May 31, 1932. A. M. DE MINNO ET AL 1,860,611

TOY-RAPID FIRE GUN

Filed June 18, 1931 2 Sheets-Sheet 1

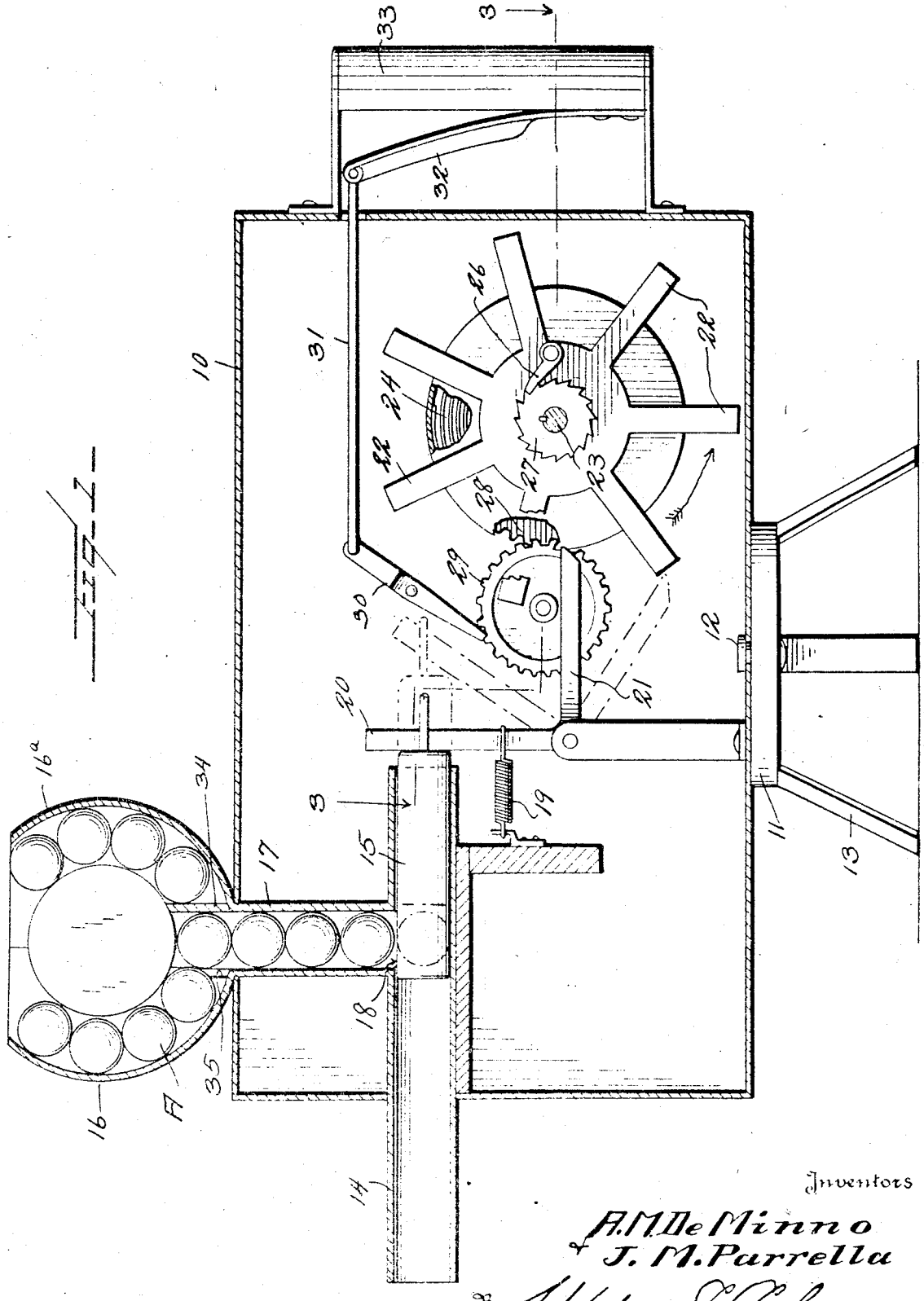


Fig. 1

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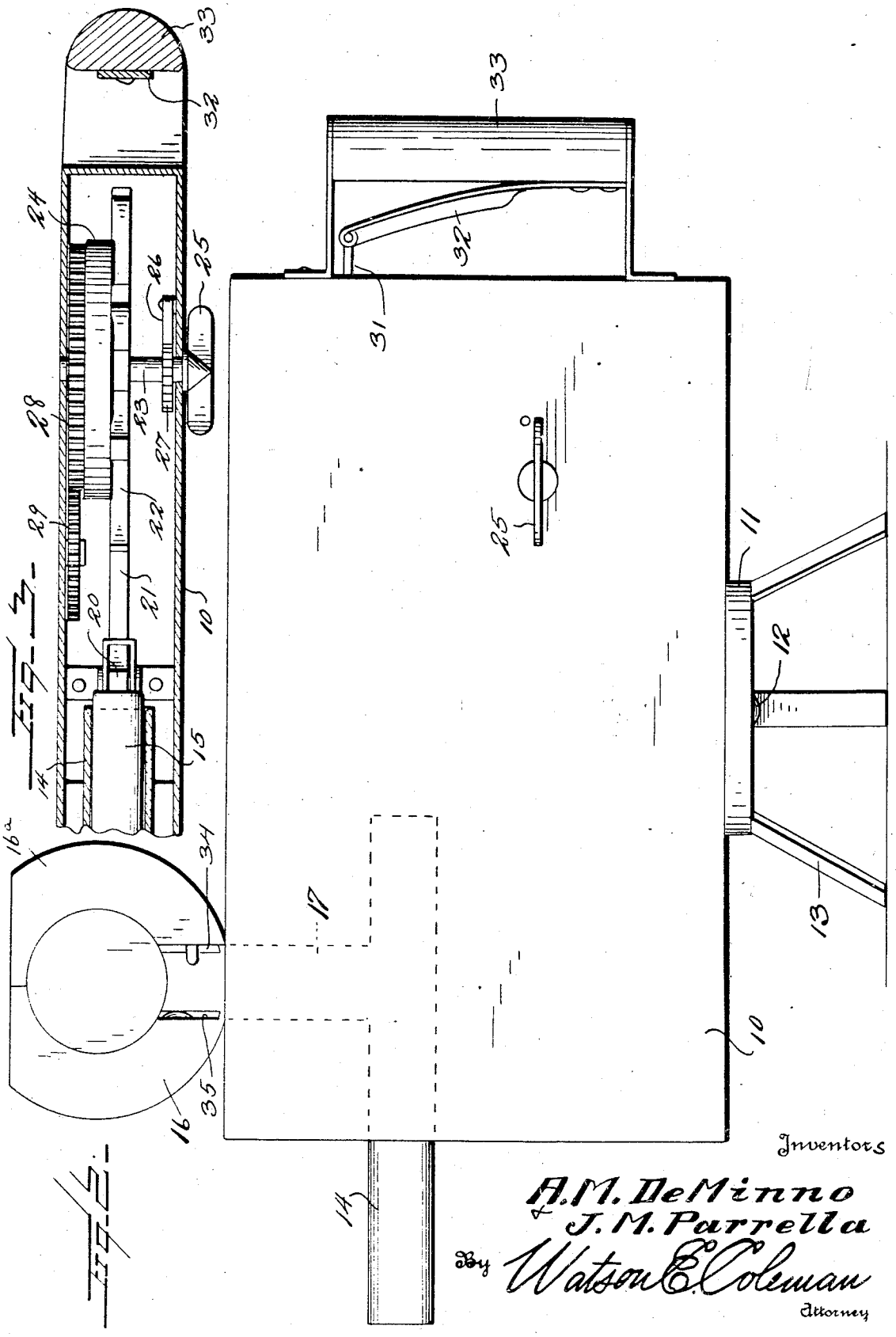


Fig. 3.

Fig. 4.

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UNITED STATES PATENT OFFICE

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TOY RAPID-FIRE GUN

Application filed June 18, 1931. Serial No. 545,283.

This invention relates to toy guns and particularly to toy magazine guns adapted to discharge marbles, small shot or the like and the general object is to provide a very simple, readily operated magazine gun of this character in which a spring actuated plunger discharges the projectile from the barrel of the gun.

A further object is to provide a device of this character in which a coiled spring acts as a motor causing, when the trigger is pulled, a continuous discharge of the projectiles until the trigger is again released.

