No. 672,690. Patented Apr. 23, 1901.

F. ALESSI.

MACHINE GUN.

(Application filed July 28, 1900.)

(No Model.) 4 Sheets—Sheet 1.

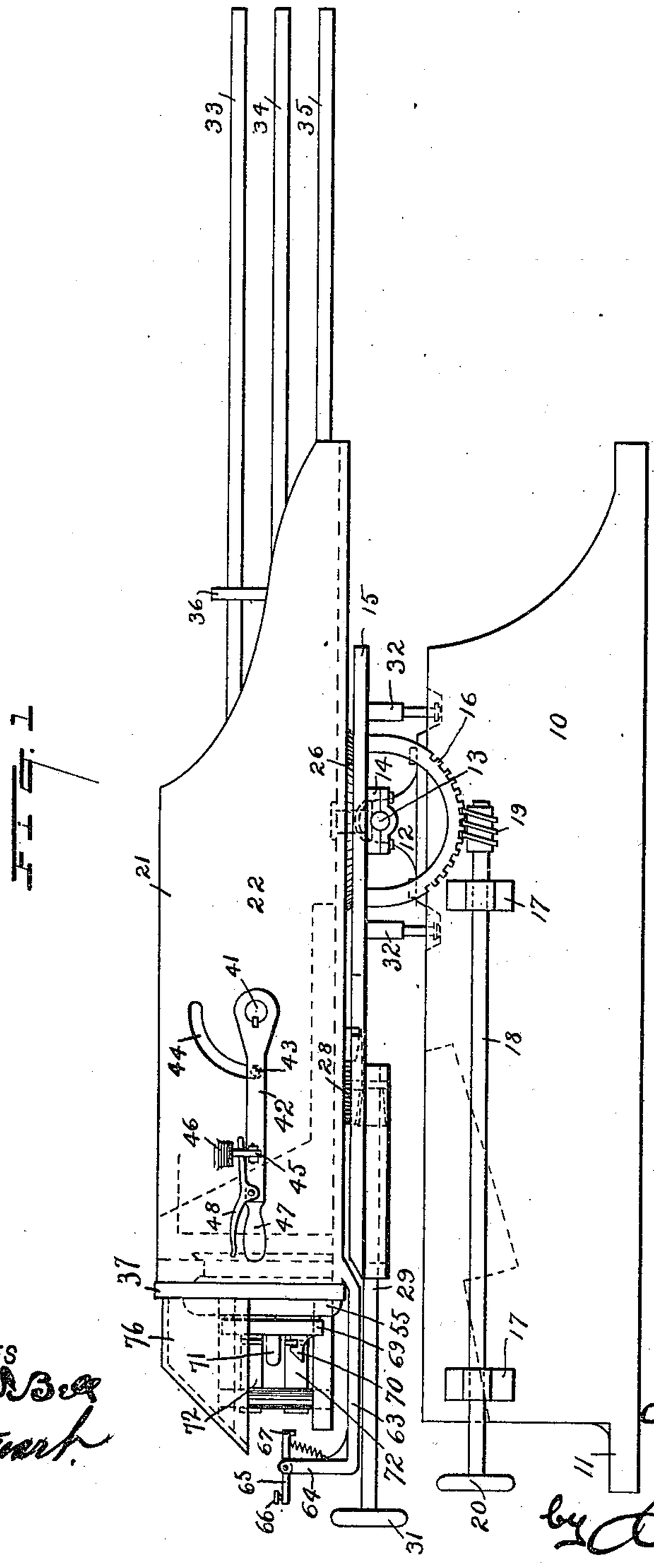

FIG. 1.

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FIG. 2.

