

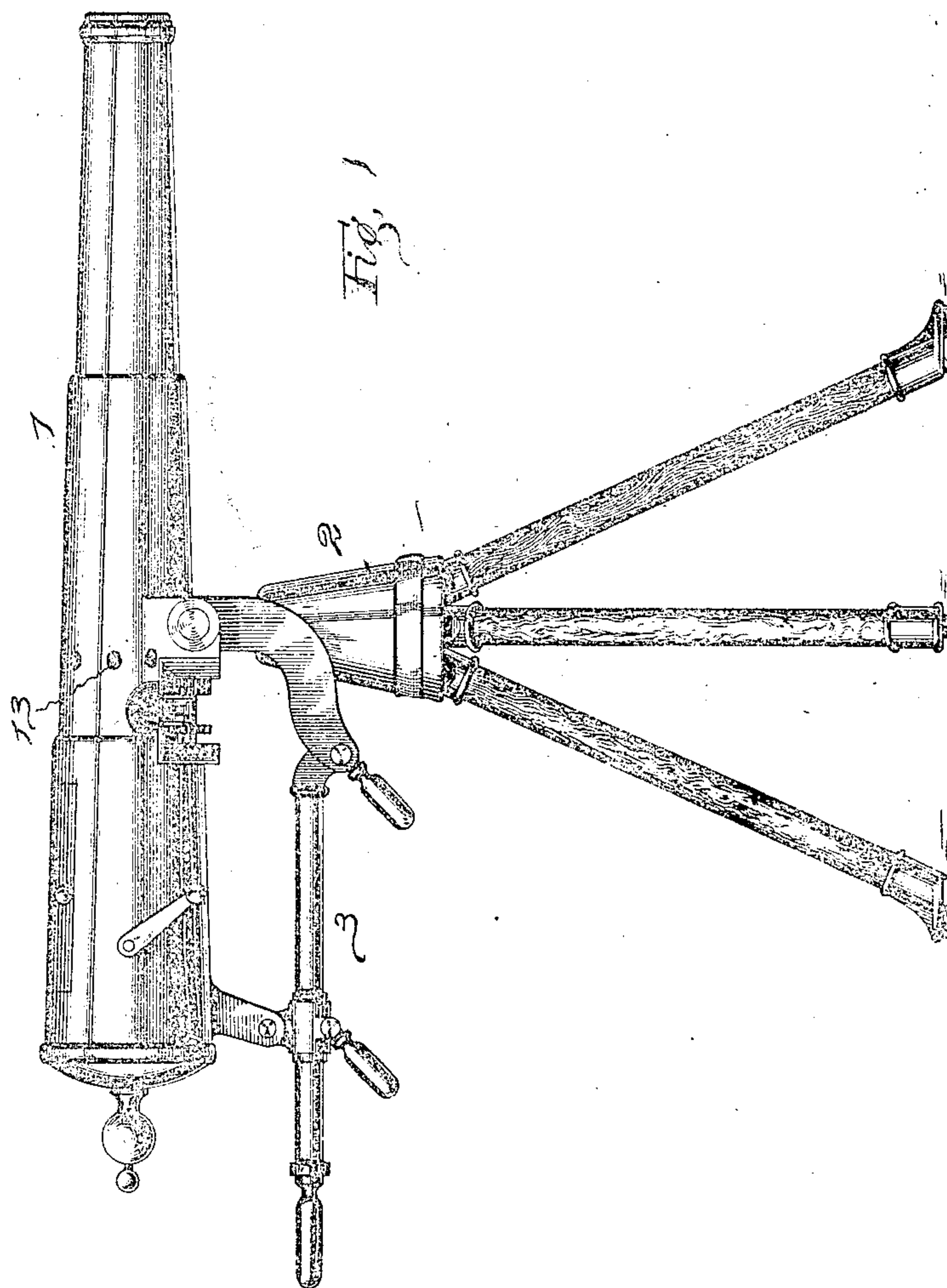
(No Model.)

2 Sheets—Sheet 1

F. M. GARLAND.
MACHINE GUN.

No. 513,995

Patented Feb. 6, 1894.



Witnesses:

C. Buckland.
P. A. Phelps.

Inventor:

Frank M. Garland,
by
Harry R. Williams
att'y.

