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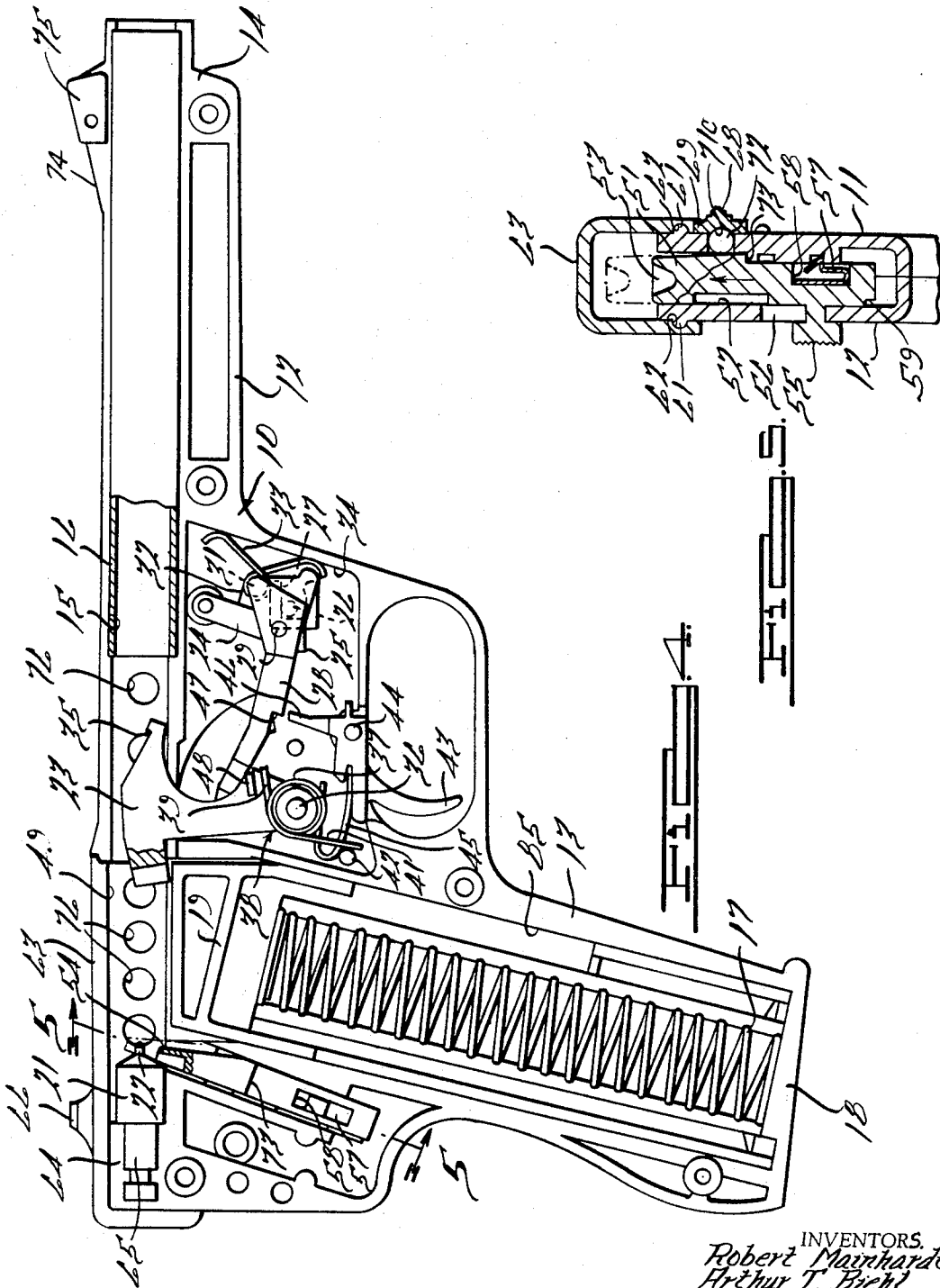
A. T. BIEHL ET AL

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PISTOL FOR FIRING A MINIATURE BALLISTIC ROCKET

Filed June 27, 1966

3 Sheets-Sheet 2



INVENTORS,
Robert Mairhardt,
Arthur T. Biehl
BY
Harness, Dickey & Rine
ATTORNEYS.