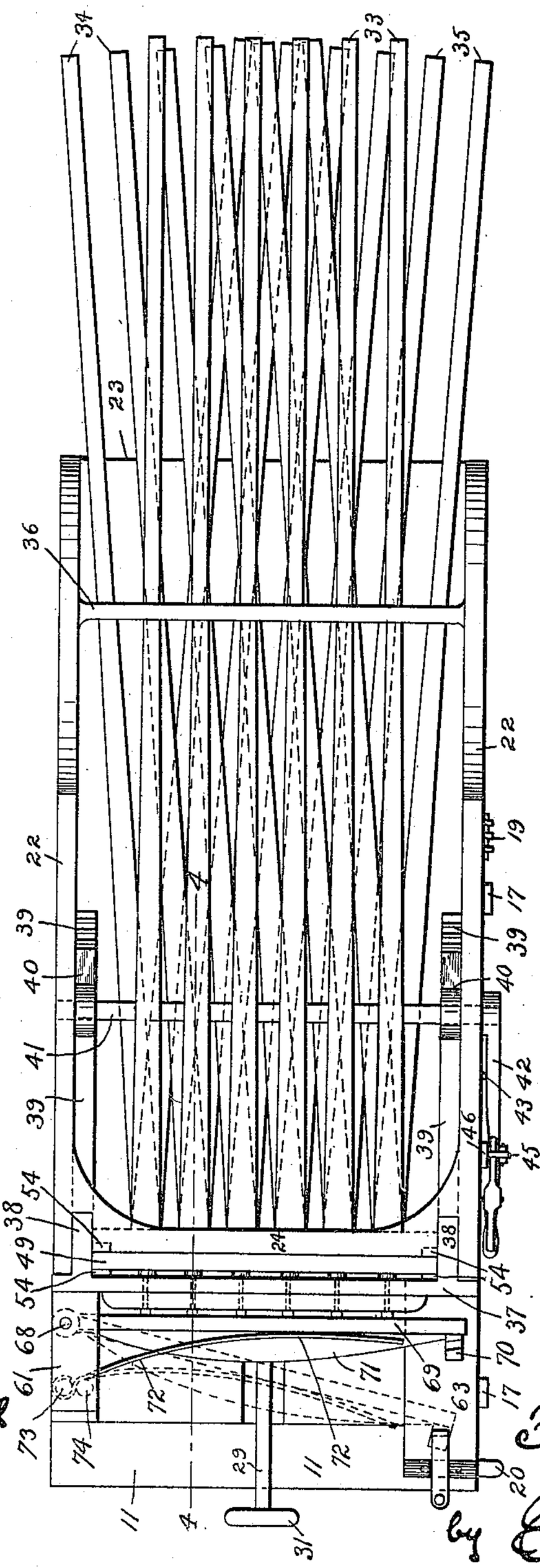

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FIG. 3

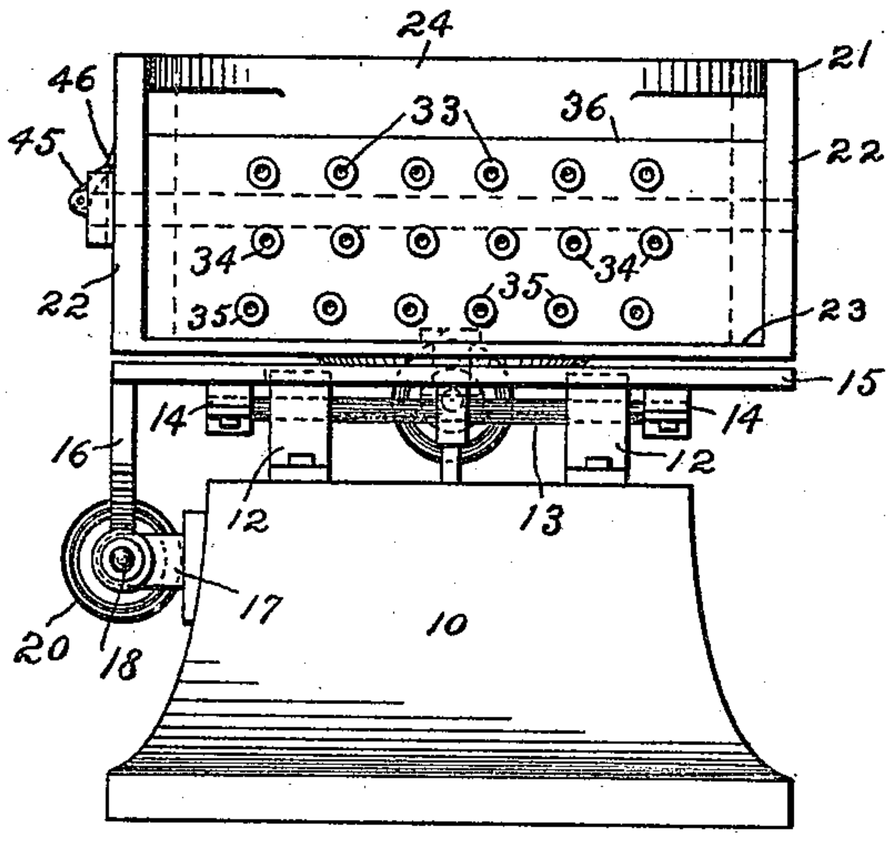

FIG. 4

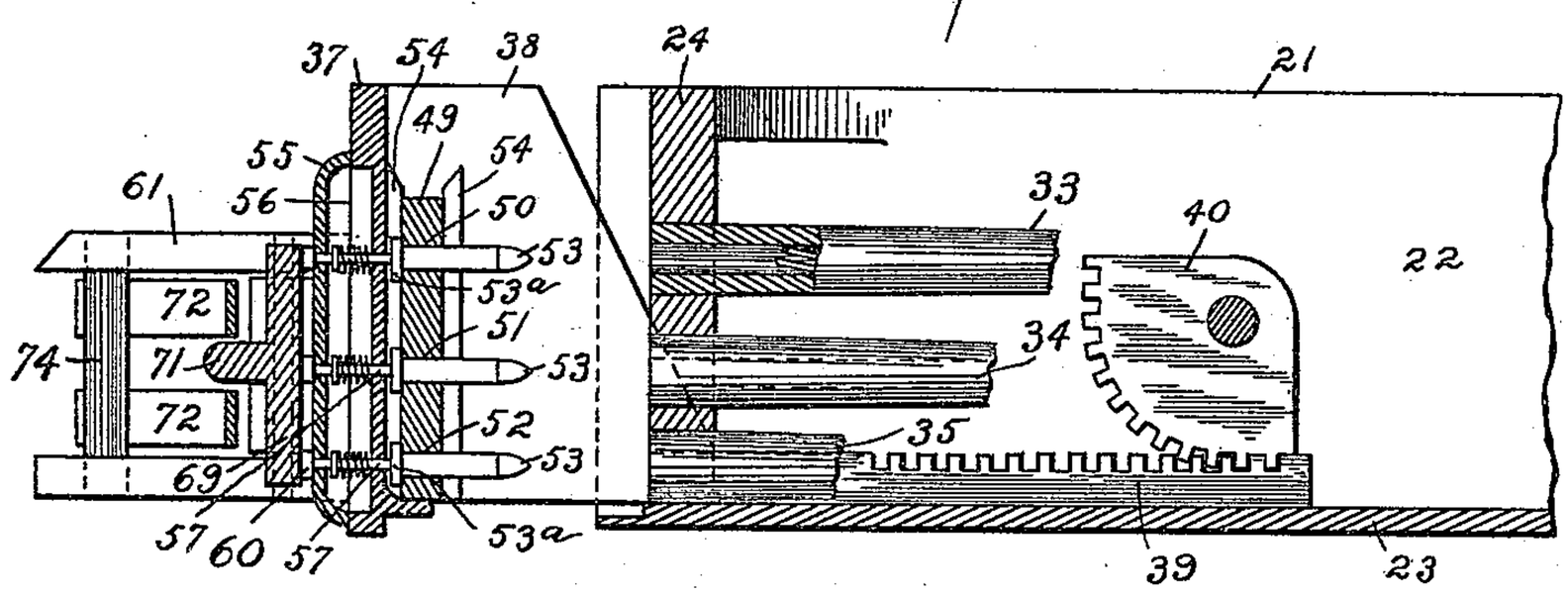

FIG. 5

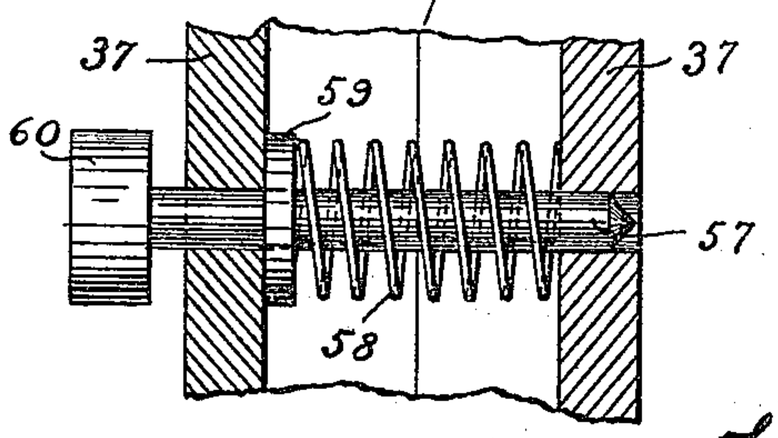

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FIG. 6

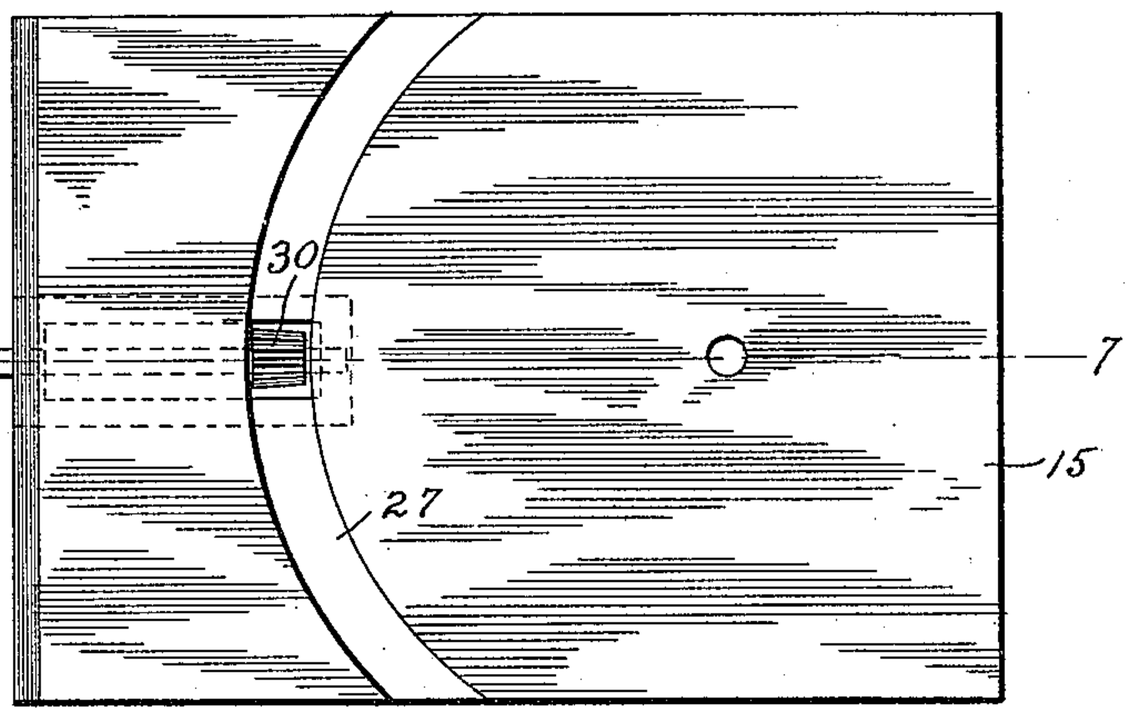


FIG. 7

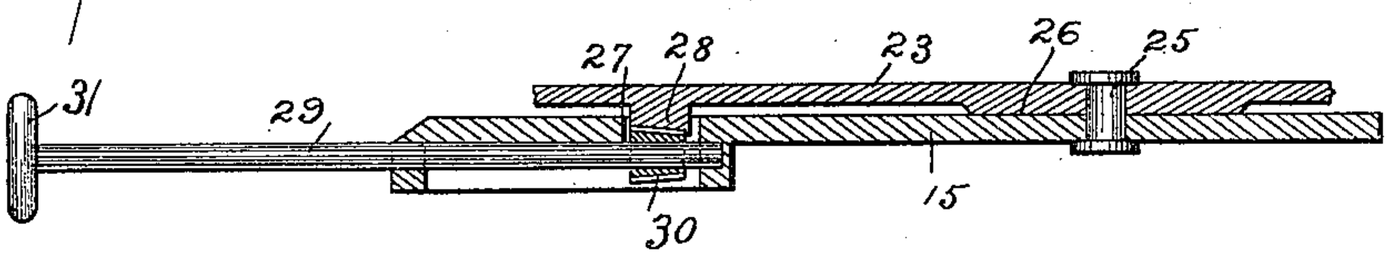


FIG. 8

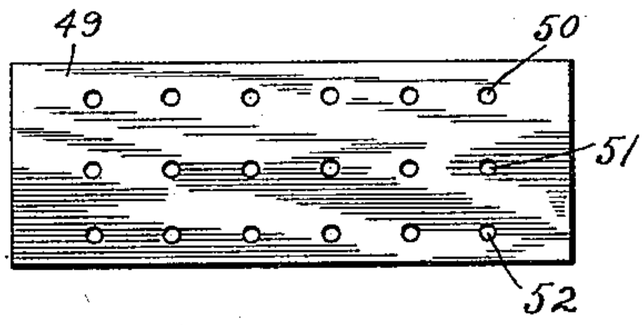
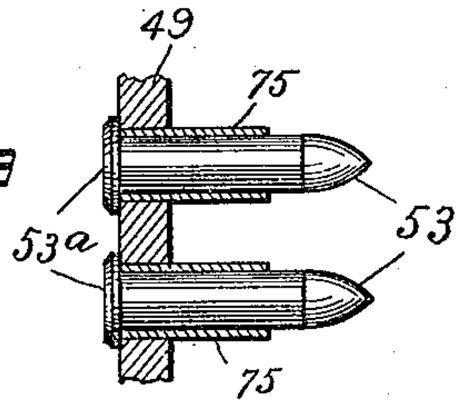


FIG. 9



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UNITED STATES PATENT OFFICE.

