June 23, 1942. J. C. GARAND 2,287,032

BARREL AND GAS CYLINDER ASSEMBLY FOR FIREARMS

Filed May 4, 1939

Fig. 1.

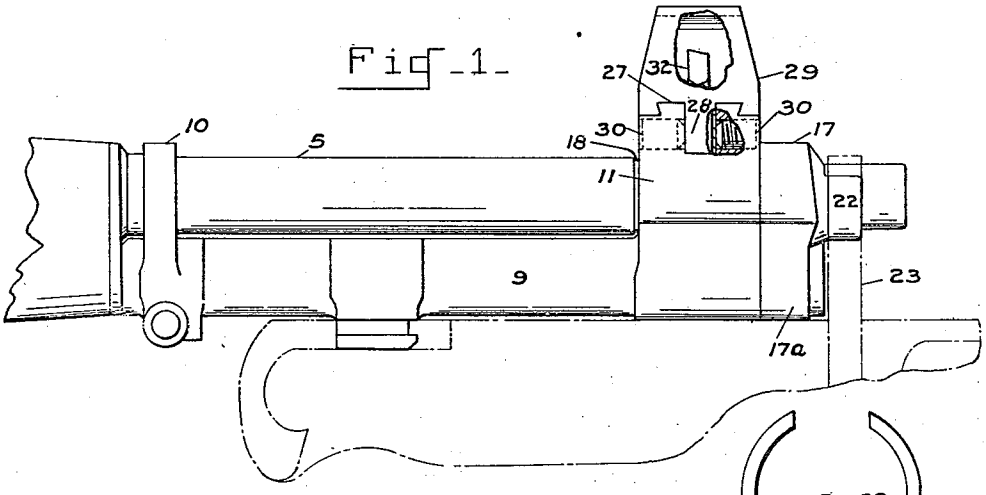


Fig. 2.

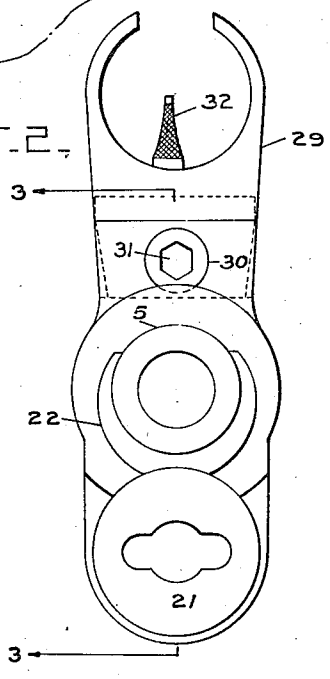
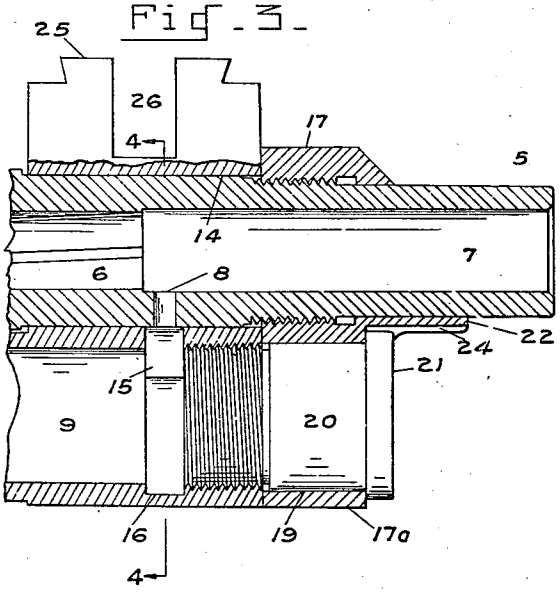


Fig. 3.



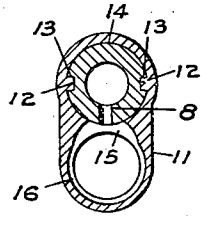


Fig. 4.

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UNITED STATES PATENT OFFICE

2,287,032

BARREL AND GAS CYLINDER ASSEMBLY FOR FIREARMS

John C. Garand, Springfield, Mass., assignor to the Government of the United States of America, as represented by The Secretary of War and his successors in office

Application May 4, 1939, Serial No. 271,728

5 Claims. (Cl. 42—3)

(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.

This invention relates to a barrel and gas cylinder assembly for firearms and is an improvement on the device shown in my prior Patent No. 1,892,141.

In the patent the gas cylinder carries a plug in front of the muzzle of the gun barrel and this construction requires very close manufacturing tolerances to insure that the bullet exit hole in the plug is in alignment with the bore of the barrel.

The purpose of this invention is to provide a gas cylinder assembly which will eliminate the necessity for precision in manufacture and at the same time provide for convenient and rapid assembly and a firm mounting.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a view in side elevation partly in section of a gun barrel and gas cylinder assembly constructed in accorance with the invention;

Fig. 2 is a view in front elevation;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a reduced sectional view on the line 4—4 of Fig. 3.