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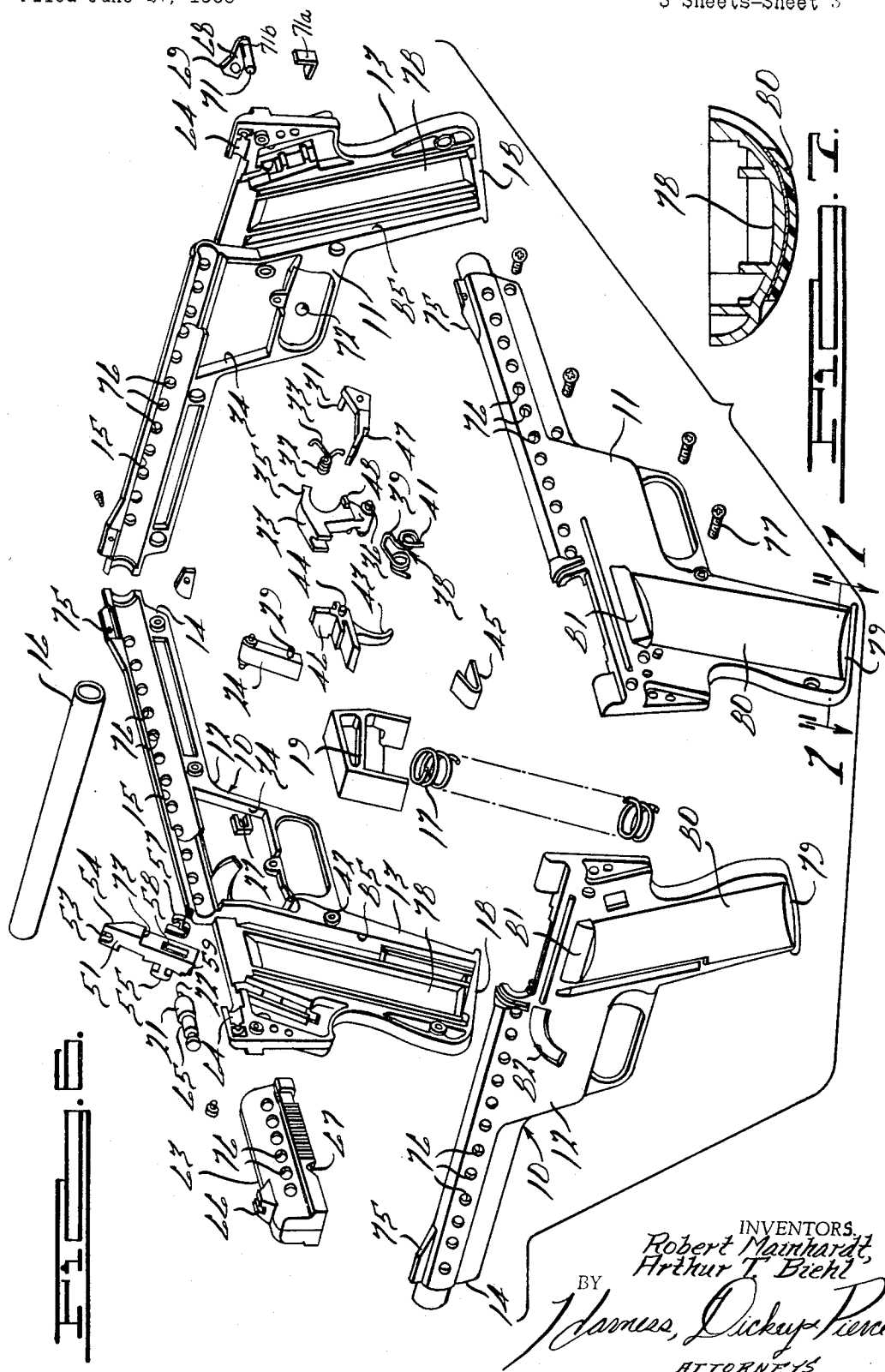
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1

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PISTOL FOR FIRING A MINIATURE BALLISTIC ROCKET

Arthur T. Biehl and Robert Mainhardt, Diablo, Calif., assignors to MB Associates, a corporation of California
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ABSTRACT OF THE DISCLOSURE

This invention relates to a pistol which ignites and initially restrains a miniature ballistic rocket before leaving the firing chamber in a slide at the rear end of the pistol having a fixed firing pin therein.

