M. G. ROSENGARTEN.

TRANSFORMER FOR SHOTGUNS.

APPLICATION FILED AUG. 14, 1912.

1,217,347.

Patented Feb. 27, 1917.

2 SHEETS—SHEET 1.

FIG. I.

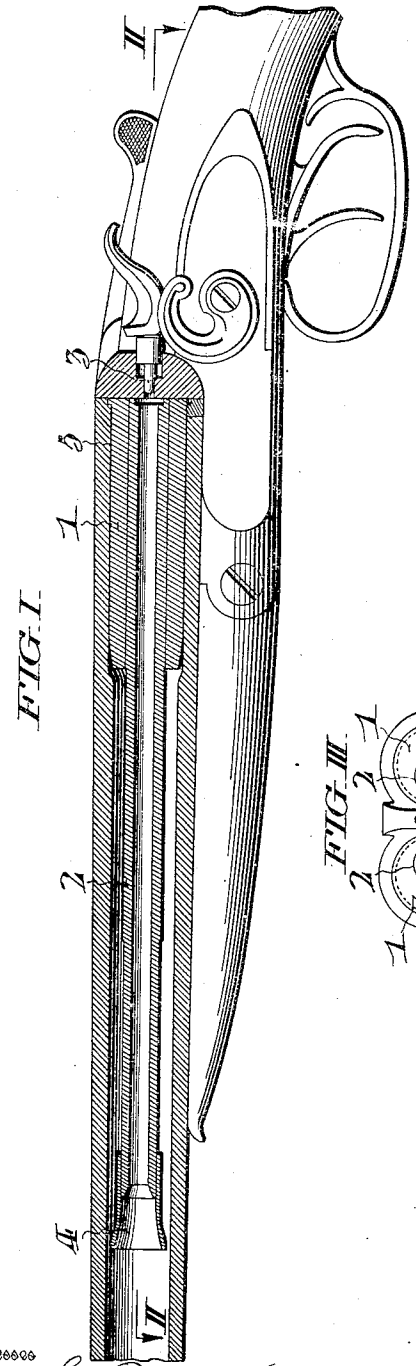
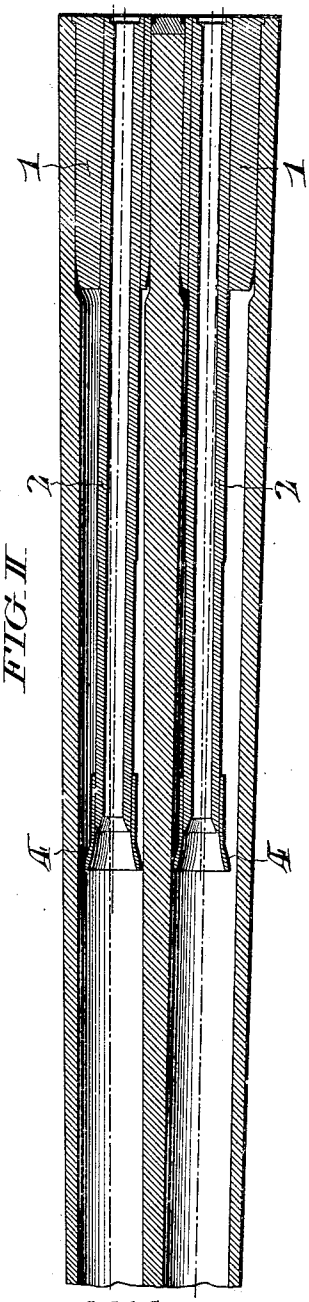


FIG. III.

FIG. II.



Witnesses

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2 SHEETS—SHEET 2.

FIG. IV.

