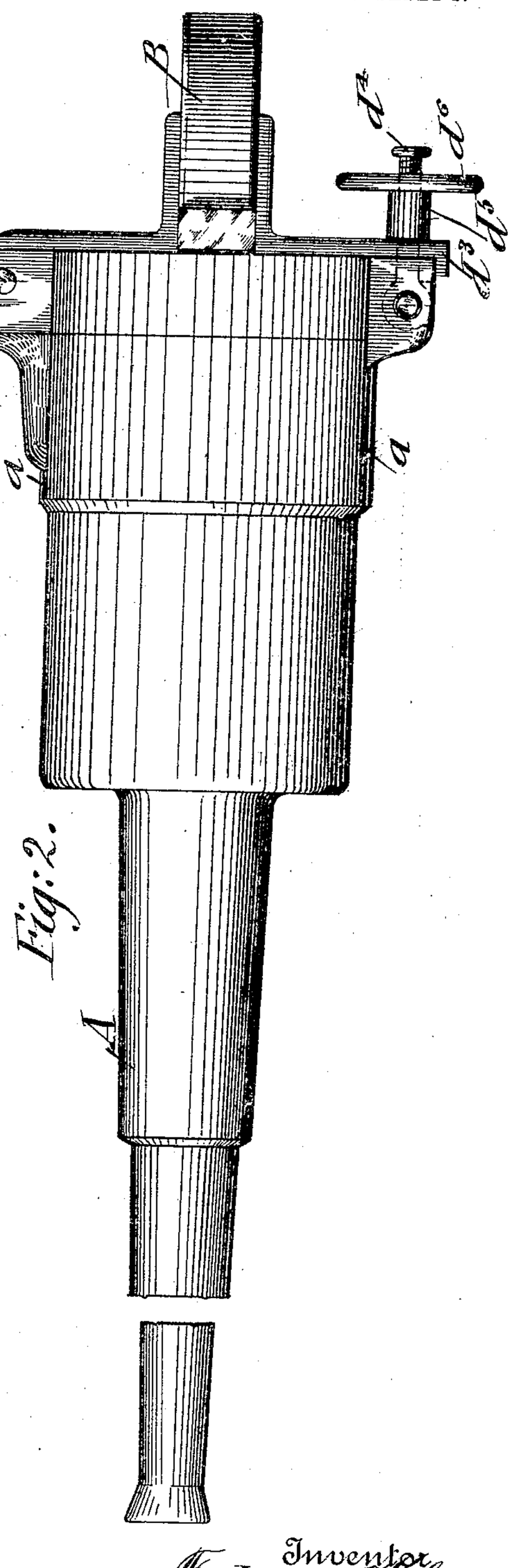

Fig. 2.

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NO MODEL. 4 SHEETS—SHEET 2.

