

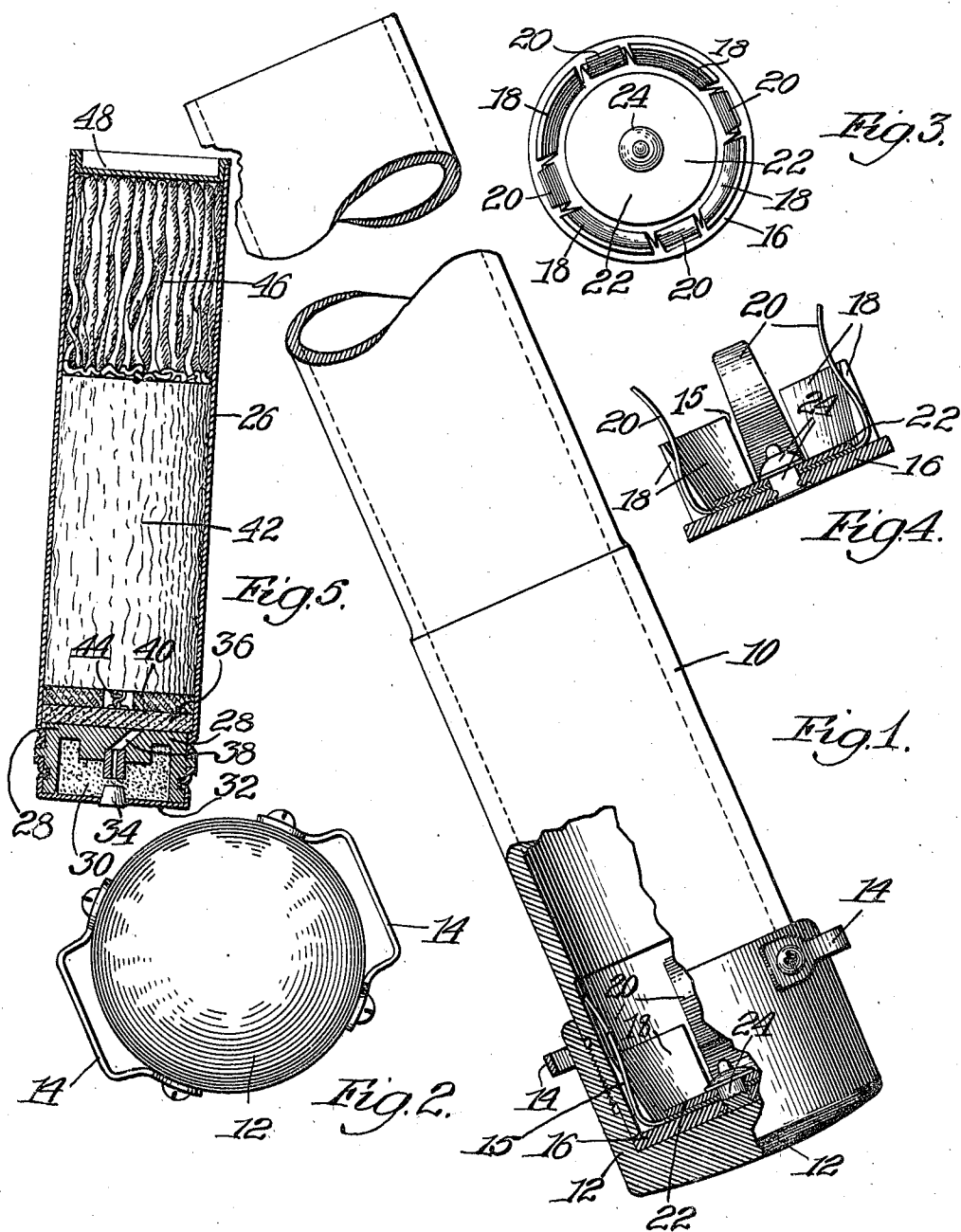
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A. C. DUNN

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FLARE GUN

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INVENTOR:
Andrew C. Dunn,
BY *Dawson, Combs & Booth,*
ATTORNEY.

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FLARE GUN

Andrew C. Dunn, Chicago, Ill.

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5 Claims. (Cl. 89—1)

This invention relates to flare guns and more particularly to a gun for firing flares or the like by impact of the gun against a solid surface.

One of the objects of the invention is to provide a gun of this character in which the projectile is yieldingly held in the barrel against unintentional displacement during handling of the gun to produce impact.

Another object of the invention is to provide a gun of this character in which jamming of the projectile or a portion thereof within the gun is prevented.

These objects and other objects, advantages and novel features of the invention will be apparent from the following description of the embodiment shown in the accompanying drawing, in which:

Figure 1 is a side elevation with parts in section of a gun embodying the invention;

Figure 2 is an end view of the gun, looking from the bottom of Figure 1;

Figure 3 is a top plan view of the firing pin assembly;

Figure 4 is a section of the firing pin assembly; and

Figure 5 is a sectional view of one type of projectile for use with the gun.

