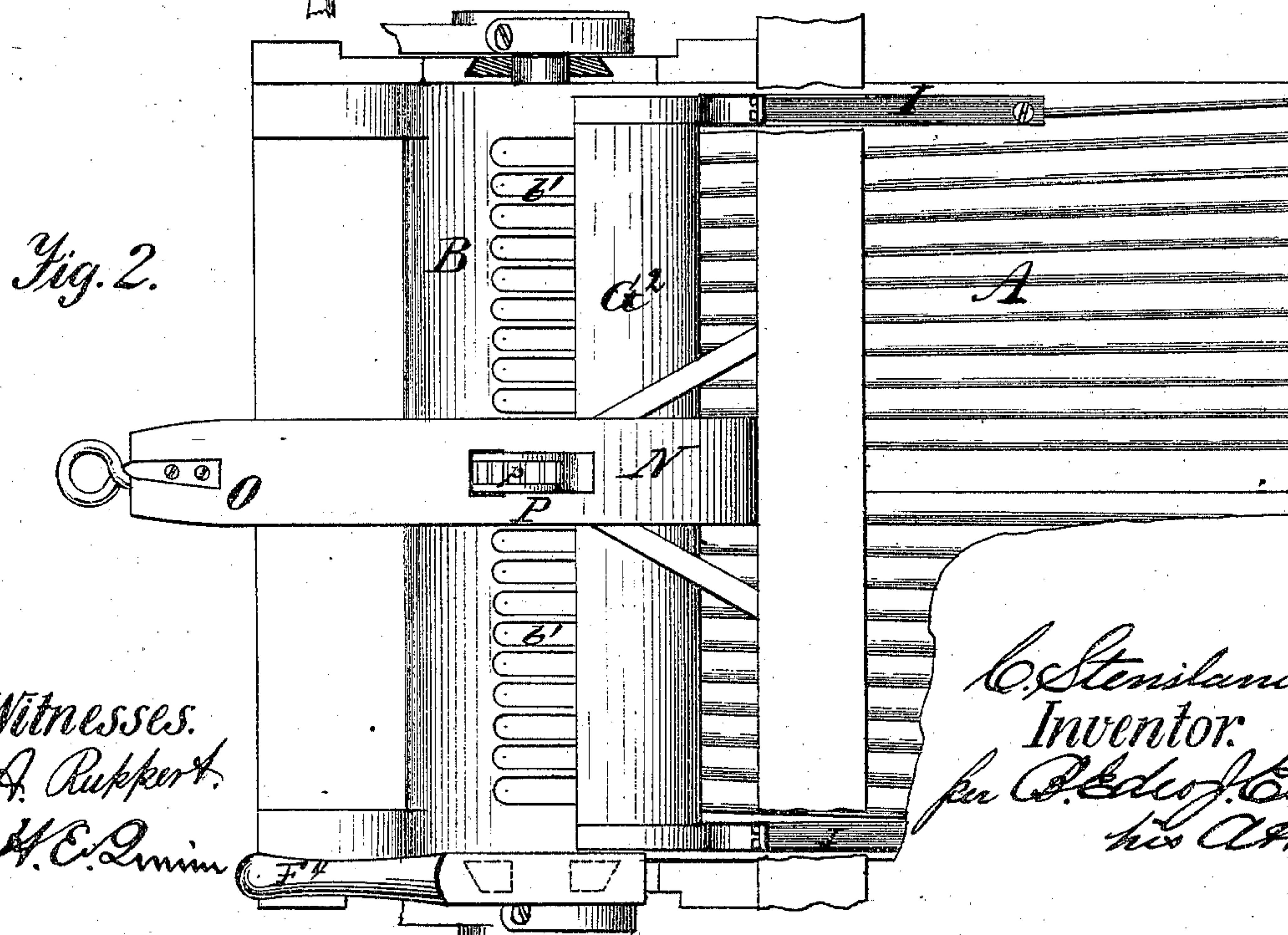