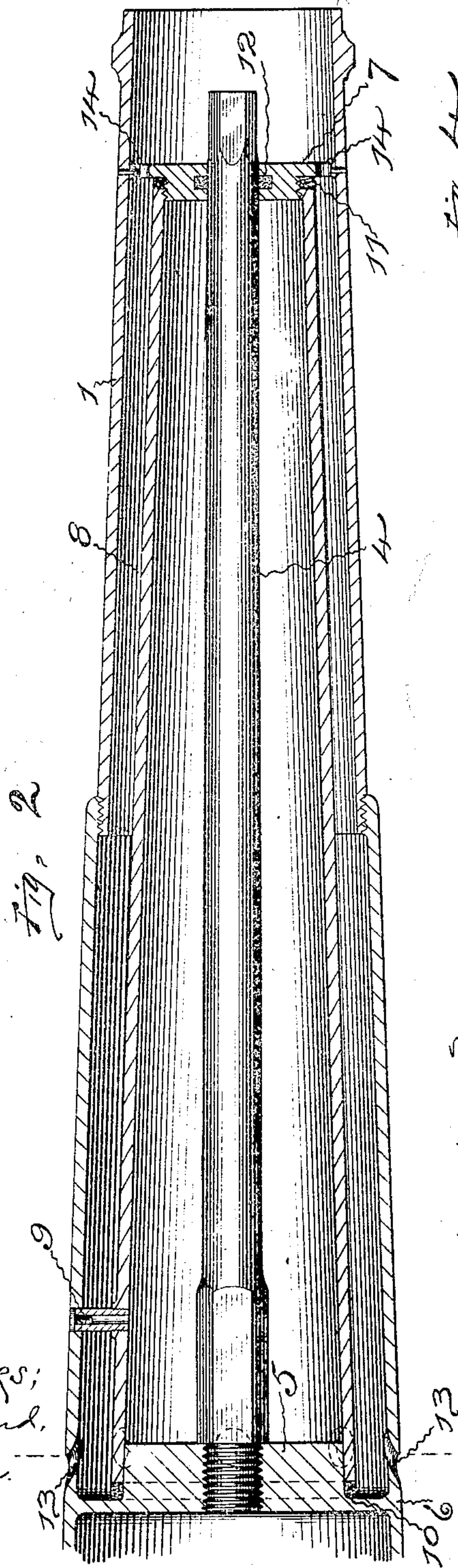
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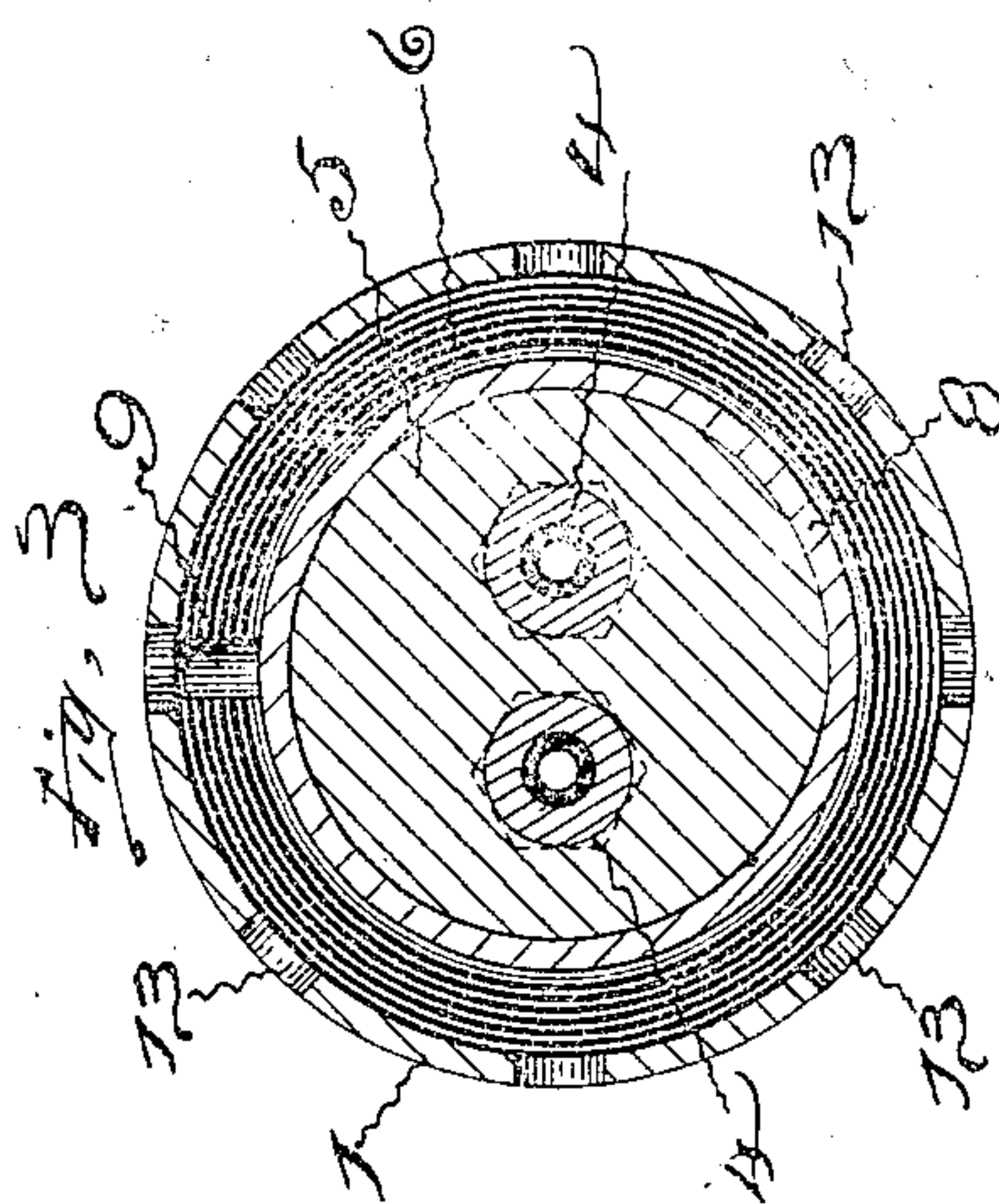