The present pistol is an improvement over that illustrated, described and claimed in Patent No. 3,212,402 of Oct. 19, 1965, to Matthew C. Hengel which was assigned to the assignee of the present invention.

The pistol has a receiver made of two mating parts on and between which the various elements are assembled. A slide is provided on the rear top of the receiver which is movable rearwardly so that the miniature ballistic rockets may be moved downwardly into the magazine cavity in the handle against a spring. The spring moves the rockets seriatim into the slide after each firing or upon the movement of the hammer to cocking position. A safety slide is provided in the handle section which is movable upwardly over the firing point of the firing pin to prevent the accidental ignition of a rocket should it be moved backwardly toward the firing pin point. The safety slide carries a spring which locks the slide in safety position. The slide on the frame is latched in forward position by a spring pressed finger which is automatically moved within a notch in one edge of the slide when the slide is moved forwardly.

A pivoted spring pressed pawl has an edge in the form of a sear located in a position to be engaged by a notch in the hammer when the hammer is swung downwardly to cocked position. The hammer spring is further compressed as the hammer is moved out of the path of the projectile. A link connects the pawl to the trigger by a notch which is engaged by a finger on the trigger. When the trigger is pulled the finger pushes the lever toward the pawl and thereby swings the pawl away from the hammer to have the sear edge move out of the hammer notch and permit the spring to swing the hammer upwardly to strike a rocket in the slide chamber and move it toward the firing pin. The end of the firing pin is struck by the cap at the base of the rocket and the fuel thereof becomes ignited. The spring retains the hammer in the path of movement of the rocket until a force is built up by the rocket sufficient to swing the hammer out of its path into latched, cocked position as the rocket travels forward through the barrel and out the muzzle thereof.

Accordingly, the main objects of the invention are: to provide a rocket pistol with a slide which is movable rearwardly to expose the elevator for rockets located within the handle and which is movable downwardly therein against a spring; to provide a safety slide between the firing pin and projectile which is movable upwardly to cover the end of the firing pin where it is latched by a spring finger; to provide a frame for a rocket pistol which is made of two parts of cast material with a cylindrical barrel of a hard metal fixed to one-half portion of the frame; to provide a pivoted pawl within the one-half of the frame which is spring pressed toward the hammer and limited in its outward movement to a position of engagement with a notch on the end of the

2

hammer from which it is released by a lever engaged with a finger on a trigger when the trigger is pulled to move the lever and pawl away from the hammer, and in general, to provide a rocket pistol which is simple in construction, positive in operation and economical of manufacture.

Other objects and features of novelty of the invention will be specifically pointed out or will become apparent when referring, for a better understanding of the invention, to the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a left-hand side view in elevation of a rocket pistol embodying features of the present invention;

FIG. 2 is a right-hand view of the rocket pistol illustrated in FIG. 1;

FIG. 3 is a broken view of the structure illustrated in FIG. 2, showing the slide in open position;

FIG. 4 is an enlarged view of the inside of the section of the frame illustrated in FIG. 2 with parts in section;

FIG. 5 is a sectional view with the structure illustrated in FIG. 4, taken on the line 5—5 therein;

FIG. 6 is an exploded view showing all of the components employed in the pistol illustrated in FIGS. 1 to 5, and

FIG. 7 is a sectional view of the handle of a frame half illustrated in FIG. 6, taken on the line 7—7 thereof.

The pistol has a frame 10 made of two halves 11 and 12. It will be noted in the exploded view of FIG. 6 that the two halves of the frame 11 and 12 are shown as outside and inside views. The frame has a downwardly extending handle section 13 and a forwardly extending barrel section 14. The two frame halves 11 and 12 are made of cast material which may be plastic, white metal and the like. The barrel section 14 has a recess section 15 in which a tube of hard material, such as stainless steel, is bonded with a plastic or other suitable bonding material. The handle sections 13 contain a coil spring 17, having one end abutting the base plate 18 and the upper end engaged with a magazine follower 19. The frame half 12 has recesses to receive and support a firing pin 21 in axial alignment with the tube 16 with its firing point 22 disposed adjacent to the follower 19. The frame also carries one of the pintles of a hammer 23, a swingable pawl 24 having an edge 25, which forms a sear and a finger 26 that is disposed within a slot 27 in the frame half.

