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FOREARM OR THE LIKE FOR FIREARMS

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

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In various firearms, and more particularly in shoulder arms such as rifles, it has long been the practice to provide a forearm or cover or other equivalent part formed of wood and serving among other purposes to protect the user from contact with the hot barrel. With modern automatic or semi-automatic firearms such as rifles, adapted for rapid firing, difficulty is encountered by reason of the charring of the wood where it is in contact with the barrel. One of the objects of the present invention is to provide a construction wherein charring is avoided.

It has heretofore been proposed to substitute for wood a molded material of the synthetic class. A molded material has certain very definite advantages over wood, particularly in that it is stronger, less expensive, less subject to moisture absorption, and less subject to charring. However, the molded material has certain apparent disadvantages which have heretofore prevented its use to any great extent for this particular purpose. The molded material is somewhat heavier than wood which has made it to that extent objectionable, and it has a somewhat higher thermal conductivity which has made it less effective as a heat insulator around the barrel. A further object of the present invention is to provide a construction which overcomes the heretofore existing disadvantages of the molded material, thus making it practicable to use molded material and obtain the benefit of its inherent advantages.

In the accompanying drawing I have shown alternative embodiments of the invention as applied to a firearm of one particular type. It will be understood, however, that I do not limit myself to a firearm of the particular type shown nor to the particular details of construction shown, but being understood that the drawing is for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a side view of the front portion of a rifle embodying the invention.

Fig. 2 is an enlarged transverse sectional view taken along the line 2—2 of Fig. 1, this view omitting all parts except the barrel and the forearm and the heat resisting strips interposed between them.

Fig. 3 is a view similar to Fig. 2 but showing alternative details.

Fig. 4 is an enlarged fragmentary view similar to Fig. 1, this view being partly in longitudinal section in order to show an alternative construction.

Fig. 5 is a view similar to Fig. 2, but showing the alternative construction of Fig. 4.

The rifle, of which the front portion is shown in Fig. 1, comprises a barrel 1, a gas tube 2 connected with the barrel, a stock 3, a cover 4 and a forearm 5. The parts 3, 4 and 5 are connected with the barrel and the gas tube and with each other by means of bands or ferrules 6 and 7 in the conventional manner.

The stock 3, the cover 4 and the forearm 5 are formed of a non-metallic material, and the usual prior practice has been to make them of wood; but in accordance with the present invention some or all of these parts which may generally be referred to as barrel engaging members may be molded from a material of the synthetic resin class. One suitable material of this class is a phenol-formaldehyde resin having shredded canvas as a filler to provide the necessary mechanical strength.

In accordance with the usual prior practice, the barrel engaging members such as the cover 4 and the forearm 5 at least partly surround the barrel and have direct contact therewith. Under conditions of rapid continuous firing the barrel may become sufficiently heated to cause objectionable charring of the cover and forearm, particularly when these parts are formed of wood.

In accordance with the present invention, as shown in detail in Fig. 2, the forearm 5 instead of contacting directly with the barrel, is so formed that its inner face is spaced outward from the barrel. I provide a plurality of strips or rods or bars 8, 8 which are interposed between the outer face of the barrel and the inner face of the forearm. These strips, rods or bars are formed of a heat resisting material of low thermal conductivity, as for instance asbestos or an asbestos compound. The strips 8, 8 should be molded or otherwise formed so as to be relatively hard and unyielding.

Preferably, in order to assist in definitely locating the strips 8, the forearm is provided with relatively shallow grooves into which the strips fit. As shown in Fig. 2, the strips 8, 8 and the corresponding grooves extend longitudinally and the strips are circular in cross section.

Fig. 3 shows a construction similar to that shown in Fig. 2 the principal difference being that there are strips 9, 9 which are rectangular instead of circular in cross section, the grooves in the forearm 5 being correspondingly shaped.

As already stated, the strips 8, 8 and 9, 9 as shown in Figs. 2 and 3 extend longitudinally. However, the invention is not so limited and I may provide circumferentially extending strips such as 9, 9 as shown in Fig. 4. When the strips extend circumferentially, the forearm 10 is preferably correspondingly grooved.

I have described the heat resisting strips 8 and 9 as being used in conjunction with the forearm of the rifle. It will be understood that similar strips may be used in conjunction with the cover 4, these not being herein shown as their con-
struction and arrangement would be substantially the same.

Referring particularly to Fig. 2, it will be observed that the forearm 5 is spaced away from the barrel so that there is no direct contact, thus practically eliminating any possibility of charring. The strips 8, 9 of heat resisting material such as asbestos serve to connect the barrel and the forearm so as to hold these parts in proper relationship, but these strips 8, 9 will not char and will not conduct sufficient heat of the forearm to cause it to char. It will be noted the strips 8 and 9 shown in Figs. 2 and 3 and the strips shown in Fig. 5 extend around the barrel a greater extent than 180° and thus serve to interlock the barrel and barrel engaging member against separation in a direction transverse to the axis of the barrel. The air space between the barrel and the forearm acts in association with the strips to provide effective heat insulation.