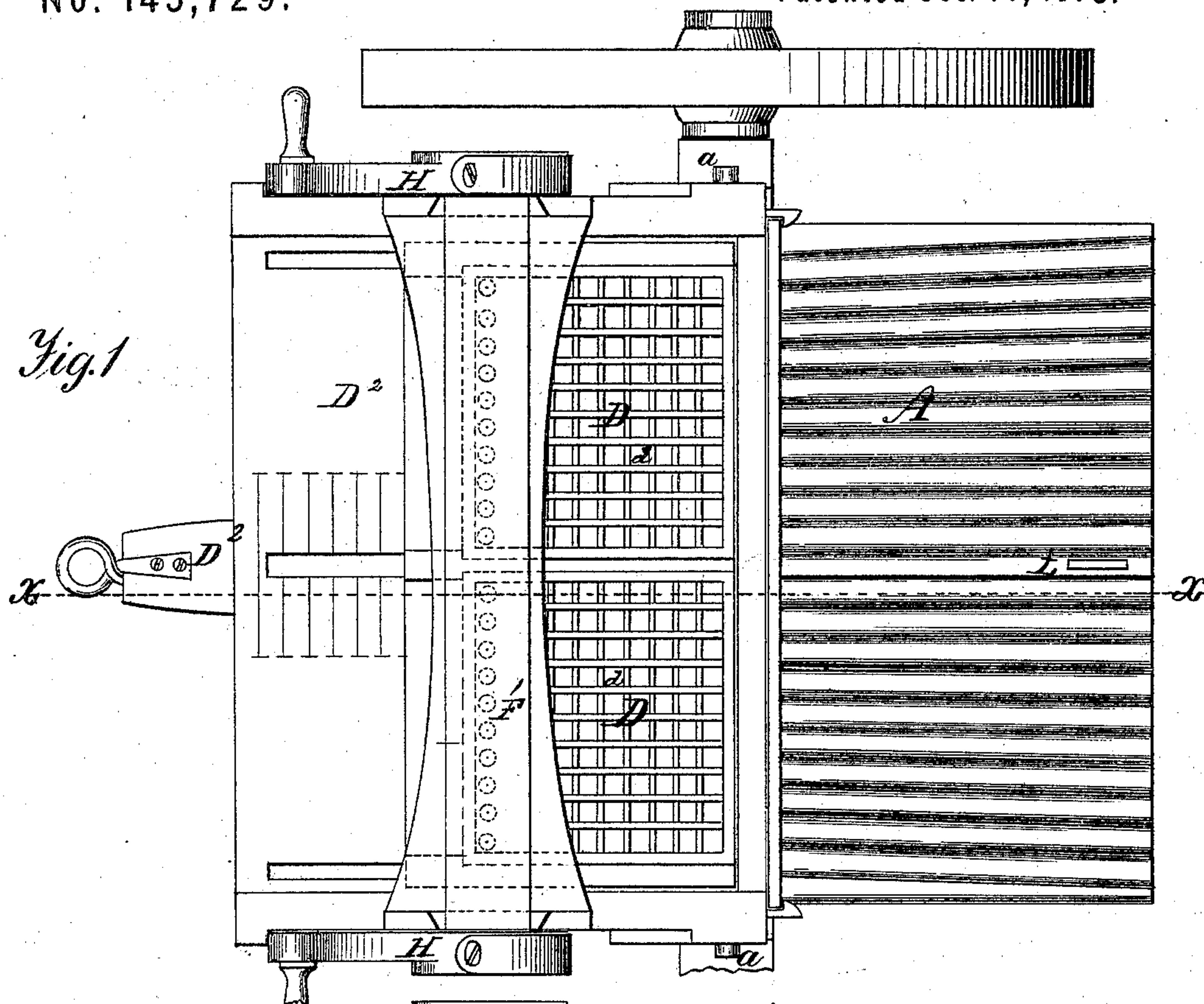