FEDERICO ALESSI, OF NEW YORK, N. Y.

MACHINE-GUN.

SPECIFICATION forming part of Letters Patent No. 672,690, dated April 23, 1901.

Application filed July 28, 1900. Serial No. 25,066. (No model.)

To all whom it may concern:

Be it known that I, FEDERICO ALESSI, a subject of the King of Italy, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machine-Guns, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to machine-guns; and one object thereof is to provide an improved gun of this class which is simple in construction and operation and by means of which a maximum number of projectiles may be fired or discharged in a minimum space of time, a further object being to provide a gun of the class specified which may be mounted on any desired sort of support or on a vehicle or truck in the manner of other guns of this class; and with these and other objects in view the invention consists in a machine-gun constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a side view of a gun constructed according to my invention; Fig. 2, a plan view thereof; Fig. 3, a front end view; Fig. 4, a partial longitudinal section on the line 4 4 of Fig. 2; Fig. 5, a view similar to Fig. 4, showing a detail of the construction on an enlarged scale; Fig. 6, a plan view of a plate which supports the gun and gun-casing; Fig. 7, a partial section on the line 7 7 of Fig. 6 and showing the bottom of the gun-casing in position; Fig. 8, a front elevation of a cartridge-holder which I employ; and Fig. 9, a transverse section thereof, on an enlarged scale, and showing a modified form of construction.