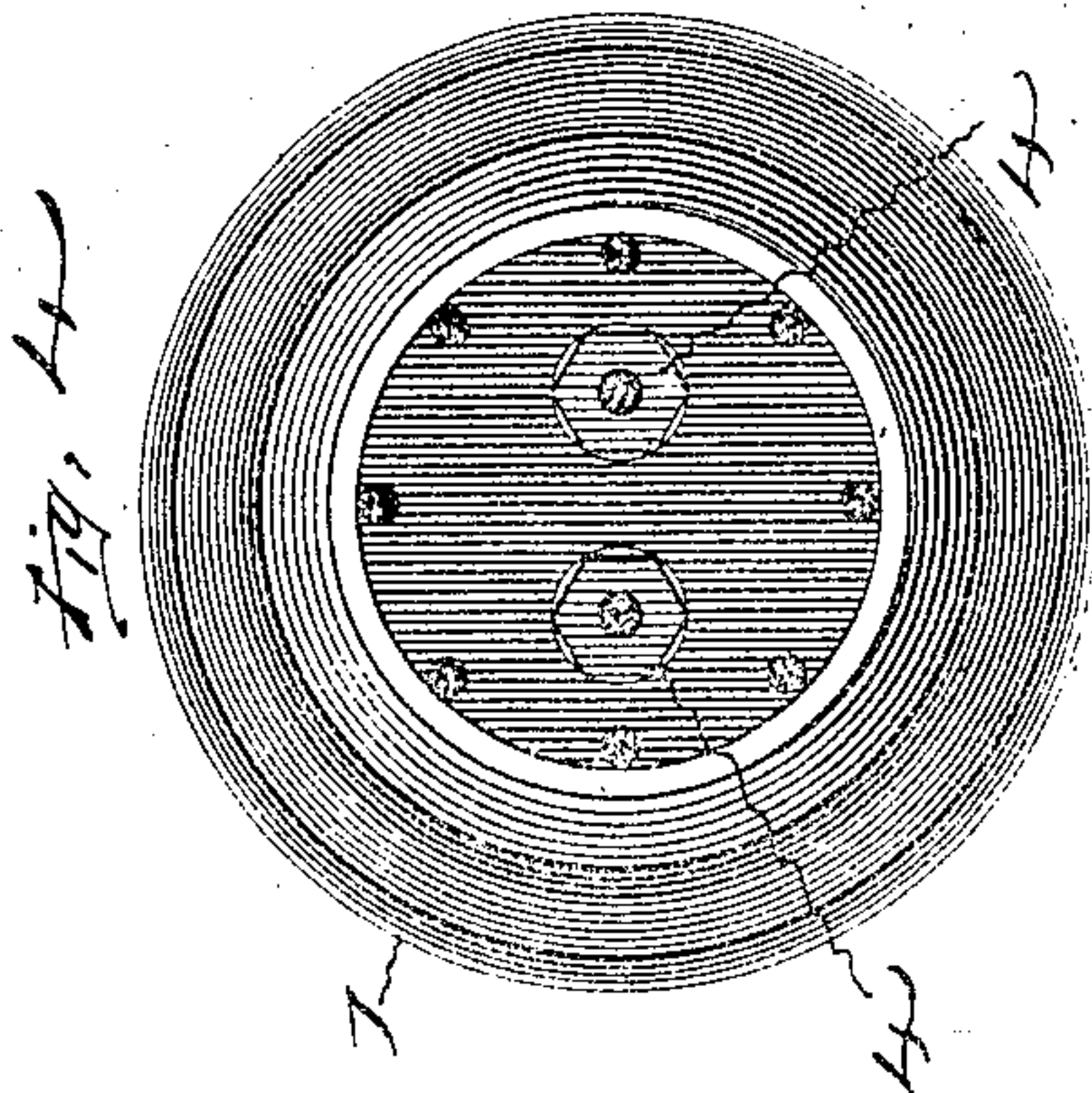
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UNITED STATES PATENT OFFICE.