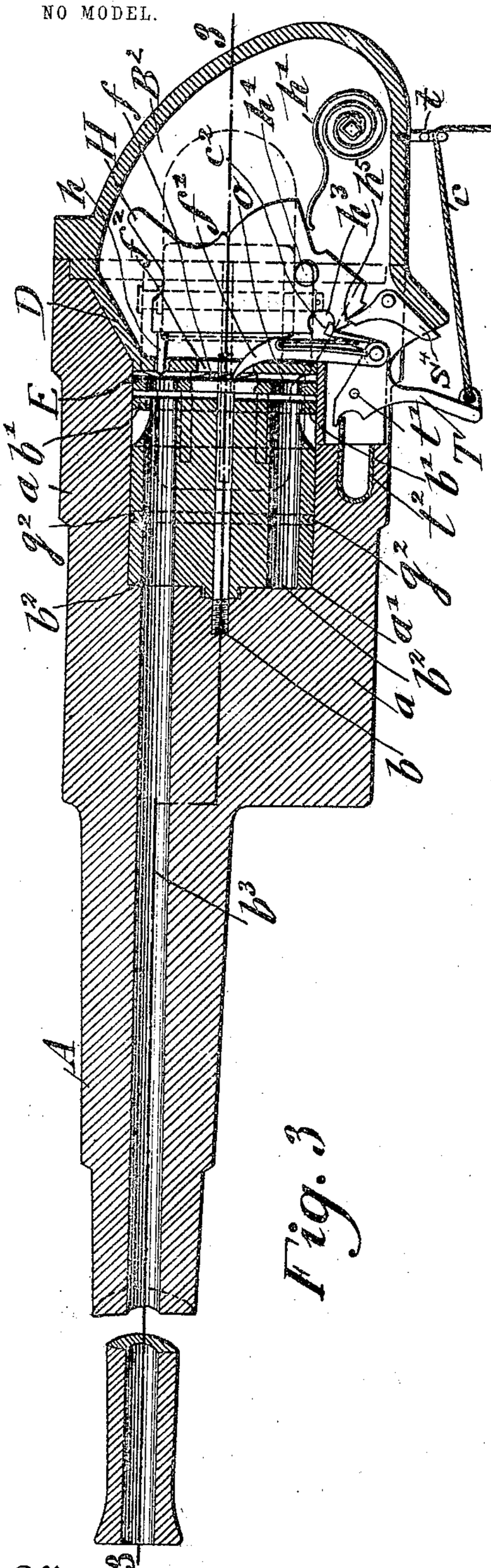

Fig. 3

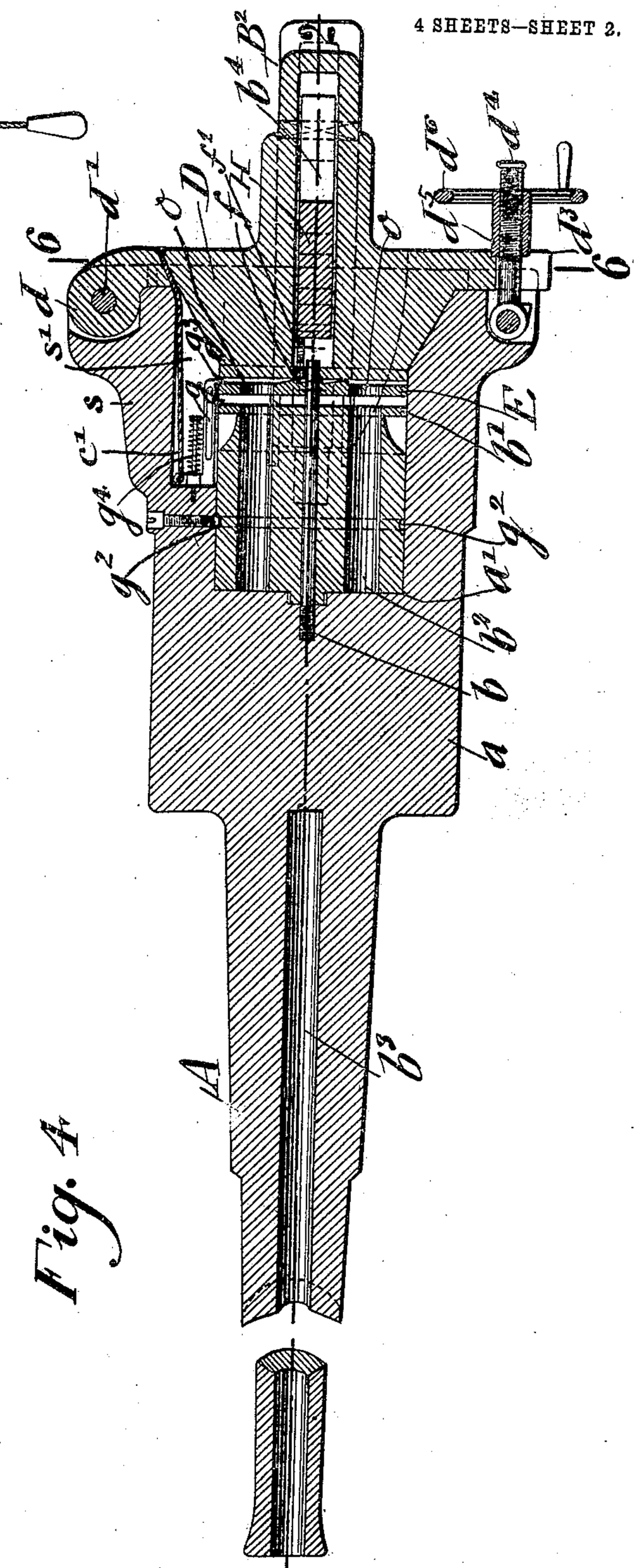

Fig. 4

Witnesses
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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 6