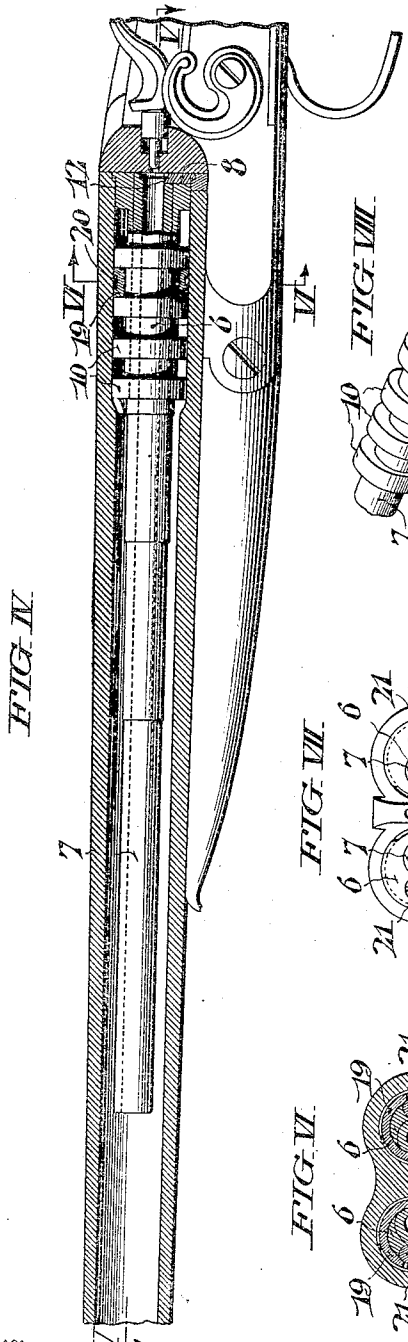


FIG. VIII.

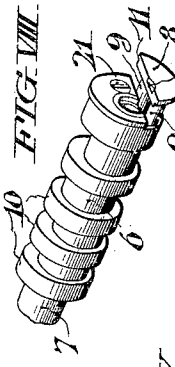


FIG. V.

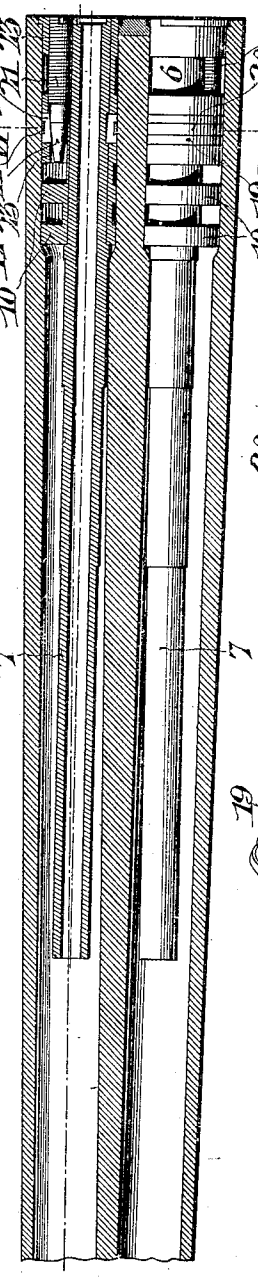


FIG. X.



FIG. VII.

FIG. IX.



FIG. VI.

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TRANSFORMER FOR SHOTGUNS.

1,217,347. Specification of Letters Patent. Patented Feb. 27, 1917.

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To all whom it may concern:

Be it known that I, MITCHELL G. ROSENGARTEN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Transformers for Shotguns, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to a transformer adapted to be inserted within the barrel of a shot gun, whereby the shot gun is rendered temporarily capable of shooting a small ball cartridge. In this way the shot gun may be used as for rifle practice, and great accuracy of aim may be cultivated by the user.

My invention is capable of much variation in detail, but I have shown in the drawings and will describe two modifications which illustrate the main principle thereof.