C. STENSLAND.
Machine Guns.

No. 143,729.

Patented Oct. 14, 1873.



Witnesses.
A. Ruppert.
H. E. Quinn

C. Steniland
Inventor.
per C. P. J. Kild
his Atty

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Fig. 5.

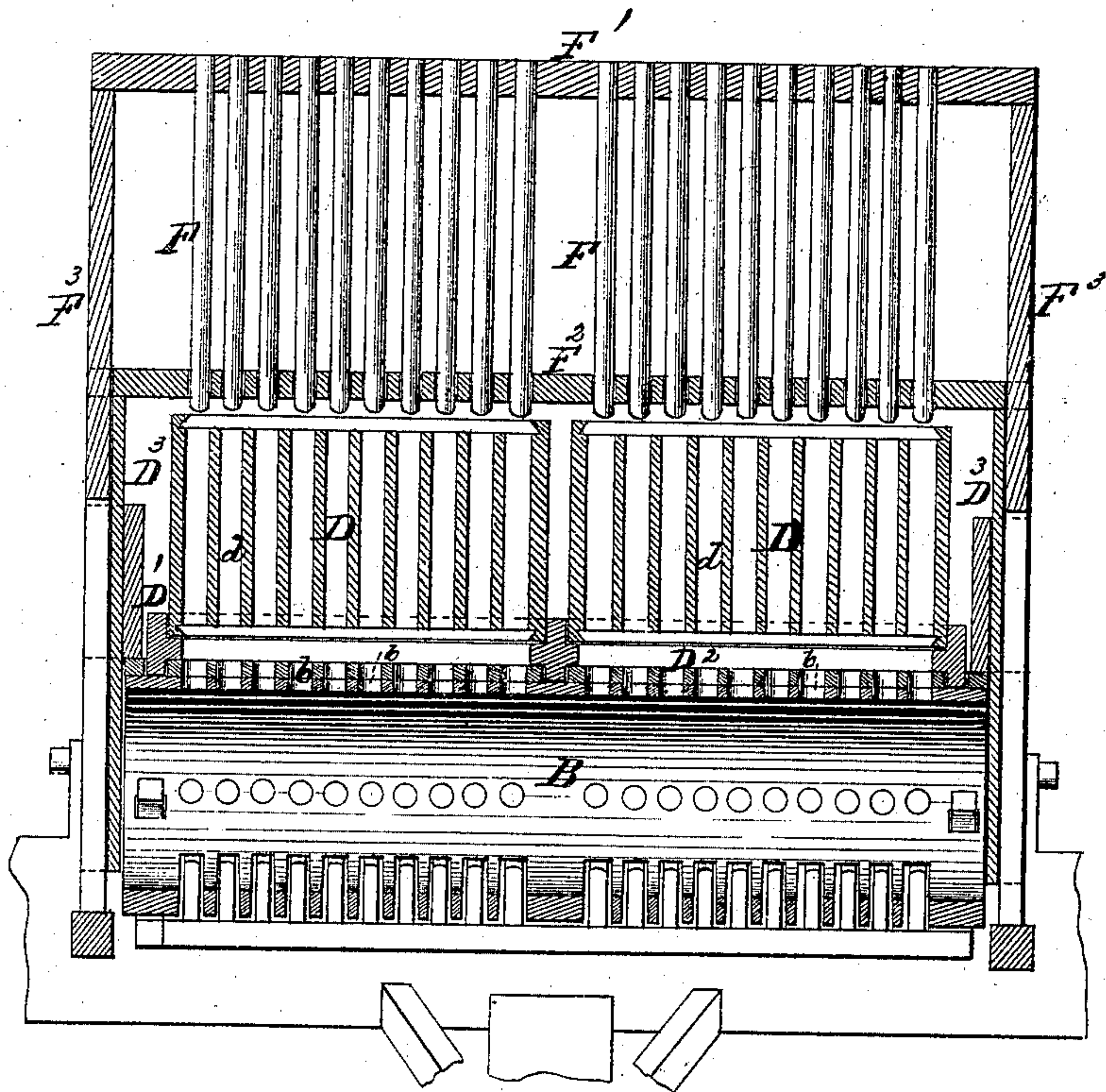


Fig. 6.

