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RIM FIRE RIFLE AND AMMUNITION THEREFOR

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Fig. 1.

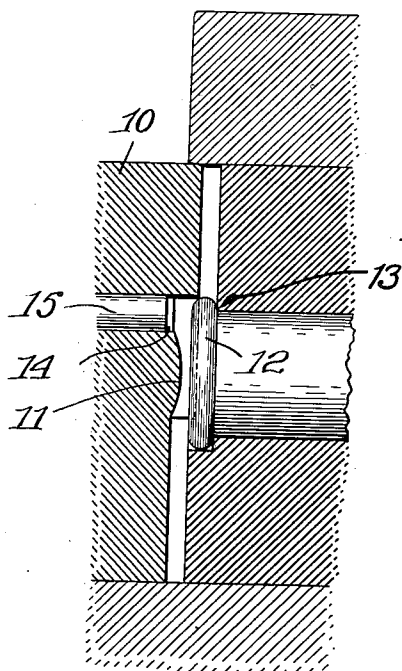
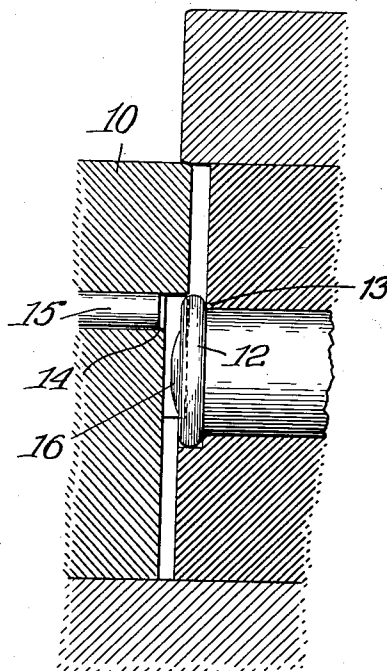


Fig. 2.



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RIM-FIRE RIFLE AND AMMUNITION
THEREFOR

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Application February 11, 1933, Serial No. 656,324

6 Claims. (Cl. 42-2)

This invention consists in an improved, rim-fire rifle and the ammunition therefor, and is fully illustrated in the accompanying drawing, in which Fig. 1 is a vertical section through the parts embodying the one form of the invention, the novel feature being shown on a considerably exaggerated scale for clearness of illustration, and the breech bolt being shown just before complete closing; and Fig. 2 is a similar view of another form of the invention.

mately .043", a bump of approximately .007" has been employed with a marked increase in accuracy and without accidental shots from any of several different lots of ammunition. Such a bump will tightly seat a minimum cartridge in a rifle larger in head space than manufacturing considerations require.

The diameter of the bump may be considerably varied provided the primer is left sufficiently undisturbed. In general it appears best to make the margin of the bump approximately coincide with the inner margin of the firing pin opening 14 through which the striker 15 operates. It is preferred to taper the margins of the bump outward as illustrated not only to eliminate shearing strains on the head, but so it will oppose no shoulder which might interfere with loading if the invention is incorporated in a rifle of the magazine type.

While this form of the invention has been illustrated in a bolt action rifle, it is evident that it is adaptable to any rifle where in the final closing of the breech there is a sufficient longitudinal component of movement that the bump will clear the rim, and provided further that the breech mechanism is powerful enough to depress the head to the extent required.

In the second form of the invention shown in Fig. 2, the bolt is of conventional form while the cartridge head is provided with a bump 16 similar in form to the bump 11 in Fig. 1. In loading such cartridges the conventional bolt seats the cartridge by pressure on the bump, and then compensates for variations in cartridge head thickness and for tolerances by flattening the bump. In this form of the invention the bump should be tapered or thinned down at its periphery not only to facilitate manufacture but to avoid a shoulder which might interfere with the closing of certain types of breech action.

While the manufacture of cartridges of the form illustrated requires some modification in cartridge-making machinery, this form of the invention has the merit of being applicable to a great number of rifles now in use, and of affording the manufacturer a considerably increased accuracy in many arms. Hence the choice as to which form of the invention to employ depends largely upon commercial considerations. The form of Fig. 1 results in an improved rifle capable of handling all brands of ammunition while the form shown in Fig. 2 results in improved ammunition which can be used in a large number of rifles.

Proper ignition of rim-fire cartridges, which is known to be a major factor in accuracy, requires that in loading them into a rifle the primer-containing rim shall be fully seated on the anvil afforded by the rear end of the barrel. Lacking such preliminary seating a variable part of the energy of the striker is wasted in completing the seating of the cartridge which in modern target rifles is opposed by the resistance of the lands to further insertion of the bullet. Furthermore, it is generally believed that the cartridge ought to be firmly held when struck.

Commercial rim-fire cartridges of the same kind (e. g. a .22 long rifle) vary among themselves about .005" in head or rim thickness. Hence, if a rifle is head-spaced to seat a minimum cartridge the head of a maximum cartridge is so compressed as sometimes to fire it in loading. While rifles so head-spaced are quite accurate and are reasonably safe in the hands of experts habituated to range discipline, they are unsafe for general sale. Furthermore, factory manufacture requires some head-space tolerance. Hence commercial rifles, even of the highest target grade, often fail to seat cartridges fully and so lack an increment of accuracy obtainable by complete seating. In the present invention, advantage is taken of the fact that the center of a rim-fire cartridge head inside the rim can be considerably depressed without disturbing the primer enough to cause an explosion.

In one form of the invention the bolt head 10 is provided with a small central bump 11 which engages the center of the cartridge head 12. When the rim is fully seated on the anvil 13 the bump can sink into the head without danger of explosion. For clearness of illustration the bump is shown as of a greatly exaggerated height. The height to be employed in practice naturally depends on the head-spacing of that part of the bolt outside the bump. It is desirable to make the bump high enough to compensate for variations in the head thickness of commercial cartridges and to take up a reasonable amount of wear.

In the case of one rifle head-spaced approxi-

I claim:

1. In combination, a barrel affording an anvil for a rim-fire cartridge head, a breech bolt, a rim-fire striker working through the bolt and
5 opposed to the anvil, and a rim-fire cartridge, the opposing surfaces of the bolt and cartridge head being so shaped that if separated axially the space between them is smaller in the center, inside the cartridge rim than at the rim whereby
10 upon closing the breech the rim is seated on the anvil by engagement of the bolt with the center of the head and the center may yield without crushing the rim.
2. In combination, a rim-fire cartridge and a
15 breach bolt for seating it, one of their mutually engaging surfaces being of conventional flat form and the other having a central bump centrally located with respect to the primer containing rim whereby upon closing the bolt the center of the
20 cartridge head is initially contacted and may be

depressed to obtain firm loading pressure without rim distortion.

3. In a rim-fire rifle, a breach bolt adapted for cooperation with a conventional flat headed rim-fire cartridge and having at its center inside
80 the line of the cartridge rim a bump of a height in the order of .007" whereby the center of the cartridge may be depressed without rim distortion.

4. The device of claim 3, in which the bump is
85 tapered at its periphery.

5. A rim-fire cartridge adapted for cooperation with a conventional flat faced bolt and having a central bump of a height in the order of .007" whereby upon closing the bolt the center of the
90 cartridge head may yield without rim distortion.

6. The device of claim 5, in which the bump is tapered at its periphery.

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