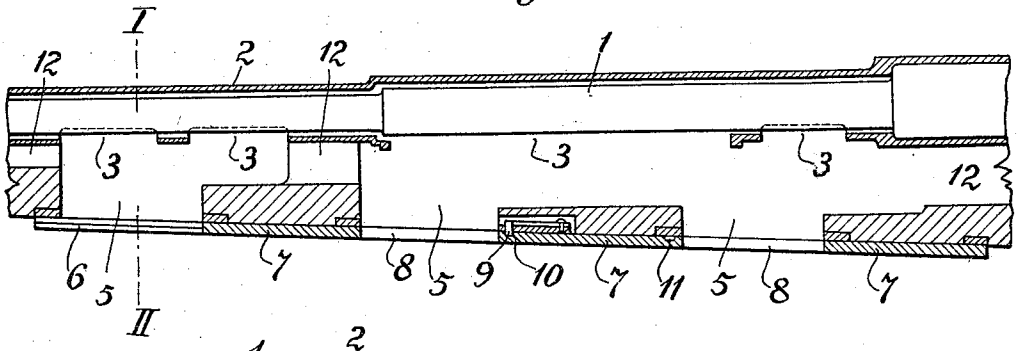
June 6, 1933. R. VON FROMMER 1,913,254

AIR COOLER FOR FIREARMS

Filed April 2, 1932

Fig. 1.



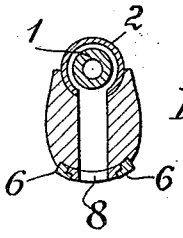
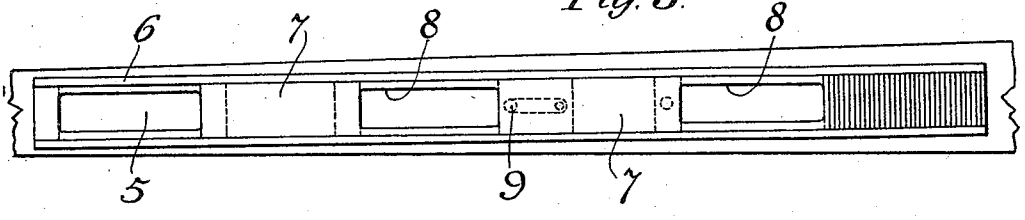


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE

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AIR COOLER FOR FIREARMS

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This invention relates to a cooling device for fire arms which in contradistinction to the known arrangements cooling the upper part of the barrel, cools the lower part of the barrel which is hidden in the gunstock. In fire arms the barrel of which moves in a guiding tube, only the lower part of the latter hidden in the gunstock has the cooling holes for the cooling of the barrel. In such constructions the gunstock, which extends at military guns to the front end of the barrel, is provided on its lower part with cooling openings, through which the cooling air passes by way of the perforated guiding tube to the barrel.

To protect these cooling openings against the penetration of dust, dirt, rain, snow, etc., when the fire arm is not used and so a cooling of the barrel is unnecessary, a sliding cover is provided on the lower part of the gunstock, which covers and uncovers the cooling openings of the gunstock. In order that this cover should always remain within the length of the fire arm and that the pierced parts of the gun, that is to say the gunstock, the guiding tube and the cover should not be considerably weakened, I provide on the gunstock instead of one continuous opening several openings, so that for instance by pushing foreward the sliding cover the openings of which correspond to those of the gunstock, all the openings are closed at once. Thus the fire arm will be entirely closed, by withdrawing the cover however, all the openings are uncovered for the penetration of the air.

In order that the air may cool the barrel along a relatively large surface, the arrangement set forth above may be completed by a channel situated within the gunstock and connecting the openings of the latter with one another. This channel is advantageously almost as long as the barrel itself. For the purpose of fixing the cover in its foreward or backward, that is to say in its closing or opening position, a fixing member, for instance a spring controlled pin or a snap may be applied for fixing the cover in its extreme positions. This fixing is necessary among others for preventing an undue shifting of the cover which would be produced by the kick of the fire arm when shooting with the same.

It is already known to perforate the guiding tube of fire arms having a movable barrel in order to cool the latter, but this cooling was effected on parts not covered by the gunstock. Contrary to this the barrels of fire arms according to the present invention is cooled on the part covered by the gun stock. By this it is attained that rain, snow and impurities falling down cannot penetrate into the interior of the fire arm, even if the openings are uncovered. In other words, the arrangement of the cooling openings on the lower part of the weapon prevents the barrel and the other component parts of the gun from becoming wet or dirty, which would cause the formation of rust and would hinder the right operation. A further advantage of the air cooler according to the invention is that it does not increase the weight of the fire arm. Contrary to this, the cooling openings of a guiding tube perforated in a known manner on its upper part, must be covered by a second tube slidable on said guiding tube, this second tube increasing considerably the weight of the fire arm. With the construction according to the invention this is not the case, as the above mentioned perforated sliding cover is formed by a narrow and thin metal strip which is considerably lighter than the known covering tube, and even the weight of this metal strip is compensated by the decrease in weight caused by the openings in the gun stock.

A further disadvantage of the known constructions is that the moisture penetrating between the perforated guiding tube and the covering tube situated on the former, may cause the formation of rust and thus the conglutination of these two parts which renders this known cooler useless. The avoiding of this drawback is a further advantage of the invention.

The accompanying drawing shows one form of a fire arm fitted with a cooler according to the invention.

Fig. 1 is a side view of the front part of the fire arm showing the guiding tube, the

gunstock and the cover in section, while the barrel is shown in side elevation. The cover is shown in its rear position.

Fig. 2 is a cross section taken on line I—II of Fig. 1.

Fig. 3 shows the same part of the fire arm as Fig. 1 but looking from below.

The barrel 1 is slidable in the guiding tube 2 provided on its lower part with openings 3. The lower part of the gunstock is also provided with openings or holes 5 situated under the barrel 1. For covering these openings 5 a cover 7 having openings 8 is slidably mounted in a guide 6 of the gun stock, said cover uncovering the openings 5 of the gun stock when being in its opening position shown in Figs. 1 and 3. Thus the air can freely stream through the holes 5 of the gun stock and openings 3 of the guiding tube to the barrel 1 cooling the same effectively. The openings 8 of the cover 7 correspond advantageously to the openings 5 of the gun stock and the full parts extending between two holes are as long as the holes or longer than the holes, so that when shifting forwardly the cover 7 the openings of the gun stock are closed.

The cover 7 can be fixed by a spring controlled pin 9 adapted to snap into depressions 10 or 11 of the cover 7 if the same occupies its opening or closing position.

The full parts of the gun stock situated between the holes 5 do not extend to the guiding tube 2 (see Fig. 1) but leave intervening spaces 12 above themselves, enabling the cooling air to stream to the guiding tube. These spaces 12 form the already mentioned channel connecting the holes 5 with one another.

I claim:

1. In a fire arm having a barrel and a gun stock, the gun stock having a channel in its lower part, the lower part of the barrel lying freely in the said channel and being directly exposed to the cooling air of the said channel, the gun stock having apertures in its lower wall communicating with the said channel, and a cover slidable on the gun stock to open or close the said apertures.

2. In a fire arm having a slidable barrel, a guiding tube for said barrel and a gun stock, the gun stock having a channel in its lower part, said guiding tube having apertures in its lower wall and concealed in the gun stock, the lower part of the guiding tube lying freely in the channel, the gun stock having apertures in its lower side communicating with the channel, and a cover slidable on the gun stock to open or close the said apertures.

In testimony whereof I affix my signature.

RUDOLF VON FROMMER.