In the drawings forming part of this specification I have shown at 10 a support for the gun proper, which, as shown in the drawings, is oblong in form and on which the gun is mounted, said support being shown in Figs. 1 and 3, and the support 10 is preferably provided at the bottom of the rear end thereof with a backwardly-directed extension 11, and in the practice of my invention I mount on said support or secure to the top thereof in any desired manner bearings 12, which are arranged transversely of and near the front end of the support and in which is mounted a shaft 13, which projects through the bearings 12 at each end and the ends of which are mounted in bearings 14, secured to a table 15, as clearly shown in Figs. 1 and 3.

The table 15 is provided at one side with a downwardly-directed or vertically-arranged segmental rack 16, and secured to the support 10 longitudinally thereof are two keepers or bearings 17, in which is mounted a shaft 18, provided with a worm-gear 19, which operates in connection with the segmental rack 16, and the shaft 18 is projected backwardly beyond the rear end of the support 10 and provided with a wheel 20, by which it may be operated, and by operating the wheel 20 of the shaft 18 the opposite ends of the table 15 may be raised or lowered, as may be desired.

I also employ a gun-casing 21, which is mounted on the table 15 and which comprises sides 22, a bottom 23, and a transverse breech end plate 24, and which is open at the top and at the front end, and the bottom plate 23 of the gun-casing 21 is connected with the table 15 directly over the shaft 13 by a pivot-pin 25, as shown in Fig. 7, said bottom 23 being thickened to provide a bearing 26, and by means of this construction the gun proper is free to turn horizontally on the table 15. The table 15 is provided with a segmental slot 27, adapted to receive a rack-bar 28, formed on or secured to the bottom portion 23 of the gun-casing, and mounted beneath the rear end of the table 15 is a shaft 29, provided with a beveled pinion 30, which operates in connection with the rack-bar 28 and by means of which the gun-casing may be turned horizontally on the pivot 25, and the shaft 29 is projected backwardly and provided with a wheel 31, by means of which it may be operated and arranged forwardly and backwardly of the shaft 13, by means of which the table 15 is connected with the base or support, and also forwardly and backwardly of the pivotal connection 25 of the bottom 23 of the gun-casing with said table are cushions 32, which may be of any desired construction and which are simply indicated in the drawings for the pur-

pose of showing that cushions are employed for regulating the vertically-swinging movement of the gun.

As shown in the drawings, the casing 21 is provided with three separate horizontally-arranged series of barrels, said series being designated by the reference-numerals 33, 34, and 35, and these barrels are fixed at their rear ends in the transverse plate 24 of the gun-casing and are also preferably passed through a transverse plate or support 36 at the forward end of said casing.

Arranged transversely with reference to the breech end of the gun-casing and movable longitudinally thereof is a breech-head 37, provided with side wings 38, which are each provided at their lower sides with a forwardly-directed rack-bar 39, and these rack-bars 39 operate in connection with segmental gears 40 at the opposite sides of the gun-casing and on the inner side thereof, and which are supported by a shaft 41, which passes through said gun-casing and which is provided at one end with a crank-lever 42, provided with a pin 43, which operates in a segmental slot 44, formed in the side of the gun-casing, and the lever 42 is provided with a spring-operated pawl 45, which operates in connection with a lug 46 on the side of the gun-casing and by means of which said lever is held in the depressed position, as shown in Figs. 1 and 2, and pivoted between the handle 47 of the lever 42 and the spring-operated pawl 45 is a hand-lever 48, which projects backwardly of said pawl and by means of which the said pawl may be thrown out of engagement with the lug 46, and the object of the segmental slot 44 and pin 43 is to limit the movement of the lever 42, as will be readily understood. When the lever 42 is in its lowest position, the breech-head 37 will be closed, as shown in Figs. 1 and 2, and when the lever is in its highest position the breech-head 37 will be opened, as shown in Fig. 4. I also provide a cartridge-holder 49, which is shown in Figs. 2 and 4 and in detail in Figs. 8 and 9, and which is preferably rectangular in form and provided with three separate longitudinally-arranged series of holes 50, 51, and 52, which correspond with the similarly-arranged series of barrels 33, 34, and 35, and in practice the cartridges 53 are placed in the holder 49, and said cartridge-holder is slipped into position, as shown in Fig. 4, the side wings 38 of the breech-head 37 being provided with guides 54, adapted to receive said cartridge-holder. The bullet ends of the cartridges project forwardly, as shown in Fig. 4, and when the cartridge-holder is thus placed in position the lever 42 is drawn down into the position shown in Fig. 1, the breech-head 37 is forced inwardly, and the cartridges are forced into the gun-barrels 33, 34, and 35.