A trigger link 28 is secured on a pivot 29 of the pawl 24 to swing forwardly and backwardly therewith, the link having a stud 31 which receives the coil spring 32, the ends 33 of which are in engagement with the inner face 34 of the frame half 12. The spring urges the link 28 and pawl 24 toward the hammer 23 in position to have the sear 25 engage a notch 35 on the hammer end to latch the hammer in cocked position out of the path of movement of the rocket. The hammer 23 is mounted on a pivot 36 and a coil 37 of a spring 38 is mounted about the pivot on each side of the hammer. A U-shaped portion 39 joins the two coils 37 and engages the rear of the hammer to have it swing counterclockwise to strike the end of a rocket when released. The pair of legs 41 of the spring 38 bear against a pin 42 on the frame half 12. A trigger 43 is mounted on a pivot 44 on the frame half 12 and is urged counterclockwise by a U-shaped spring 45 of flat material. A finger 46 extends upwardly on the trigger in a position to engage a notch 47 on the under face of the link 28 which occurs when the hammer is swung clockwise to have the notch 35 engage the sear 25. The link 28 is urged counterclockwise by the spring 32 which movement is limited by a boss 48 on the hammer which moves out of engagement with the link when the ham-

mer is cocked permitting the notch 47 to move downwardly where it is engaged by the finger 46 of the trigger.

By pulling the trigger rearwardly, the finger 46 moves forwardly, moving the link 28 forwardly therewith and thereby moving the sear 25 from the notch 35 to permit the hammer to be swung counterclockwise into the firing position illustrated in FIG. 4. Such movement moves the rocket in the chamber 49 within the slide to the rear to have its cap strike the point 22 of the firing pin 21. The firing of the cap and the ignition of the propellant builds up a force rearwardly of the rocket which is retained from movement by the hammer 23 which remains in engagement therewith. The rocket is held in this manner until sufficient pressure has been built up to have the projectile move forwardly and cause the clockwise rotation of the hammer into latched position. When this has occurred, the next adjacent rocket within the handle magazine is moved upwardly into the chamber 49 in position to be fired upon the next actuation of the trigger 23.

Since in normal operation the point 22 of the firing pin 21 is always directly adjacent to the cap on the rocket within the slide, a safety element 51 is mounted in a slide-way 52 which directs a cavity end 53 over the point 22 to present a flat face 54 to the butt end of the rocket which is out of engagement with the cap carried thereby. The element 51 has a knurled knob 55 which extends through a slot 56 in the receiver half 12 which when moved upwardly moves the cavity end 53 of the safety element 51 upwardly to extend over the point 22 of the firing pin 21. A flat U-shaped spring 57 disposed in a recess 58 in the element 51 urges the elements to the left, as viewed in FIG. 5. This movement causes a notch 59 on the bottom left-hand corner of the element to move over the top of the bottom edge of the slot 56 and thereby lock the element against downward movement.

The rear end of the top edge of the two halves 11 and 12 of the frame 10 have projections 61 received by recesses 62 in a slide 63 which is aligned with the barrel 16 of the pistol. The slide covers the metal portion 64 in the two halves of the frame which receive and support the rearwardly projecting end 65 of the firing pin 21. As illustrated in FIGS. 2 and 3, the slide carries the rear partridge type sight 66 and has a notch 67 at the bottom edge of its right-hand wall. A latch 68 having a projecting finger 69 is supported on a shaft extension 71 located in an aperture in the frame element 11. A flat spring 71a extends through a slot 71b in the body of the shaft extension 71 for biasing the finger 68 upwardly toward the slide notch. When the slide is pushed forward to have the front end engage the barrel end of the pistol, the finger 69 is urged within the notch 67 to latch the slide in forward position. The latch 68 has a ball recess 71c containing a ball 72 which is retained in the recess by the safety element 51 to securely lock the slide 63 from being opened when the safety element 51 is in "Off" position. It will be noticed in FIG. 5 that the ball 72 is released to permit the latch 68 to be released from the notch 67 when the element 51 is moved upwardly into safety position. In this position a recessed portion 73 is opposite to the ball 72 permitting the ball to move to the left out of the ball recess 71c. To move the safety element 51 downwardly out of safe position, the latch 68 must be moved upwardly in latched position to permit the ball 72 to move into the recess 71c as it moves out of the recess 73 upon the downward path of the element 51.