Two difficulties have hitherto stood in the way of the successful temporary conversion of a shot gun into a rifle. One of these is the fact that a shot gun shell is exploded by a central pin driven by the hammer, whereas most small rifle cartridges are rim-fire cartridges. The second is the fact, not hitherto appreciated in this connection, that the barrels of a double barrel shot gun are not parallel, being more widely separated at the breech than at the muzzle, neither barrel having its axis parallel to the line of the sights of the gun. In a double barrel shot gun, this lack of parallelism results in the axes of the two barrels crossing at a distance of about eighteen yards from the muzzle of the gun. Furthermore the chambers of the gun are inclined at an even greater angle.

In the normal use of the shot gun this is immaterial, since the spreading of the charge of shot renders unnecessary any such accuracy of aim, as would be disturbed by this inclination of the chamber or barrel.

This difference however, is most important in rifle practice, and must be compensated for.

Accordingly it is one of the objects of my invention to so construct the transformer that when properly inserted within the barrel of the shot gun, the axis of the rifle barrel is accurately parallel with the line of the sights of the shot gun.

To this end, I employ a cylindrical jacket which fits truly within the shot gun barrel. I prefer to use a jacket having about the dimensions of the shell which is adapted for use in connection with the barrel, so that the jacket closely fits the chamber of the gun barrel. Within this jacket I mount and secure the breech of a small rifle barrel with lack of parallelism between the axis of the jacket and the axis of the rifle barrel of sufficient extent to compensate for and correct the lack of parallelism of the shot gun barrel, or its chamber to the sights.

Not only is the rifle barrel of my transformer not parallel with the axis of the jacket, but it is preferably eccentric thereto, whereby I secure further advantages, in that by using a proper degree of eccentricity at the breech of the rifle barrel I am able to bring the rim of a small ball cartridge when inserted in the rifle barrel into a position so near the center of the jacket and therefore of the shot gun barrel as to be exploded by the thrust of the central firing pin of the shot gun. At the same time this eccentricity gives me a fine adjustment for varying within narrow limits the angular relation of the axis of the rifle barrel, so as to bring it into exact parallelism with the sights of the shot gun; for the rifle barrel being not parallel to the jacket in which it is mounted, a slight rotation of the jacket within its seat in the shot gun barrel alters the angle of the axis of the rifle barrel to the line of the sights, which alteration may be regulated until exact parallelism is secured.

In the drawings, Figure I, is a vertical sectional view of a portion of a shot gun having a simple form of my transformer applied to it.

Fig. II, is a horizontal sectional view of the same.

Fig. III, is an elevational view showing the appearance of the breech of the shot gun with transformers inserted one in each barrel.

Figs. IV and V, are vertical and horizontal sectional views of a part of a shot gun fitted with transformers of a different form.

Fig. VI, is a cross sectional view along the line VI, VI, of Figs. IV, and V.

Fig. VII, is a view of the breech of the shot gun with the transformer inserted.

Figs. VIII, IX, and X, are detail views of parts of the transformer.

Referring to the transformer which is illustrated in Figs. I, II, and III, it will be observed that each transformer consists of a jacket 1, having about the size and shape

of an ordinary shot gun shell. I find that it is convenient to manufacture this jacket of aluminum which is light and strong and to which the shot gun barrel may be very accurately fitted. Within the jacket 1, is mounted the small rifle barrel 2, the breech portion of the rifle barrel being firmly embedded within the jacket.

The rifle barrel 2, is not concentric with the axis of the jacket 1, but is so inserted that the axis of the rifle barrel is in angular relation to that of the jacket, the extent of this angularity is comparatively small, but is sufficient to compensate for the angular relation which exists between the axis of that part of the shot gun barrel, within which the jacket is seated (in this case the chamber 5), and the line of the sights of the shot gun, so that when the transformer is properly inserted in place within the shot gun barrel the axis of the rifle barrel is truly parallel to the line of the sights, although the axis of the shot gun barrel is not so parallel.

Not only is there this angular relation between the rifle barrel and the jacket, but the rifle barrel is eccentrically placed in relation to the jacket as seen in Figs. II, and III. The extent of this eccentricity may vary, but it is desirable to arrange it so that the rim of a rim-fire cartridge inserted within the breech of the rifle barrel will be situated about the center of the jacket as seen in Fig. III. Thus the firing pin 3, of the shot gun, the position of which is indicated in dotted lines in Fig. III, when driven forward by the hammer will strike upon the rim of the rim-fire rifle cartridge inserted in the transformer.