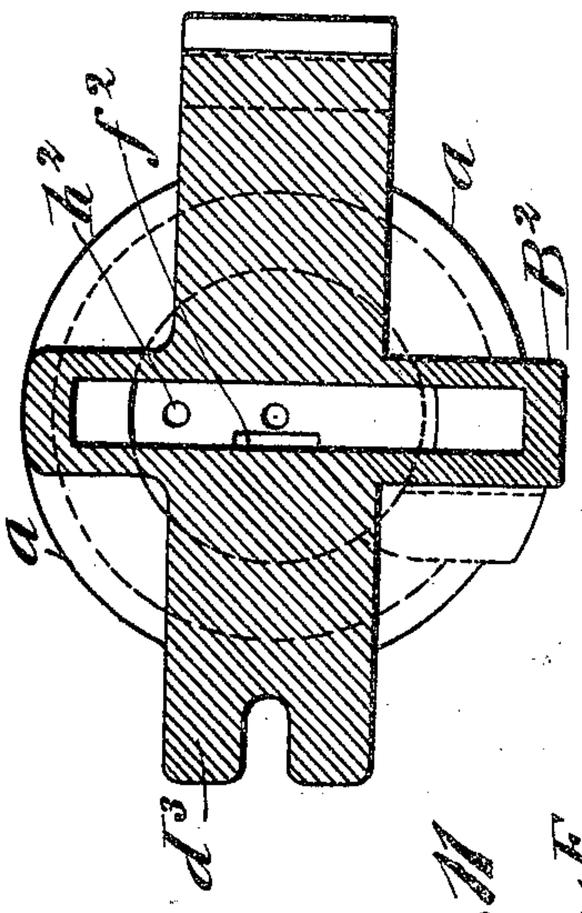


Fig. 7

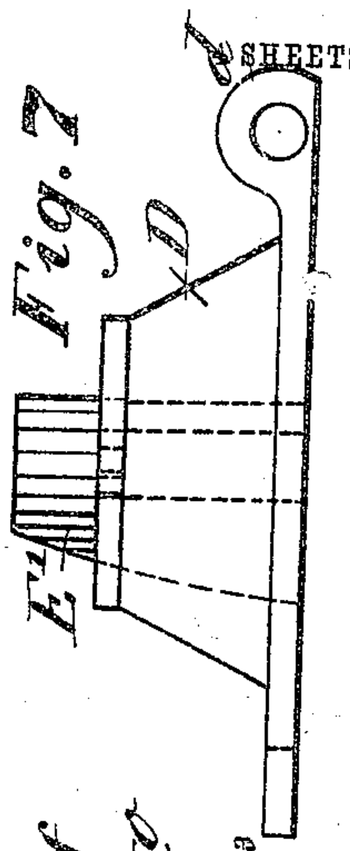


Fig. 9

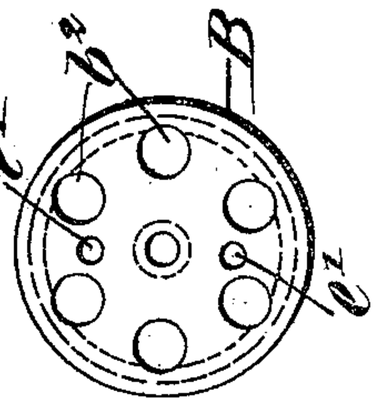


Fig. 11

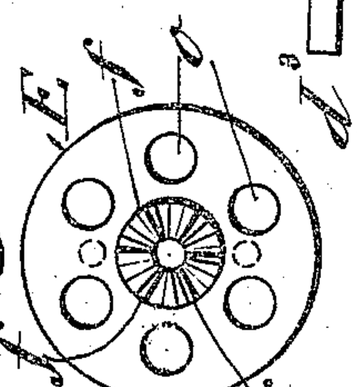


Fig. 8

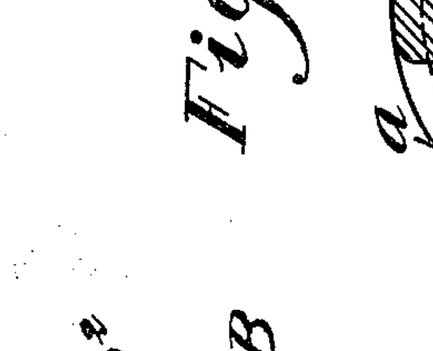