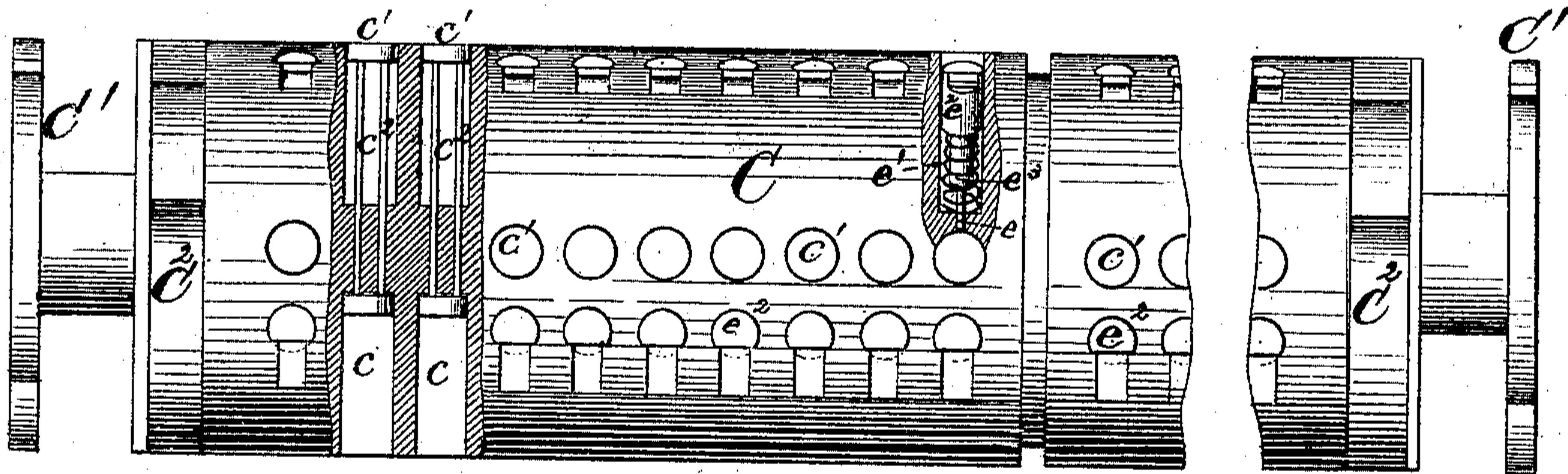


Fig. 7.