Secured to the breech-head 37 is a casing 55, between which and said breech-head is a space 56, and mounted horizontally in this space and extending rearwardly through the casing 55 and forwardly through the breech-head in line with the cartridges or the holes 50, 51, and 52 in the cartridge-holder 49 are spring-operated firing-pins 57. These firing-pins equal in number the holes in the cartridge-holder 49, and each is provided with a spring 58, which operates between a washer 59, secured to each of said pins, and the breech-head 37, as shown in Fig. 5, and each firing-pin is provided at its rear end with a head 60, and the normal position of these firing-pins is that shown in Fig. 5.

The breech-head 37 is provided at the side of the gun-casing with backwardly-directed arms 61 and 62, and the bottom plate of the casing 22 is provided at the opposite side or at the right-hand side with a backwardly-directed arm 63, having an upwardly-directed extension 64, to which is pivoted a catch 65, provided at its outer end with a thumb-piece 66 and at its inner end with a downwardly-directed hook 67. Hinged between the arms 61 and 62 at the left-hand side of the breech-head, as shown at 68, is a hammer 69, which is in the form of a transverse plate or block and which is provided at its free end with a hook 70, and the hammer is preferably provided on its rear side with a longitudinal rib 71, and secured between the arms 61 and 62 rearwardly of the pivotal support of the hammer are two springs 72, which bear on the hammer above and below the rib 71, said springs being secured to a pin 73 and being passed around and forwardly of a corresponding pin 74.

The heads 53ª of the cartridges 53 are on the rear side of the cartridge-holder, as shown in Fig. 4, when the cartridge-holder is in position and adapted to receive the firing-pins 57 when the hammer 69 is operated, and in Fig. 9 I have shown a modification of the cartridge-holder in which tubes 75 are secured in said holder and into or through which the cartridges 53 are passed.

In my improved gun a part of the barrels are placed exactly longitudinally of the gun-casing and at right angles to the movable breech-head, while others are placed at an angle to the left, and still others at an angle to the right, and in the form of construction shown the upper series of barrels are arranged exactly longitudinally of the casing and at right angles to the breech-head, while the second series is arranged at an angle to the left and the bottom series at an angle to the right, the object of this arrangement being to cover a much greater space or territory than would be possible if all the barrels were arranged exactly longitudinally of the gun-casing and at right angles to the breech-head. The angle at which some of the barrels are placed to the breech-head is very small, and it will be understood that in making the connection of these barrels with the cross head or plate of the gun-casing the bores or openings in said cross head or plate must be arranged at a desired angle to receive the said barrels,

and this angle is not sufficiently great to interfere with the reception by said barrels of the cartridges in the operation of the gun, as hereinafter described, and a portion of the cartridges may be correspondingly arranged in the holder 49, if desired.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

In order to operate the gun, the lever 42 is raised. This operation forces back the breech-head 37 into the position shown in Fig. 4. One of the cartridge-holders 49, with the cartridges therein, is then placed in position, the lever 42 is depressed, and the cartridges are forced into the barrels 33, 34, and 35.