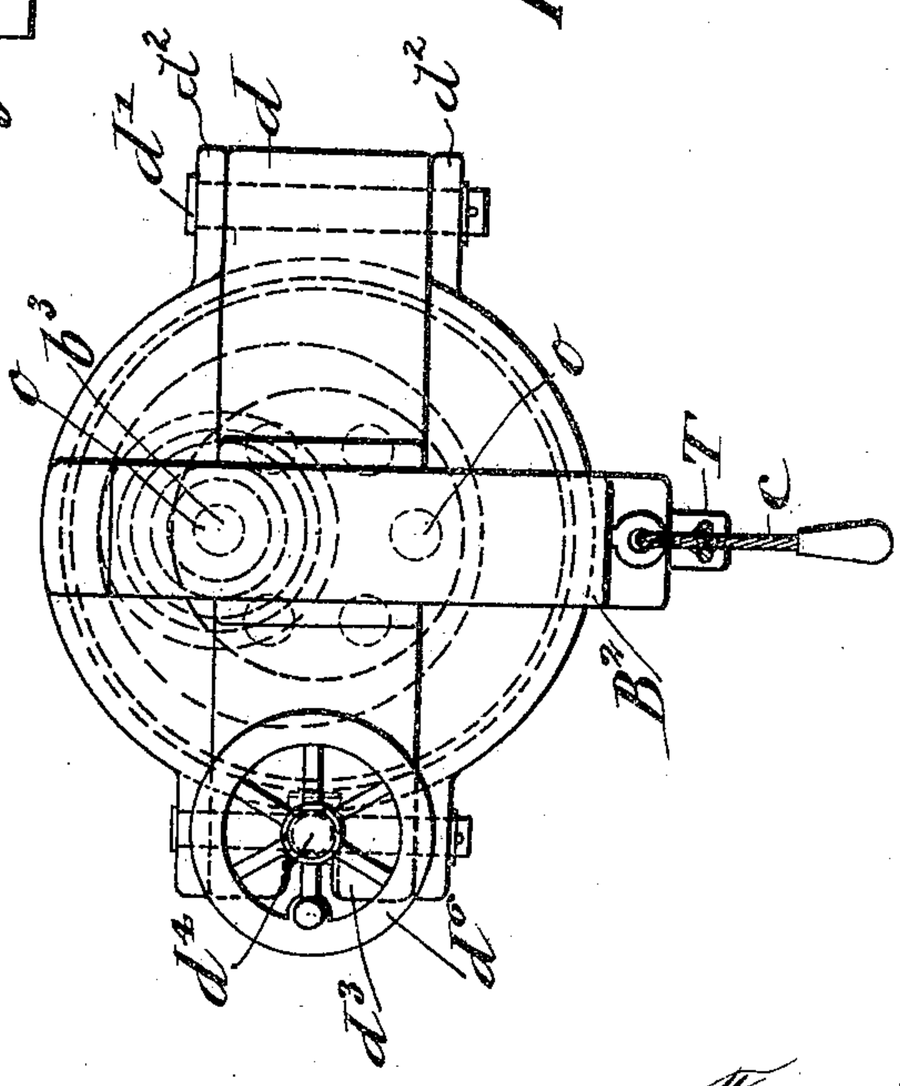


Fig. 10

Fig. 5



Witnesses
W^m G. Bergman.
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No. 771,019. PATENTED SEPT. 27, 1904.

F. KOBER.

MACHINE GUN.

APPLICATION FILED APR. 6, 1904.