FRANK. M. GARLAND, OF NEW HAVEN, CONNECTICUT.

MACHINE-GUN.

SPECIFICATION forming part of Letters Patent No. 513,995, dated February 6, 1894.

Application filed April 3, 1893. Serial No. 468,924. (No model.)

To all whom it may concern:

Be it known that I, FRANK. M. GARLAND, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machine-Guns, of which the following is a full, clear, and exact specification.

The invention relates to the class of machine or battery guns which are fired with great rapidity, and the object is to so construct such a gun that it will not become hot under the rapid explosions of the cartridges.

Referring to the accompanying drawings:—
Figure 1 is a side elevation of a gun embodying my improvement. Fig. 2 is an enlarged longitudinal section of the shell of such a gun. Fig. 3 is a transverse section through the breech block; and Fig. 4 is a view looking at the muzzle.

In the views 1 indicates the shell of a gun of any common form and construction, mounted on any suitable carriage 2 and provided with any desired elevating mechanism 3. In the form shown, this shell consists of several cylindrical sections of metal, preferably tapering from the cascabel to the muzzle, and in the butt end of this shell are the loading and firing mechanisms, while in the muzzle end are the barrels 4. At the breech end these barrels are preferably threaded and screwed into threaded sockets in the block 5 that is formed on or attached to the diaphragm 6 that extends across the interior of the shell; and near the muzzles the barrels are supported by a disk 7 that is secured to the interior walls of the shell by any suitable means.

A narrow casing 8 smaller than the exterior shell, incloses the barrels, and this inner casing is usually made liquid tight and provided with a vent 9 through which liquid may be poured to fill the casing, in order that the temperature of the barrels may be kept down when the cartridges are exploded. This casing, as shown, is supported at one end by the breech block 5, and at the other end by a hub on the disk 7, one of these joints being preferably formed so that the

casing may elongate under explosion, while the other is firmly held in place. Packings 10 and 11 are provided to prevent leakage of the liquid at the ends of the casing, and a packing 12 is provided where the barrels pass through the disk 7, so that they may expand without allowing any leakage around them.

Openings or passages 13 are made through the walls of the shell adjacent to the breeches of the barrels, and perforations 14 are made through the disk near the muzzles of the barrels for the passage of currents of air. It will be noticed that the end of the shell reaches farther forward than the muzzles, so that when the gun is fired, the explosions cause a vacuum in the shell at the end of the barrels, and to fill this void, air rushes from the interior of the shell through the perforations in the disk which draws air in through the openings in the shell by the discharge, and these currents of air convey away heat in such manner that the liquid in the inner casing does not become superheated. These currents also prevent the exterior from becoming hot, so that it can be handled at any time for dismounting the gun or any other purposes. Of course the currents of air passing through in this manner may be utilized for keeping the exterior shell cool, without the use of a cooling liquid in the interior, if desired.

I claim as my invention—

1. In combination with a machine gun, a solid shell inclosing the barrels, said shell projecting beyond the muzzles of the barrels, openings made through the shell near the breeches of the barrels, and perforations made near the muzzles of the barrels, substantially as described and for the purpose specified.

2. In combination with a machine gun, a casing surrounding the barrels, with a vent for the introduction of liquid, a shell inclosing the casing, openings made through the shell near the breeches of the barrels, and perforations made near the muzzles of the barrels, substantially as described and for the purpose specified.

3. In combination with a machine gun, a

casing surrounding the barrels, one end of
the casing supported by the breech block and
the other end by a disk, a vent for the intro-
duction of liquid into the casing, a shell sur-
rounding the casing, openings made through
5 the shell near the breeches of the barrels, and
perforations made through the disk near the

muzzles of the barrels, substantially as de-
scribed and for the purpose specified.

FRANK. M. GARLAND.

Witnesses:

S. W. WILSON,

O. H. WEIDEMANN.