In the above operation the hammer 69 moves backwardly with the breech-head and automatically engages the hook 67 of the catch 65, and in the operation of firing the gun the catch 65 is depressed, the hammer 69 is released, the springs 72 force the hammer forwardly, the latter strikes the heads of the firing-pins 57, and the latter are driven into the cartridge-head in the usual manner.

It will be understood that any desired number of the cartridge-holders 49 may be provided, and these cartridge-holders may be kept full of cartridges and ready for insertion into the breech-head at all times. I also preferably provide the hammer and operating devices connected therewith with a hood 76, (shown in Fig. 1,) and which is secured to the breech-head and projects backwardly therefrom; but this device is not absolutely essential and may or may not be employed, and said hood is not shown in any of the other figures.

It will be understood that the number of shots discharged at any one time will depend upon the number of the barrels and the number of cartridges placed in the holder 49, and it will also be apparent that the number of barrels and the number of cartridges placed in the holder may be varied at will in the construction of the gun, and the rapidity of the discharges will be limited only by the skill and expertness of the parties manipulating the gun, all that is necessary to reload the gun after it has been discharged being to raise the lever 42, which operation projects the breech-head 37, remove the old cartridge-holder 49, and insert a new one, which operation can be performed with great rapidity. It will also be observed that the shaft 18, which adjusts the gun vertically, is on the right-hand side of the gun, as is the rack 16, in connection with which said shaft operates, and the shaft 29, by means of which the gun is adjusted horizontally, is arranged centrally of the gun-casing, and both of said shafts project at the rear thereof.

My improved gun is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, and it will be apparent that changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages.

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

1. A machine-gun, comprising a suitable support, a casing mounted thereon and adapted to swing horizontally and vertically, said casing being provided with a plurality of barrels, and a longitudinally-movable breech-head having a detachable cartridge-holder, said breech-head being also provided with a plurality of firing-pins, a spring-operated hammer hinged at one end and adapted to swing transversely of the breech-head and to operate in connection with all of said firing-pins, and a pivoted catch mounted rearwardly of the hammer and with which the free end thereof is adapted to engage when the breech-head moves backwardly, substantially as shown and described.

2. A gun of the class described, provided with a longitudinally-movable breech-head having a plurality of spring-operated firing-pins, a spring-operated hammer hinged to one side of said breech-head, and a pivoted catch arranged rearwardly of the free end of said hammer, and with which the latter is adapted to engage when the breech-head moves outwardly or backwardly, substantially as shown and described.

3. A machine-gun provided with a casing or frame, and a plurality of barrels mounted therein, a slidable breech-head mounted rearwardly of said frame or casing, and provided with rack-bars which project thereinto, a shaft passing through said casing and provided with segmental gears operating in connection with said rack, a lever connected with one end of said shaft, devices for locking said lever so as to hold the breech-head in a closed position, a detachable cartridge-holder adapted to be inserted within the breech-head, said breech-head being also provided with a plurality of firing-pins, a spring-operated hammer hinged at one side of the breech-head rearwardly thereof and adapted to operate in connection with all of said firing-pins, and a catch pivoted rearwardly of the free end of said hammer, and with which said hammer is adapted to automatically engage when the breech-head is moved backwardly, substantially as shown and described.

4. A machine-gun provided with a frame or casing, a plurality of series of barrels arranged in separate horizontal planes, one series being directed in a straight line centrally of said casing or frame, and the other series being arranged at lateral angles thereto, a slidable breech-head mounted rearwardly of said casing or frame, a detachable cartridge-holder adapted to be mounted in said breech-head, said breech-head being also provided with firing-pins, a spring-operated hammer hinged to said breech-head at one side thereof adapt-

ed to operate in connection with all of said firing-pins, and a catch pivotally supported rearwardly of the free end of said hammer, and with which said hammer is adapted to engage when the breech-head moves backwardly, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 25th day of July, 1900.

FEDERICO ALESSI.

Witnesses:

F. A. STEWART,

C. C. OLSEN.