NO MODEL. 4 SHEETS—SHEET 4.

Fig. 13

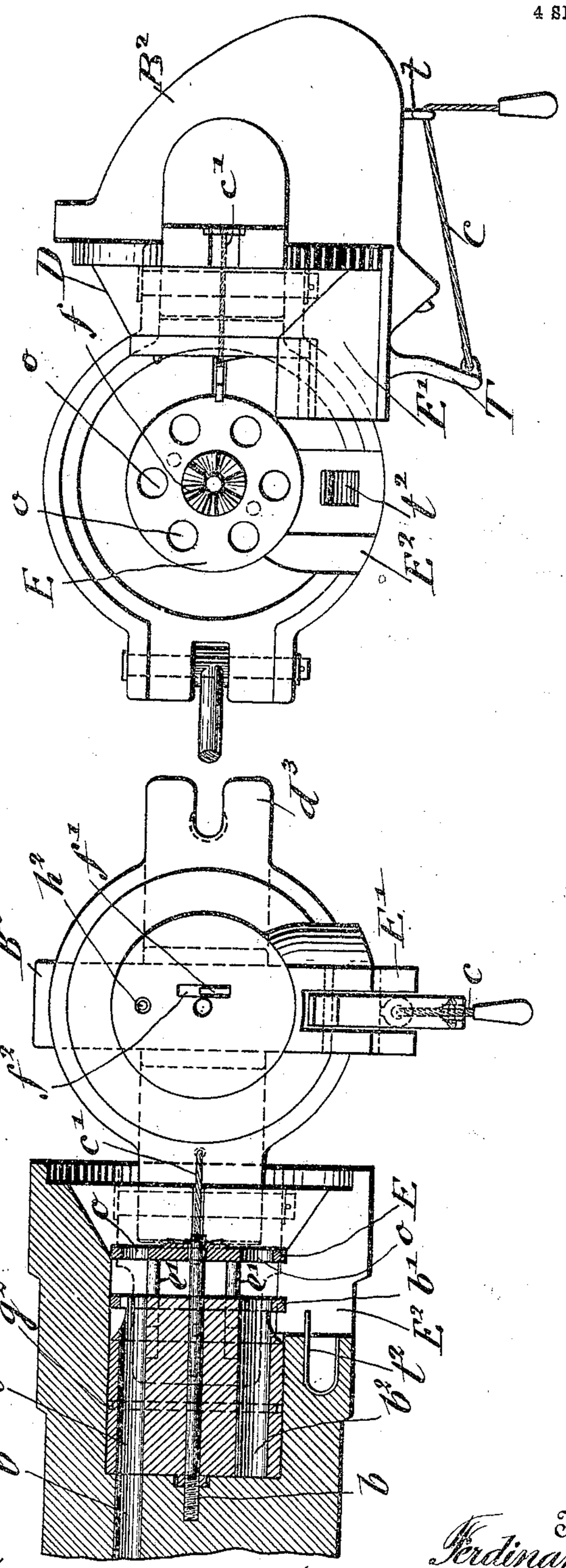

Fig. 12

Witnesses
Henry J. Dubbier.
Jacob H. Gleason.

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Howson & Sons

No. 771,019. Patented September 27, 1904.

UNITED STATES PATENT OFFICE.

FERDINAND KOBER, OF ALLENTOWN, PENNSYLVANIA.

MACHINE-GUN.

SPECIFICATION forming part of Letters Patent No. 771,019, dated September 27, 1904.

Application filed April 6, 1904. Serial No. 201,863. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND KOBER, a citizen of the Empire of Austria-Hungary, residing in Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Machine-Guns, of which the following is a specification.

This invention relates to certain improvements in machine-guns having rotatable cylinders by which a number of shots can be fired in rapid succession, the shells being withdrawn after the gun has been fired and the breech-block opened, when new cartridges are inserted and the breech-block is closed ready for refiring.

