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MEANS FOR COOLING GUN BARRELS

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FIG. 1-

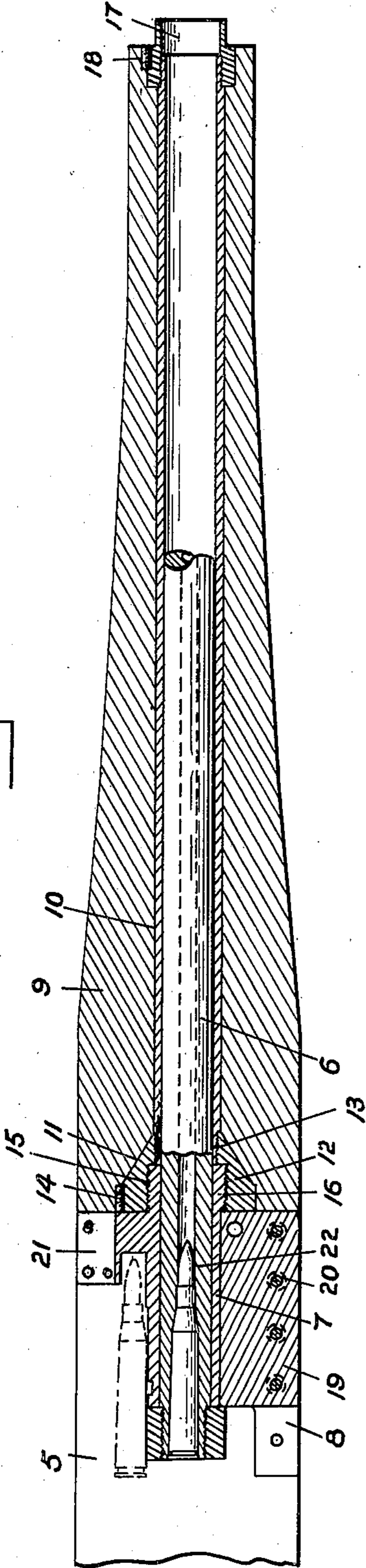
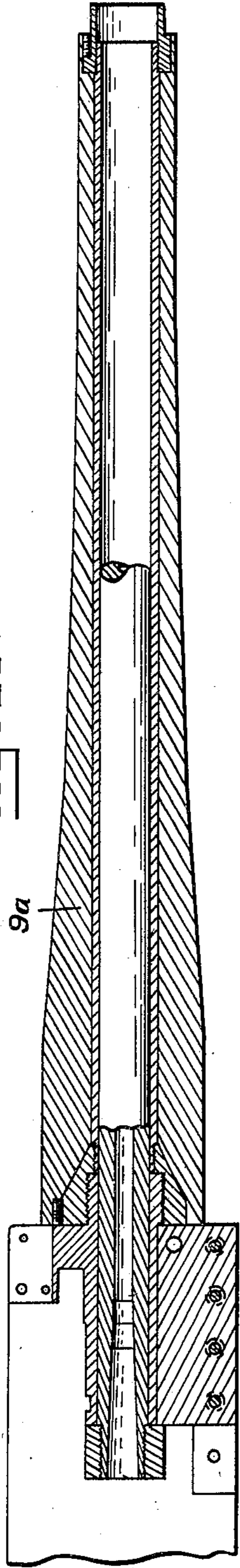


FIG. 2-



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MEANS FOR COOLING GUN BARRELS

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7 Claims. (Cl. 89—14)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

5 This invention relates to means for cooling gun barrels.

The purpose of the present invention is to provide an air-cooled jacket for gun barrels which will be effective in conducting heat from the barrel, and which may in part be conveniently extended to the rear end of the barrel.

A further object is to provide a jacket that is inexpensive and light in weight and one that may be readily attached to and removed from the
15 gun.

To these and other ends, the invention consists in the construction, arrangement and combination of elements described hereinafter and pointed out in the claims forming a part of this specification.

20 A practical embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a longitudinal sectional view of the improved jacket mounted over a gun barrel.