As already stated, the barrel engaging member such as the forearm may be formed of wood or of a molded material; but the described constructions, particularly those shown in Figs. 2 and 3, are especially adapted for use with a molded material and they make the use of such a material entirely practicable. One of the heretofore existing objections to a molded material was that it was heavier than wood and therefore somewhat increased the weight of the rifle. In accordance with the present invention, the exterior contour of the forearm may be kept the same as before but the greater interior space therein to provide clearance around the barrel makes it possible for the weight of a molded forearm to at least approximate the weight of a wooden forearm. The molded material has somewhat greater heat conductivity than the wood, but with the described construction much less heat is transmitted from the barrel to the forearm, with the result that the temperature of the forearm is never excessive.

It will be seen that in accordance with the present invention I am able to avoid the heretofore existing objections to the use of a molded forearm or other similar part. By the invention I am able to avoid any objectionably increased weight and any unduly increased temperature. The molded forearm or other part is much less expensive, as it does not require the many machining operations necessary for wood; it has no distinct grain and is therefore not subject to splitting as is wood; and is less subject to moisture absorption and charring. The space around the barrel serves not only to reduce weight and provide heat insulation, but it also reduces the amount of material and thus still further reduces the cost.

What I claim is:

1. In a firearm, the combination of a barrel, a barrel engaging member of non-metallic material at least partly surrounding the barrel for a greater extent than 180° of the circumference thereof and spaced outward therefrom, and a plurality of longitudinal strips of heat resisting material of low thermal conductivity interposed between and engaging the said barrel and the said barrel engaging member, said strips being arranged around the barrel for a greater extent than 180° of the circumference thereof to interlock the barrel and the barrel engaging member.

2. In a firearm, the combination of a barrel, a barrel engaging member of non-metallic material at least partly surrounding the barrel for a greater extent than 180° of the circumference thereof and spaced outward therefrom, and a plurality of longitudinal strips of heat resisting material of low thermal conductivity interposed between and engaging the said barrel and the said barrel engaging member, said strips being arranged around the barrel for a greater extent than 180° of the circumference thereof and spaced outward therefrom and having a plurality of spaced grooves in the inner face thereof, and a plurality of strips of heat resisting material of low thermal conductivity fitting the said grooves and engaging the said barrel, said strips being arranged around the barrel for a greater extent than 180° of the circumference thereof to interlock the barrel and the barrel engaging member.

3. In a firearm, the combination of a barrel, a barrel engaging member of non-metallic material at least partly surrounding the barrel for a greater extent than 180° of the circumference thereof and spaced outward therefrom and having a plurality of spaced grooves in the inner face thereof, and a plurality of strips of heat resisting material of low thermal conductivity fitting the said grooves and engaging the said barrel, said strips being arranged around the barrel for a greater extent than 180° of the circumference thereof to interlock the barrel and the barrel engaging member.

4. In a firearm, the combination of a barrel, a barrel engaging member of non-metallic material at least partly surrounding the barrel for a greater extent than 180° of the circumference thereof and spaced outward therefrom and having a plurality of circumferentially spaced longitudinal grooves in the inner face thereof, and a plurality of longitudinal strips of heat resisting material of low thermal conductivity fitting the said grooves and engaging the said barrel, said strips being arranged around the barrel for a greater extent than 180° of the circumference thereof to interlock the barrel and the barrel engaging member.

5. In a firearm, the combination of a barrel, a barrel engaging member molded from a material of the synthetic resin class and at least partly surrounding the barrel and spaced outward therefrom, and a plurality of spaced strips of asbestos interposed between and engaging the said barrel and the said barrel engaging member.

6. In a firearm, the combination of a barrel, a barrel engaging member molded from a material of the synthetic resin class and at least partly surrounding the barrel and spaced outward therefrom and having a plurality of spaced grooves molded in the inner face thereof, and a plurality of strips of asbestos fitting the said grooves and engaging the said barrel.

7. In a firearm, the combination of a barrel, a barrel engaging member molded from a material of the synthetic resin class and at least partly surrounding the barrel and spaced outward therefrom and having a plurality of circumferentially spaced longitudinal grooves molded in the inner face thereof, and a plurality of longitudinal strips of asbestos fitting the said grooves and engaging the said barrel.

8. For a firearm, a forearm molded from material of the synthetic resin class and adapted to at least partly surround the barrel and having a plurality of spaced grooves in its inner face adapted to receive strips of material to be interposed between the barrel and the forearm.

9. For a firearm, a forearm molded from a material of the synthetic resin class and adapted to at least partly surround the barrel and having a plurality of spaced grooves molded in its inner face adapted to receive strips of material to be interposed between the barrel and the forearm, said grooves extending longitudinally of the forearm.

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