The invention consists of a machine-gun the barrel of which is provided at the breech end with an enlarged chamber, a revolving cylinder in said chamber, an ejector-plate at the rear end of said cylinder, a breech-block hinged sidewise to the breech end of the barrel, means for rotating the revolving cylinder and ejector-plate in said chamber by a pawl mechanism engaging ratchet-teeth on the ejector-plate, a hammer-and-trigger mechanism located in an extension of the breech-block, and means for locking the breech-block firmly into the breech end of the barrel; and the invention consists, further, of certain details of construction and combinations of parts, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved machine-gun. Fig. 2 is a top view of my improved machine-gun. Fig. 3 is a vertical longitudinal section of the same on line 2 2, Fig. 4, showing the coöperative relation of the interior parts of the gun. Fig. 4 is a horizontal section on line 3 3, Fig. 3, showing the cooperative relation of the interior parts and, further, showing the actuating mechanism for the ejector-plate. Fig. 5 is an end elevation of the breech end of my improved machine-gun, showing the locking device of the breech-block. Fig. 6 is a vertical transverse section on line 6 6, Fig. 4, through the breech-block. Fig. 7 is a plan view of the breech-block to the left of sectional line 6 6, Fig. 4. Figs. 8 and 9 are respectively a side elevation and an end view of the revolving cylinder shown as detached from the gun-barrel. Figs. 10 and 11 are respectively a side view and an end elevation of the ejector-plate, showing the guiding-pins on one side and the ratchet-teeth on the other side of the same. Fig. 12 is a vertical longitudinal section on line 2 2, Fig. 4, through the breech end of the barrel and cylinder, showing the breech-block in open position and the cylinder and ejector-plate in position; and Fig. 13 is an end elevation of the breech end of the barrel with the breech-block in open position.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the barrel of my improved machine-gun. The barrel A is provided at its breech end with an enlarged portion a, at the interior of which is formed a cylindrical cavity a' for the rotatable cylinder B. The axis of the rotatable cylinder B is parallel with the axis of the barrel A and located below the same, said revolving cylinder B being provided with a plurality of longitudinal bores b^2 for inserting cartridges therein, said bores b^2 being equal in diameter with the bore b^3 of the barrel A. The cylinder B rotates around a center-bolt b, which is screwed into the enlarged breech end a of the barrel A, as shown in Figs. 2, 3, and 11. The distance of the axis of the bores b^2 of the rotatable cylinder B from the center of the axis of said cylinder B is equal to the distance between the axes of the bore of the barrel and of the cylinder B, so that in rotating the cylinder B the bores b^2 for receiving the cartridges are placed axially in line with the bore b^3 of the barrel A. The rotatable cylinder B is tightly but rotatably fitted into the cylindrical cavity a' in the breech end of the barrel and provided in its circumference with a groove, said groove being provided with a packing g^2 for keeping the cylinder B tightly fitted in the cylindrical cavity a'. The cylinder B is contracted at its rear end and has a flange b'

adjacent thereto for permitting the cylinder to be taken hold of and removed from its cavity a' in the barrel when the cylinder or barrel is to be cleaned or repaired.

Adjacent to and engaging the rear end of the rotatable cylinder B is arranged a disk-shaped ejector-plate E, which is capable of being adjusted in forward or backward direction in relation to the said cylinder B and which is guided in such forward or backward motion by pins e, located at diametrically opposite points on the ejector-plate E and which pins move in corresponding socket-holes e' in the solid portion of the rotatable cylinder B, said socket-holes e' being shown in Fig. 8. The ejector-plate E is provided with a plurality of openings o, corresponding in number and shape and size with the bores b^2 of the cylinder B. The pins e and socket-holes e' hold the ejector-plate in such position relatively to the cylinder B that the openings o are accurately in line with the bores b^2 of the cylinder B, so as to permit the proper charging of the cylinder B with cartridges, the rim at the base of the cartridge abutting after the charging of the cylinder against the ejector-plate E in the usual manner.