25 Fig. 2 is a similar view of a jacket of a smaller type.

Referring to the drawing by numerals of reference there is shown a portion of the receiver 5 of a machine gun whose barrel 6 is reciprocally supported at its rear end in a bearing 7 carried by the trunnion plates 8 of the receiver.

30 The jacket consists of a sleeve 9 having a relatively thick wall tapered towards the front in accordance with the plotted curve showing the heat of the barrel along its length when the gun is being fired. The sleeve is preferably formed of a light metal such as aluminum or a magnesium alloy.

40 Within the sleeve is a tube 10, preferably of bronze and adapted to have a sliding fit on the barrel 6. The sleeve is pressed or cast on the tube in order to obtain a close fit under high temperatures.

45 In the rear end of the sleeve a counterbore 11 receives a socket member 12 of a stronger and harder metal such as steel. The socket member is threaded onto the projecting end 13 of the tube 10 and is held against rotation by one or more set-screws 14 engaging the sleeve. The rear face of the socket member is flush with the rear face of the sleeve. The socket member is provided internally with threads 15 whereby it is connected to threads 16 formed externally on the forward portion of the bearing 7.

55 On the front end of the sleeve a steel insert 17

fitting over the front end of the tube and attached thereto is held against rotation by one or more set-screws 18 engaging the sleeve. This insert projects beyond the sleeve and provides for attachment of the customary recoil check and flash hider.

A block 19 consisting of a metal similar to that of which the sleeve is formed, is placed underneath the bearing 7 between the opposite trunnion plates 8 and is mounted on pins or rivets 20 securing the trunnion plates 8 to the receiver 5. The block extends forwardly as far as the front edge of the upper brackets 21 of the trunnion plates 8.

When the jacket is mounted on the forward portion of the bearing it extends practically to the projectile chamber 22 of the barrel. The jacket and block 19 radiate heat to a sufficient extent to maintain the barrel below the critical temperature of the metal of the barrel. During extended firing a more or less constant temperature will prevail and as a result a uniform pattern of shots will be obtained.

25 In Fig. 2 the jacket is similar to that of Fig. 1 with the exception of the sleeve 9a whose wall thickness is reduced.

I claim:

1. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end inserted in the bearing, a metal block underneath the bearing, a jacket over the barrel including a bronze tube, a sleeve over the tube formed of a light metal such as aluminum or magnesium, a steel socket member in the rear end of the sleeve providing for mounting the jacket on the forward end of the bearing, and said sleeve tapered toward its front end in accordance with the heat curve of the gun barrel when in operation.

40 2. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end inserted in the bearing, a metal block underneath the bearing, a jacket over the barrel including a bronze tube, a sleeve over the tube formed of a light metal such as aluminum or magnesium, a steel socket member in the rear end of the sleeve providing for mounting the jacket on the forward end of the bearing.

50 3. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end inserted in the bearing, a metal block underneath the bearing, a jacket over the barrel including a tube and a sleeve over the tube, said tube and sleeve being of a light metal having a high degree of thermal conductivity, and a socket member of a
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heavier metal fixed in the rear end of the sleeve and providing for attachment of the jacket on the forward end of the bearing.

5 4. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end inserted in the bearing, a jacket over the barrel including a tube and a sleeve over the tube, said tube and sleeve being of a light metal having a high degree of thermal conductivity, and a socket member of a heavier metal fixed in the rear end of the sleeve and providing for attachment of the jacket on the forward end of the bearing.

10 5. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end inserted in the bearing, a heat-conducting block underneath the bearing and a heat-conducting jacket embracing all of the barrel forwardly of

the bearing and mounted on the forward end of the bearing.

6. In a gun, a receiver, a gun barrel projecting from the receiver, a jacket fitting over the barrel and attachable to the receiver, said jacket including a relatively thin tube and a relatively thick sleeve over the tube, said tube and sleeve being of a light metal and having a high degree of thermal conductivity. 5

7. In a gun, a receiver, a bearing carried by the receiver, a gun barrel having its rear end supported in the bearing, and a separate block underneath and in contact with the bearing, said block being of a material of higher thermal conductivity than the material of the bearing. 10 15

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