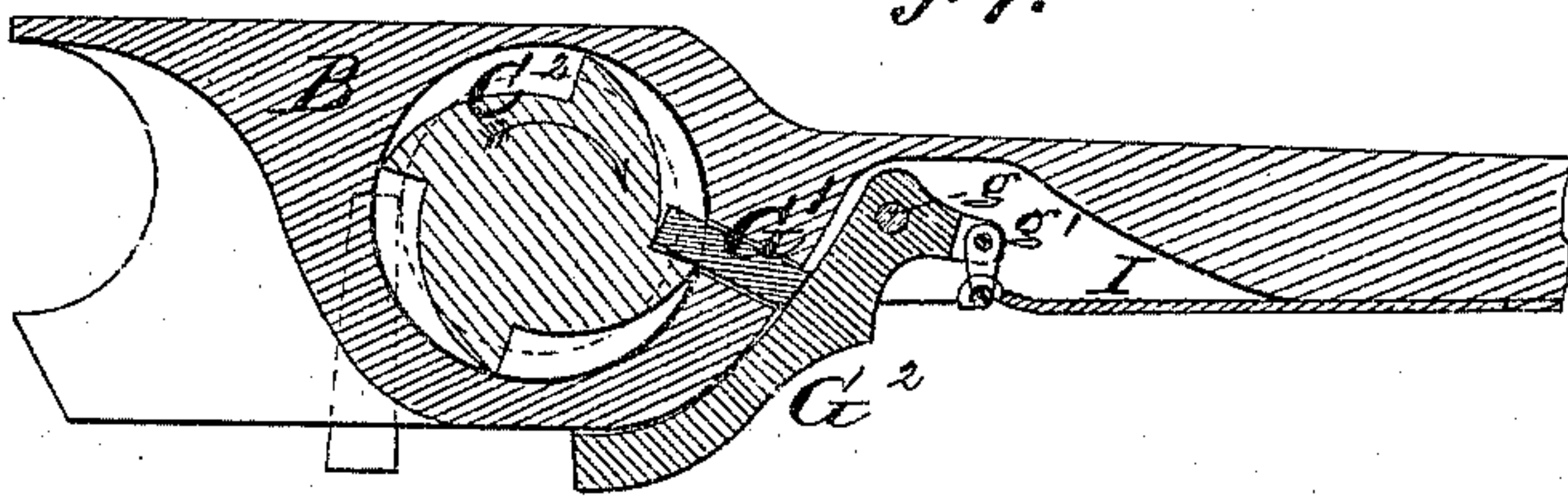
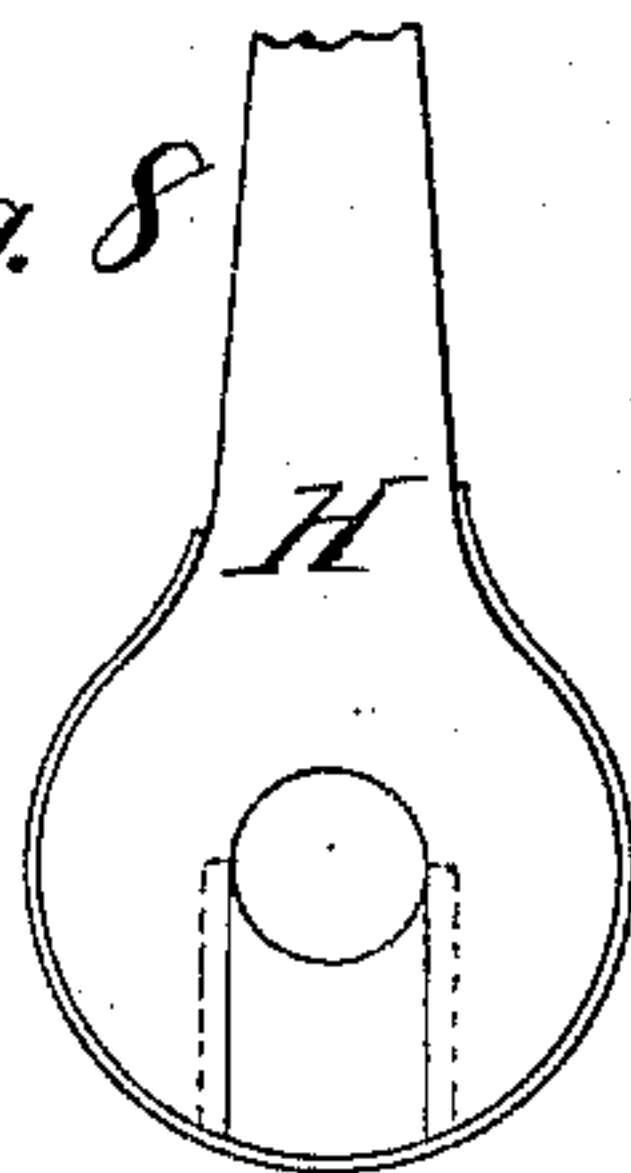


Fig. 8.



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UNITED STATES PATENT OFFICE.

CORNELIUS STENSLAND, OF NEGAUNEE, MICHIGAN.

IMPROVEMENT IN MACHINE-GUNS.

Specification forming part of Letters Patent No. **143,729**, dated October 14, 1873; application filed July 17, 1873.

To all whom it may concern:

Be it known that I, CORNELIUS STENSLAND, of Negaunee, in the county of Marquette and State of Michigan, have invented a certain Improvement in Field-Battery Guns, of which the following is a specification:

This invention relates to that class of field-battery guns which consist, in the main, of a series of barrels arranged side by side, and an intermittently-rotating cartridge-cylinder with parallel lines of chambers which are successively filled with cartridges and brought in line with the barrels to explode the charges. My improvement consists in a certain novel construction of the cartridge-cylinder, and means for loading its lines of chambers in rapid succession with cartridges from a magazine, exploding the cartridges, and expelling their empty cases, all of which will be so fully explained in the ensuing general description and so pointedly set out in the claims that a more detailed preliminary statement of these novel features is not necessary.