As heretofore explained, a fine adjustment of the parallelism of the rifle barrel to the line of sights of the shot gun may be secured by a slight rotation of the jacket of the transformer within the shot gun barrel.

In the transformer thus described no special provision is made for ejecting the exploded rifle cartridge from the breech of the transformer. As a convenient method of accomplishing this, I provide the muzzle end of the rifle barrel with a small flaring bell 4, which operates as a guide so that a small wire ram rod may conveniently be used to drive the rifle cartridge from its seat.

In Figs. V, to X, of the drawings, I have illustrated a different variety of transformer, which is provided with its own cartridge ejector. In this case, the jacket 6, instead of being made as a cylinder is made up of a series of collars 10, for the sake of lightness. The rifle barrel 7, is mounted in the jacket as explained in the previous form of my invention, which I have described, but the transformer is provided with a supplemental ejector 8, consisting of a segment of the facing disk of the jacket which slides upon pins 9, 9, in parallel relation to its axis. The rim of this sliding piece has a flange 11, which overlies the shot gun ejector so that the latter operates the former. A portion of the inside edge of the ejector is also furnished with a flange 12, which operates as the ejector for the smaller orifice at the breech of the rifle barrel, whereby it ejects a cartridge which the rifle barrel may contain.

In order that the ejector may operate properly and not when it sticks withdraw the transformer from its seat within the shot gun barrel, I provide a split expansion ring whereby the jacket of the transformer may be locked in place within the rifle barrel. This consists of a split grooved ring 19, shown in Fig. IX, with a surrounding elastic clamping ring 20, (Fig. X), seated within the groove. A screw 21, with a conical point 22, is contained within a screw threaded aperture 23, cut in certain of the collars of the transformer. When screwed into place the conical point of the screw separates the split portions of the ring 19, their split edges being beveled to receive the conical point of the screw. By this wedging action, the turning of the screw expands the split ring and binds the transformer firmly in place in the barrel.

It will be understood that I do not limit myself to the shape of the jacket, or the method of holding it in place in a shot gun barrel, nor to the use of the ejector, which depends upon the choice of the user. The form of my invention as I have above described it may be considerably modified without departing from the principle of my invention.

Having thus described my invention, I claim:

1. The combination with a shot gun including a barrel, said barrel being counterbored at its rear end to form a cartridge receiving seat, and a shoulder spaced from the outer end of said counterbore, of a jacket fitting in said seat and retained against outward movement by said shoulder, a rifle barrel extending through said jacket from end to end thereof and outwardly into said barrel of the shot gun, said rifle barrel at its outer end being free from contact with said shot gun barrel.

2. A transformer for a shot-gun barrel, comprising a jacket capable of fitting within said barrel, a rifle-barrel seated within said jacket, said jacket being formed with circumferential groove, a split ring in said groove, and means adapted to expand said ring against the gun barrel to lock the rifle barrel against movement.

3. A transformer for a shot gun barrel, comprising a jacket capable of fitting within said barrel, a rifle-barrel seated within said jacket, said jacket being formed with circumferential groove, a split ring in said groove and a longitudinally movable means

operating in said jacket to expand said ring against the gun barrel to lock the rifle barrel against movement.

4. A transformer for a shot-gun barrel, comprising a jacket capable of fitting within said barrel, a rifle-barrel seated within said jacket, said jacket being formed with circumferential groove, a split ring in said groove and formed in its periphery with a washer-receiving seat, a split washer in said seat, and a screw mounted longitudinally in said jacket for engaging the ends of said ring to expand the latter and cause the washer to engage the gun barrel to lock the rifle barrel against movement.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this seventh day of August, 1912.

MITCHELL G. ROSENGARTEN.

Witnesses:
JAMES H. BELL,
AGNES REID.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."