A sight ramp 74 is provided on the top forward barrel walls for receiving therebetween the front sight 75 which is aligned with the square notch in the sight 66 on the slide when secured by a set screw 70. It will be noted the slide 63 and barrel portions have apertures 76 in side walls to permit the escape of the hot gases. A plurality of screws 77 connect the two halves 11 and 12 of the receiver together in firm fixed relation to each other. Each handle section 13 is enclosed by wall portions 78 which are arcuate in shape having a bottom flange 79

and a top projection 81. Grip elements 80, which may be ivory, wood, plastic, and the like, have internal and external arcuate shapes, the former mating with the arcuate wall of the handle sections to which they are secured by a suitable adhesive and protected by the extending flange 79 and top projection 81.

It will be noted in FIG. 1 that an arcuate slot 82 is provided in the wall of the frame half 12 through which a finger 83 on the hammer 23 extends to permit the manual operation of the hammer to latched position. The magazine followers similarly has a projection 84 which operates in a slot 85 in the handle section of the frame half 12 to permit the follower 19 to be moved downwardly to assist in the loading while providing visible indication of how many rockets remain within the handle.

When the pistol is prepared for firing, the safety slide 51 is moved upwardly to release the ball 72 and permit the latch 68 to pivot downwardly so that the slide 63 can be drawn to the rear and expose the magazine follower on which the miniature rockets are placed and moved downwardly to tension the spring 17 against the butt end of the handle section. After the magazine is filled, the slide 63 is moved forwardly to retain the topmost rocket within the chamber 49 thereof. Upon the forward movement of the slide the finger 69 of the latch 68 engages the notch 67 to retain the slide in forward position. The hammer 23 had been cocked to clear the area above the magazine follower.

To fire the weapon, the safety element 51 must be moved downwardly and in doing so, the ball 72 is moved into the recess 71c of the latch element 68 to thereby lock the slide 63 in forward position. Since the hammer is cocked by the clockwise movement imparted thereto by the projectile as it moves forwardly, it is only necessary to repeat the pulling of the trigger to fire all of the rockets contained within the magazine in the handle section. The pistol embodies desirable safety features and is capable of rapid fire, being constructed of a minimum number of rugged parts that are very durable and very cheap to manufacture.

What is claimed is:

1. In a pistol for firing a miniature rocket, a frame having a handle section forming a magazine for the rockets, a barrel from which a rocket is directed, a fixed firing pin carried by the frame beyond the rear end of the barrel and rearward of the rockets in the magazine, means mounted in the frame and movable to a position which prevents the firing pin from being engaged by a rocket, and a slide in extension of the rear of the barrel which uncovers the magazine and which forms a chamber in which the rocket is fired.

2. In a rocket pistol as recited in claim 1, wherein latch means are provided for locking the slide in its closed position, and locking means provided for the latch means which prevent its release so long as the firing pin is unprotected by said mounted means.

3. A rocket pistol as recited in claim 1, wherein a hammer, trigger and a swingable pawl are pivotally mounted within the frame, the pawl having a sear for receiving a notch in the hammer, and a link pivotable on the pawl and movable backward and forward as the pawl swings, said link having a notch which is engaged by the trigger, the hammer being released when the trigger is pulled and the link moved forwardly away from the hammer to swing the pawl forwardly and separate the sear from the notch of the hammer.

4. In a rocket pistol as recited in claim 3, wherein the movement of the rocket from the pistol rotates the notch of the hammer into engagement with the sear and moves the notch of the link forwardly and downwardly into engagement with the trigger to cock the hammer.

5. In a rocket pistol as recited in claim 3, wherein a projection is provided on the hammer and the frame has an arcuate slot struck on a radius from the hammer pivot

into which the projection extends for manually cocking the hammer.

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BENJAMIN A. BORCHELT, *Primary Examiner.*