As shown, the gun comprises an elongated cylindrical barrel 10, open at one end and closed at its opposite end by a cap 12, screw-threaded to the barrel. The cap 12 may carry metal strips 14 for receiving a strap or the like, by which the gun may be carried. The cap 12 supports at the end of the gun barrel a firing pin assembly comprising a plate 16 fitting over the end of the gun and having a plurality of spaced circumferential guide flanges 18 lying within the gun adjacent the side wall of the barrel. The guide flanges 18 are tapered upwardly to provide an inverted conical surface for a purpose which will appear hereinafter. Between the flanges 18, there are provided a plurality of leaf springs 20 extending axially of the barrel and bowed inwardly intermediate the ends. As best seen in Figures 1 and 4, the leaf springs extend beyond the guide flanges with their minimum diameter just below the upper edge of the guide flanges. The leaf springs are secured to the plate 16 by a second plate 22, held in place by a firing pin 24, which is swaged or otherwise secured to the plate 16.

Figure 5 illustrates one type of flare for use with the gun as comprising an outer cylindrical shell 26 of a size to slip into the barrel 10, and closed at its lower end by a cap 28. The cap is

hollowed out on its lower surface to receive a charge of powder, indicated at 30, which is held in place by a shell 32, fitting over the closure 28. A detonator cap 34 is carried by the shell 32 to fire the powder charge 30. A second powder charge 36 is placed above the cap 28, within the shell 26, and communicates with the powder charge 30 through a passage 38, forming a time fuse. A wad 40 above the powder charge 36 supports a flare 42, having a fuse 44 extending through a central opening in the wad and connected at its upper end to a parachute 46, held in the shell by a friction cap 48.

In operating the gun, a flare cartridge is dropped into the open end of the barrel and falls downwardly therein until the springs 20 engage its lower portion. These springs yieldingly grip the cartridge and support it above the firing pin, yieldingly holding it against movement in either direction. With a cartridge in the barrel, the gun may be brought down forcibly against the ground, so that the momentum of the cartridge will force it past the springs 20 and force the detonator cap 34 against the firing pin 24 with sufficient impact to fire the detonator cap. This operation ignites the powder charge 30, and at the same time ignites the time fuse mechanism 38, the powder charge 30 exploding with sufficient force to blow the shell 32 from the end of the flare and to force the flare out through the barrel. After the flare travels upwardly a sufficient time for the time fuse mechanism 38 to function, the charge 36 will be ignited to blow the flare and parachute from the end of the shell 26. At the same time, the flare will be ignited and will float down on the parachute.

The shell 32 which is left in the gun will be prevented from jamming or sticking in the lower end thereof by the tapered guide surfaces 18, so that it may be removed from the gun simply by inverting the barrel. It will be noted that this surface is so arranged with respect to the springs 20 that the shell can be removed from the gun without being held therein by the springs.

While the gun has been particularly described with reference to flares, it will be understood that various other types of projectiles might be fired therefrom, and that various changes in the structure as shown in the drawing might be made without departing from the spirit of the invention. Reference will therefore be had to the appended claims to determine the scope of the invention.

What is claimed is:

1. A gun for firing flares or the like compris-

ing a barrel closed at one end, a firing pin carried by the closed end of the barrel, and a leaf spring secured to the barrel and lying adjacent the side thereof and curved intermediate its ends toward the axis of the barrel yieldingly to support a projectile above the firing pin.

2. A gun for firing flares or the like comprising a barrel closed at one end, a firing pin carried by the closed end of the barrel, and a plurality of leaf springs carried by the closed end of the barrel and extending along the interior wall thereof, said leaf springs being bowed inwardly intermediate their ends yieldingly to support a projectile above the firing pin.

3. A gun for firing flares or the like comprising a barrel closed at one end, a firing pin carried by the closed end of the barrel, guide means around the firing pin forming an outwardly flared surface adjacent the walls of the barrel, and yielding means secured to the barrel and lying adjacent the side thereof above the guide means yieldingly to support a projectile above the firing pin.

4. A gun for firing flares or the like comprising

ing a barrel closed at one end, a firing pin carried by the closed end of the barrel, guide means around the firing pin forming an outwardly flared surface adjacent the walls of the barrel, and a plurality of leaf springs around the firing pin, secured to the barrel lying adjacent the side thereof and extending axially of the barrel, adjacent the wall thereof to a point beyond said guide means, said leaf springs being curved inwardly intermediate their ends yieldingly to support a projectile above the firing pin.

5. A gun for firing flares or the like comprising a barrel, a firing pin assembly fitting in one end of the barrel and including a plate extending across the barrel and a plurality of circumferentially spaced guide flanges tapered upwardly and lying adjacent the wall of the barrel, a plurality of leaf springs carried by the firing pin assembly and extending axially of the barrel between said guide flanges, said springs being curved inwardly intermediate their ends, and means for securing said firing pin assembly in place on the barrel.

ANDREW C. DUNN.