Other objects will appear in the course of the following description.

Our invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal section through our toy gun;

Figure 2 is an elevation thereof;

Figure 3 is a section on the line 3—3 of Figure 1.

Referring to these drawings, 10 designates the frame of the gun and 11 a tripod upon which the gun is mounted, the frame 10 being adapted to be rotated upon the tripod on a pivot 12. The tripod has the legs 13.

Projecting from the frame of the gun is the barrel 14 within which operates the plunger 15. Mounted upon the frame of the gun and disposed above the frame of the barrel is the magazine 16 which may be of any suitable form and is shown as a semi-circular member having an opening in its upper end and at its lower end connected by a vertically disposed duct 17 to the barrel. This duct 17 opens into the barrel at 18 just in advance of the plunger 15 when the latter is fully retracted. When the plunger is projected, it ejects the projectile A which happens to be in front of the plunger and, of course, cuts off the opening 18. As soon as the plunger is retracted, however, another projectile will be automatically discharged into the barrel.

For the purpose of projecting the plunger 15, we provide a spring 19 engaged with one arm 20 of a bell crank lever. This arm 20 in turn is engaged with the plunger 15. Normally the spring 19 will hold the plunger 15 projected across the opening 18.

The arm 21 of the bell crank lever extends rearward and into position to be struck by a plurality of tappet arms 22 mounted upon a shaft 23. This shaft is adapted to be driven in a counter-clockwise direction by means of a spring motor 24 of any suitable character but shown as an ordinary clock spring. The spring is adapted to be wound up by the key 25 engaging the shaft of the spring motor and the spring is held from unwinding by the pawl 26 engaging the ratchet 27.

Driven from the shaft 23 by means of a gear wheel 28 is a gear wheel 29 which is held from rotation by means of a pawl 30. This pawl is connected by a wire or rod 31 with a spring trigger 32 attached to a rearwardly projecting handle 33 into which the fingers may be inserted, this handle being spaced from the rear end of the housing or frame 10 for this purpose. When the finger is inserted within this space and the trigger retracted, the gear wheel 29 is released. This permits the motor to act to rotate the tappet arms 22 and as these tappet arms rotate, they intermittently strike the arm 21 of the bell crank lever and as they do so retract the upwardly extending arm 20 and retract and then release the plunger. The plunger projected forward by the spring 19 strikes the projectile A and projects it from the barrel.

So long as the trigger 32 is retracted, the spring motor 24 will act to cause the ejection of the projectiles from the barrel. As soon as the trigger 32 is released, however, the pawl 30 will stop the rotation of the shaft 23 and thus stop the ejection of the projectile.

While we do not wish to be limited to any particular construction for the magazine, we have shown opposed semicircular portions 16 and 16ª. The portion 16ª is separated from the portion 16 by means of a slide 34 and when the projectiles have been exhausted from the duct 16, the slide 34 is withdrawn from the end of the duct 16ª and inserted in a slot 35 at the end of the duct 16 so that the duct 16ª then becomes effective as the magazine. As before stated, this is one form

of magazine, but we do not wish to be limited to this except as defined in the claim.

Neither do we wish to be limited to the exact details of construction as these might be varied in many ways without departing from the spirit of the invention as defined in the appended claim.

We claim:—

A toy rapid-fire gun of the character described comprising a supporting frame, a barrel carried thereby, the barrel being open at its rear end, a plunger mounted within the rear end of the barrel, a magazine discharging into the barrel just forward of the plunger when the latter is fully retracted, a bell crank lever mounted on the frame and having an upwardly extending arm operatively connected to the plunger, a spring urging the upper end of the bell crank lever forward to project the plunger, a shaft, tappet arms carried thereby and adapted as the shaft is rotated to strike the rearwardly projecting arm of the bell crank lever to thereby retract the plunger and then release it, a spring motor connected to said shaft, means for winding up the spring motor, a toothed wheel driven by the spring motor, a pawl engaging the toothed wheel and normally preventing rotation of the wheel and the actuation of the spring motor, a handle mounted upon the rear end of the frame but spaced therefrom, a resilient trigger mounted upon the inside of the handle, and a connection between said trigger and said pawl.

In testimony whereof we hereunto affix our signatures.

ANTHONY M. DE MINNO.
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