The breech end of the barrel A is tapered in outward direction and tightly closed by a correspondingly-tapered breech-block D, which fits therein and which is hinged at one side of the barrel by a perforated ear d to a pintle d', supported in perforated lugs d^2, while a recessed lug d^3, extending from the side of the breech-block at a point diametrically opposite to the pintle d', is engaged by the shank of a locking-bolt d^4, that is pivoted to the breech end of the barrel at the side opposite the pintle d', while a fastening screw-nut d^5, provided with a hand-wheel d^6 for convenience of operation, tightly locks the breech-block D to the breech end of the barrel, as shown clearly in Figs. 1 and 3. The ejector-plate E is provided at its inner face with raised ratchet-teeth f, extending radially partly across said inner face from the center pivot b, which supports said ejector-plate and the rotating cylinder B, said ratchet-teeth f being engaged by a forwardly-projecting spring-actuated pawl f', said pawl being located in an extending portion of the breech-block D and operated by a spring-actuated trigger T, that is connected by a chain or wire cord c, extending from the rear end of the breech-block D, said chain or cord c passing through an eye t at the rearwardly-extending portion of the breech-block D, as shown clearly in Figs. 1 and 3. By pulling the chain or cord c the pawl-operating trigger T is actuated on its fulcrum t' so as to lift the spring-actuated pawl f', pivoted to said trigger, the said pawl passing outwardly through a slot f^2 in the inner face of the breech-block D adjacent to the ejector-plate into engagement with the ratchet-teeth f on the ejector-plate E, so as to turn the latter upon its pivot for the distance required by means of the pins engaging the rotatable cylinder, also turning the said cylinder upon its axis or pivot so as to bring the next cartridge in the revolving cylinder into line with the bore b^3 of the barrel.

The trigger arrangement for rotating the cylinder B and the pawl-and-ratchet mechanism for imparting rotary motion are located in a forwardly-extending portion E′ at the bottom and inner face of the breech-block D and integral therewith. The forwardly-extending portion E′ is tightly fitted into a corresponding recess E^2 at the bottom portion of the breech end of the barrel when the breech-block is closed for firing, as shown in Fig. 2, and is withdrawn from such position in the breech end of the barrel when the breech-block is swung into open position for reloading the cylinder B, as shown in Figs. 11 and 12.

The breech-block D is connected near its hinge-joint d d' with the breech of the barrel A by a wire cord c' with a spring-actuated slide-piece g, which slide-piece is made L-shaped and is guided in a longitudinal slot s', located in an enlarged side portion s of the breech end of the barrel, as shown in Fig. 4. The outer or rear end of the L-shaped slide-piece g is provided with a laterally-projecting portion g^3, that engages the ejector-plate E on its inner and outer faces and is actuated by the connecting-cord c', so as to move the said ejector-plate backward away from the cylinder B when the breech-block D is swung into open position on its hinge-pintle d', while it returns the ejector-plate into normal position adjacent to the cylinder B by the action of the return-spring g^4 upon the L-shaped slide-piece g, as shown clearly in Fig. 3, when the breech-block D is returned into closed position. By the action of this engaging slide-piece and connections when the breech-block B is being opened or swung the reciprocating motion of the ejector-plate E is automatically controlled, the shells being withdrawn from the cylinder by the backward motion of the ejector-plate E and opening of the breech-block, while by the forward motion of the ejector-plate during the closing of the breech-block D the cartridges are moved forward into the cylinder in position ready for firing.

The breech-block D is provided with an outward extension B^2 at its rear part, in which a cavity b^4 is arranged for a hammer H, which is fulcrumed at h^4 to the side walls of the extension B^2. The hammer H is provided at its upper end with a forwardly-projecting firing-pin h, that extends through a corresponding opening h^2 in the inner face of the breech-

block D in such a manner as to strike the center of the face of the cartridge and produce thereby the ignition of the explosible cap of the same. The free end of a coil-spring h', located in the lower rear part of the extension B^2, acts on the lower rear part of the hammer in the usual manner for actuating the same, the opposite end of said spring being attached to the extension B^2 of the breech-block D.