Figure 1 is a plan view of my improved battery-gun. Fig. 2 is a bottom view of the same. Fig. 3 is a sectional side elevation. Fig. 4 is a vertical longitudinal section in a plane indicated by the broken line marked *x x*, Fig. 1. Fig. 5 is a vertical transverse section in a plane indicated by the broken line marked *y y*, Fig. 4, the cartridge-cylinder having been first removed. Fig. 6 is a sectional view, on an enlarged scale, of the cartridge-cylinder detached. Fig. 7 is a sectional detached view of the mechanism for cocking and discharging the chambers. Fig. 8 illustrates one of the hand-levers for turning the cartridge-cylinder.

The same letters of reference are used in all the figures in the designation of identical parts.

In the example illustrated in the annexed drawings, all the barrels *A* are, at their breeches, connected to or merge in a transverse tubular head, *B*, in the bore of which the cartridge-cylinder *C* is accurately fitted. Although it is not absolutely necessary to introduce this tubular head, yet I prefer to use it in the manner shown, because in that way the cartridge-cylinder is confined and supported its entire length between the breeches of the barrels and the back of the tubular head, so that its rebounds, transmitted through the head to the barrels, will not affect its close junction or con-

tact with the breeches of the latter. The barrels may be arranged parallel to one another, or divergingly, as preferred, and may be either smooth-bored or rifled. The cartridge-cylinder is provided with four rows of chambers, *C*, which are, as the cylinder is rotated, successively brought in line with the barrels, the chambers in each row equaling in number the number of barrels, and being so arranged that they will exactly coincide with the bores thereof when brought into line therewith. These rows of chambers, which are made strictly cylindrical from top to bottom, are successively loaded with rimless cartridges *a* from a magazine located upon the flat top of the tubular head *B*, which is provided with a row of apertures, *b*, to admit of the passage of the cartridges from the magazine into the chambers of the cartridge-cylinder. The magazine shown consists of two rectangular cellulated boxes, *D*, carried in an open frame, *D*¹, which slides in ways on the platform *D*² fastened upon the flat top of the head *B*, and perforated like the latter. The cells *d* of the magazine are arranged in parallel lines, and the several rows are successively brought over the apertures *b* in the top of the head, so that the cartridges they contain may be forced through said apertures into the chambers of the cartridge-cylinder. When not in action the top and bottom of the magazine are covered by sliding lids *d*¹ and *d*², to protect the cartridges against the weather. The cartridges are placed in the cells of the magazine with the charge end down, and are forced into the chambers of the cartridge-cylinder by the ramrods *F*, which are fixed to a cross-head, *F*¹, and slide through the perforated guide-bar *F*², which spans the magazine longitudinally, and is secured to suitable standards *D*³ upon the platform *D*². Ways are formed in the outer sides of these standards, in which the downwardly-projecting arms *F*³ of the cross-head of the ram-rods slide. The ramrods are operated by the handles *F*⁴ on the lower ends of the arms *F*³. Whenever a line of cells has been emptied the magazine is slid forward to bring the next line of full cells over the holes *b*; and in order to facilitate this operation the top of the platform *D*² may be graduated to indicate exactly how far to move the magazine each time. The axis of the cartridge-cylinder lies in the plane of the axes of the barrels, at