Referring to the drawing by characters of reference there is shown the barrel 5 of a gas-operated firearm in which the usual rifling 6 may or may not be terminated short of the muzzle but in the former case, as illustrated, there is provided a smooth bore 7. The wall of the barrel is provided with a radially disposed gas port 8 which is located directly in front of the rifling.

A gas cylinder 9 adapted to receive a portion of the gases of explosion for actuating a piston (not shown) is provided with an integral rear band 10 and front band 11 whereby it is mounted on the barrel and parallel therewith by a sliding movement. The front band is formed internally with one or more ribs 12—12 which engage in correspondingly spaced grooves 13—13 formed externally on the barrel and serve to hold the cylinder against rotational displacement relative to the barrel. It will be understood, of course that the tongues and grooves may be reversed.

The front band when mounted on the cylindrical portion 14 of the barrel covers the gas port 8 in the barrel. The common wall of the gas cylinder and its integral front band is formed with a gas inlet 15 which is continuous with an internal annular groove 16 and which, when the cylinder is assembled to the barrel, is in alignment with the gas port 8.

A retaining member 17 threaded on the barrel until it is in engagement with the front band holds the gas cylinder in place in front of a shoulder 18 on the barrel. The retaining member includes a depending lug 17a which engages the front end of the cylinder and it is provided with an aperture 19 which is in alignment with the open front end of the cylinder. A plug 20 inserted through the aperture 19 is threaded in the front end of the cylinder to form a removable closure therefor and a coupling for connecting the cylinder 9 to the retaining member 17 which is fixed to the barrel. When the plug is in place it serves to hold the retaining member against rotational displacement. A head 21 on the plug is adapted to engage the front face of the lug 17a and to thereby insure that the plug will not obstruct the gas inlet 15.

The retaining member is provided with a forwardly projecting crescent-shaped lip 22 which extends on the bottom and sides of the barrel and cooperates therewith to establish a support for the conventional apertured bayonet guard indicated by dotted lines 23, the outer surface of the lip being eccentric to the axis of the barrel. The under side of the lip is formed with a groove 24 to accommodate the head 21.

The front band 11 constitutes a support for a front sight whcih forms the subject of a separate application, Serial No. 271,729, which has matured into Patent No. 2,208,576, and will therefore be only briefly described. The upper portion of the band 11 is formed of substantial thickness to provide a transversely disposed dovetail tongue 25 and a transversely disposed slot 26 to receive the complemental groove 27 and rib 28 on a front sight guard 29. Set screws 30—30 threaded in the band 11 engage the rib 28 to firmly hold the guard in place.

The front set screw when applied is confined by the overlapping portion of the holding member 17 but it will be noted as seen in Fig. 2 that the tool opening 31 in the set screw will be clear to provide for adjustment of the set screw. The rib 28 is apertured to carry a sighting member 32.

In order to remove accumulated deposits of carbon from the gas cylinder it is only necessary to remove the plug 20 swing the retaining member 17 to one side, and insert an appropriate instrument. If desired the retaining member

may be removed and the plug 20 reinserted in the gas cylinder and threaded therein a sufficient amount to break loose the carbon.

I claim:

1. In a firearm, a barrel having a gas port, a gas cylinder having a band slidably mounted on the barrel and having a gas inlet to be aligned with the gas port, a longitudinal tongue and groove connection between the band and the barrel, a retaining member threaded on the barrel and having a depending apertured lug, a plug inserted through the apertured lug and threaded in the cylinder to hold the retaining member against rotation relative to the barrel, said plug having means for engaging the front face of the lug and cooperating with its connection to the cylinder to longitudinally fix the cylinder with respect to the retaining member.

2. In a firearm, a barrel having a gas port, a gas cylinder having a gas inlet to be aligned with the gas port, a longitudinal tongue and groove connection between the cylinder and the barrel, a retaining member threaded on the barrel and having a depending apertured lug, a plug inserted through the apertured lug and threaded in the cylinder to hold the retaining member against rotation relative to the barrel, said plug having means for engaging the front face of the lug and cooperating with its connection to the cylinder to longitudinally fix the cylinder with respect to the retaining member.

3. In a firearm, a barrel having a gas port, a gas cylinder having a longitudinally slidable and non-rotatable connection with the barrel, a retaining member threaded on the barrel and having a depending apertured lug, a plug inserted through the apertured lug and threaded in the cylinder to hold the retaining member against rotation relative to the barrel, said plug having means for engaging the front face of the lug and cooperating with its connection to the cylinder to longitudinally fix the cylinder with respect to the retaining member.

4. In a firearm, a barrel, a gas cylinder mounted on the barrel, a member on the barrel forwardly of the cylinder and retaining the cylinder, said member having a forwardly projecting crescent-shaped lip extending on the bottom and sides of the barrel and cooperating therewith to establish a support for a bayonet, the outer surface of the lip being eccentric to the axis of the barrel.

5. In a firearm, a barrel, a gas cylinder mounted on the barrel, a member threaded on the barrel for retaining the cylinder, a front sight member slidably mounted on the gas cylinder transversely thereof, a set screw threaded in the cylinder for retaining the front sight member, said screw having a small portion longitudinally confined by the cylinder retaining member.

JOHN C. GARAND.