The hammer is cocked by the action of a catch c^2 on the shank of the spring-actuated pawl f', which is pivoted on the trigger-body, said catch c^2 engaging a recess h^3 in the lower part of the hammer H. When the pawl f' is operated by the moving of the trigger, said catch c^2 engages the upper end of the recess h^3 in the hammer, so as to turn the hammer H backward on its fulcrum h^4 and permit the sear s^4 to engage a recess h^5 on the bottom edge of the hammer, so as to hold the hammer H against the tension of its spring h' in cocked position. The trigger T is actuated by a trigger-spring t^2 in the usual manner, the lower end of the trigger projecting beyond the lower part of the breech-block D, so as to be taken hold of whenever the cartridge is to be fired and to be pressed in the usual manner for causing it to release the hammer H, so that the firing-pin of the hammer strikes the base of the cartridge and fires the charge contained in the same. After firing the hammer is moved backward into position so that the sear s^4 engages the second recess h^5 at the lower edge of the shank of the hammer H, as shown in Fig. 3, and holds the hammer in this position until the cylinder B, with the ejector-plate E, is turned upon its axis by the cylinder-rotating mechanism until another bore in the cylinder is placed in line with the bore b^3 of the barrel A ready for firing another cartridge. Simultaneously with the rotatating of the cylinder B the hammer H is placed in cocked position, being then ready for firing the next shot, and so on. When all the shots in the cylinder B are fired, the breech-block D is opened by unscrewing the hand-wheel d^6 at one side of the breech-block D, swinging back the locking-bolt, and then swinging the breech-block into open position, as shown in Figs. 11 and 12. Simultaneously with the outward motion of the breech-block D the ejector-plate E is moved in backward direction, so as to eject the shells from the revolving cylinder and carry them backward along with the motion of the ejector-plate, so that they may then be removed from the cylinder B and ejector-plate and new cartridges inserted through the opening o of the ejector-plate E into the cylinder B. When all the barrels of the cylinder B are thus charged, the breech-block D is again swung on its hinge connection $d\,d'$ and locked in closed position by the hand-wheel-operated screw-nut d^5 and locking-bolt, the breech-block being then ready for firing the next volley. This operation is repeated after each cylinder of cartridges has been fired.

The advantages of my improved machine-gun are, first, that a number of shots corresponding to the number of cartridges in the cylinder can be given with great facility in rapid succession; second, that on the opening of the breech-block the shells can be readily removed and new cartridges inserted into the cylinder; third, that the mechanism for rotating the cylinder, setting of the hammer and firing the charges, and opening and closing the breech-block are conveniently operated from the outside of the breech-block; fourth, that my improved construction of machine-gun with a rotatable cylinder is adapted for large and small sizes of guns and forms a valuable auxiliary for the single-barrel guns used for fortifications, artillery, and marine service.

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

1. In a machine-gun of the class described, the combination, with a barrel, of a rotatable cylinder at the rear of said barrel and having a plurality of bores adapted to successively register with the bore thereof, an ejector-plate slidable in said cylinder, a breech-block pivoted to one side of the breech end of the barrel, means for locking said breech-block in closed position, and a flexible connection between said breech-block and said ejector-plate whereby the opening of the former causes the actuation of the latter.

2. In a machine-gun of the class described, the combination, with a barrel, of a rotatable cylinder at the rear of said barrel and provided with a plurality of bores adapted to successively register with the bore thereof, an ejector-plate slidable in said cylinder, a breech-block pivoted to the breech end of the barrel, means for locking said breech-block in closed position, a flexible connection between the pivoted end of said breech-block and said ejector-plate whereby the latter is actuated by the former, and means for returning said ejector-plate to its normal position.

3. In a machine-gun with a rotatable cylinder, the combination of a barrel having a bore and provided with an enlarged end with an interior cylindrical cavity, a rotatable cylinder centrally pivoted in said cavity, a centrally-pivoted ejector-plate, means for guiding said ejector-plate in forward and backward direction in the body of said cylinder, a breech-block hinged to one side of the breech end of the barrel, means on the opposite side of the breech end of the barrel for locking the breech-block in closed position, an L-shaped slide-piece guided in a guide-slot of the breech end

of the barrel and provided with lateral projections for engaging the faces of the ejector-plate, a spring actuating said slide-piece, and a cord for connecting said slide-piece with the breech-block for controlling the motion of the said ejector-plate and for causing the ejector-plate to be actuated by the opening and closing of the breech-block.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FERDINAND KOBER.

Witnesses:
PAUL GOEPEL,
HENRY J. SUHRBIER.