right angles thereto. Its rows of chambers are equal distances apart, so that the chambers of one row will be in exact line with those of the opposite row. Each chamber contains a snugly-fitting, thin, solid piston, c^1 , connected with the piston of the opposite chamber by a stiff rod or rods, c^2 , passing through the central solid portion of the cartridge-cylinder. The length of the rods c^2 is such that when the piston or plunger at one end touches the bottom of its chamber the piston at its other end will be about flush with the surface of the cartridge-cylinder. Thus, in loading the top row of chambers with cartridges, the pistons therein are forced down, which causes the corresponding pistons in the bottom row to expel the empty cases of the cartridges just exploded. A series of slots, b' , is formed in the bottom or base of the tubular head B, through which the expelled empty cases fall to the ground. The depth of the chamber c is just sufficient to accommodate its piston and a single cartridge. The cartridges are exploded by receiving blows upon their sides from needles e . These needles are arranged in the cartridge-cylinder in rows at right angles to and in advance of their respective chambers c , and each row is successively struck by the line of hammers G to pass a little distance into the chambers c , and strike the cartridge so as to explode its fulminate. The needles are placed in cavities e in the cartridge-cylinder, and terminate at their outer ends in heads e^2 . Between their heads and the bottom of the cavities e^1 they are encircled by spiral springs e^3 , which press them outward to retract the point of the needles proper beyond the surfaces of the chambers c . The chambers c and the cavities e^1 are divided by a sufficient thickness of metal, which is only pierced by the thin stem of the needle proper, as shown. The faces of the heads of the needles are beveled or rounded to the curvature of the cartridge-cylinder, and are also recessed on one side, as at e^4 , that bars e^5 may be secured over them to confine them in their cavities. The cartridge-cylinder projects at each end from the tubular head B, and terminates in ratchet-disks C^1 C^2 , each of which has four cogs. Each ratchet-disk is provided with a hand-lever, H, which turns over it, and carries a sliding spring-pawl, H', to engage the ratchet-teeth of the disk. The oscillation of the levers H is limited to an arc of ninety degrees, so that each forward throw from the extreme position indicated in Fig. 3 will turn the cartridge-cylinder exactly one-quarter of a revolution, and place its row of chambers c just loaded from the magazine in line with the barrels. Similar ratchet-teeth, C^2 , are formed upon opposite ends of the cartridge-cylinder, just within the head B, which act through the sliding bolts G^1 upon the cross-head G^2 , connecting the several hammers G. The cross-head is pivoted at g , and has a short angular arm, g^1 , at each end, which is linked to a stiff spring, I, in the manner best seen in Fig. 7.

As the cartridge-cylinder is rotated the

hammers are raised by the ratchet C^2 , through the medium of the bolts G^1 , against the force of the springs I. Simultaneously with completing a quarter-turn of the cartridge-cylinder the sliding bolts pass the point of a ratchet-tooth, C^2 , and the recoil of the springs I causes the hammers to deliver their blows upon a row of needles.

The slots b in the base of the head B are sufficiently elongated to permit the hammers to pass to the heads of the needles in the cartridge-cylinders.

A narrow space between the boxes constituting the magazine permits of sighting through the slit k in the hinged board K, and the ordinary sight L upon the center and at the muzzles of the barrels.

The gun is mounted on trunnions upon a carriage, M, which is provided with the usual stock N, terminating in the trail O.

An ordinary elevating-screw may be used for adjusting the gun; or the contrivance I have shown, consisting of a segmental rack, P, depending from the head B, and a pinion, Q, carried on the stock N. Upon the back of the rack are ratchet-teeth p to be engaged by a sliding spring-pawl, R, in the manner shown.

I have shown and described the cartridge-cylinder as provided with four rows of loading-chambers; but it is evident that the number of rows may be diminished or increased according to the diameter of the cylinder; but even numbers of rows must always be used.

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

1. The intermittently-rotating cartridge-cylinder C, provided with an even number of opposite rows of loading-chambers c , which severally contain pistons c^1 , connected in pairs by rods c^2 , substantially as and for the purpose set forth.

2. The combination of the intermittently-rotating cartridge-cylinder C c , connected pairs of pistons c^1 , magazine D, and ramrods F, substantially as and for the purpose specified.

3. The intermittently-rotating cartridge-cylinder C, provided with diametrically-opposite rows of loading-chambers c , and an equal number of rows of needles e , arranged at right angles to the loading-chambers, substantially as and for the purpose specified.

4. The combination of the intermittently-rotating cartridge-cylinder C c e , provided with ratchets C^2 , sliding bolts G^1 , hammers G G^2 g , links g^1 , and springs I, substantially as and for the purpose specified.

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

CORNELIUS STENSLAND.

Witnesses:

JOHN Q. ADAMS,
A. J. SMILEY.