

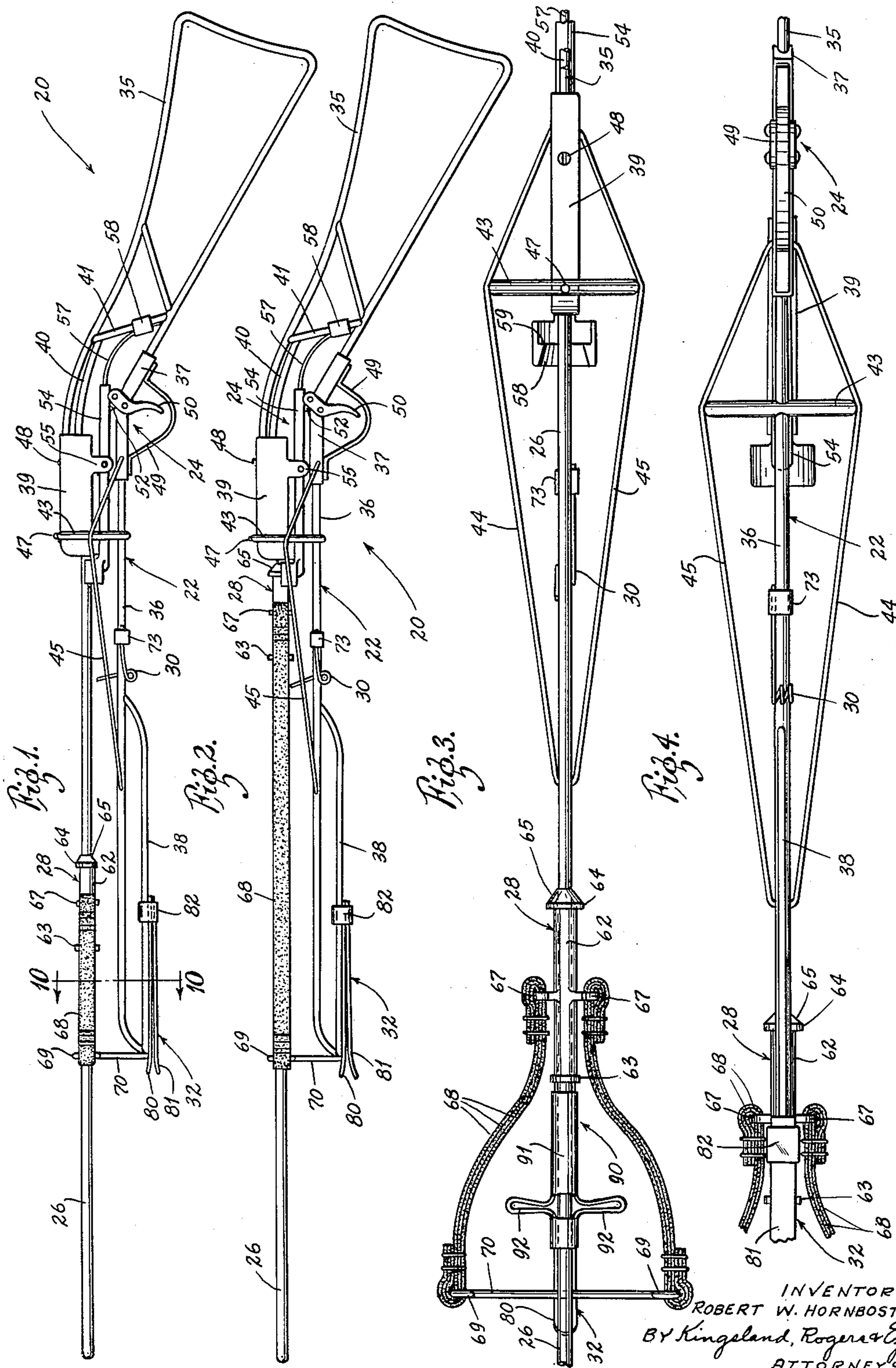
Aug. 8, 1961

R. W. HORNOSTEL
SHOULDER MISSILE LAUNCHER

2,995,128

Filed May 14, 1958

2 Sheets-Sheet 1



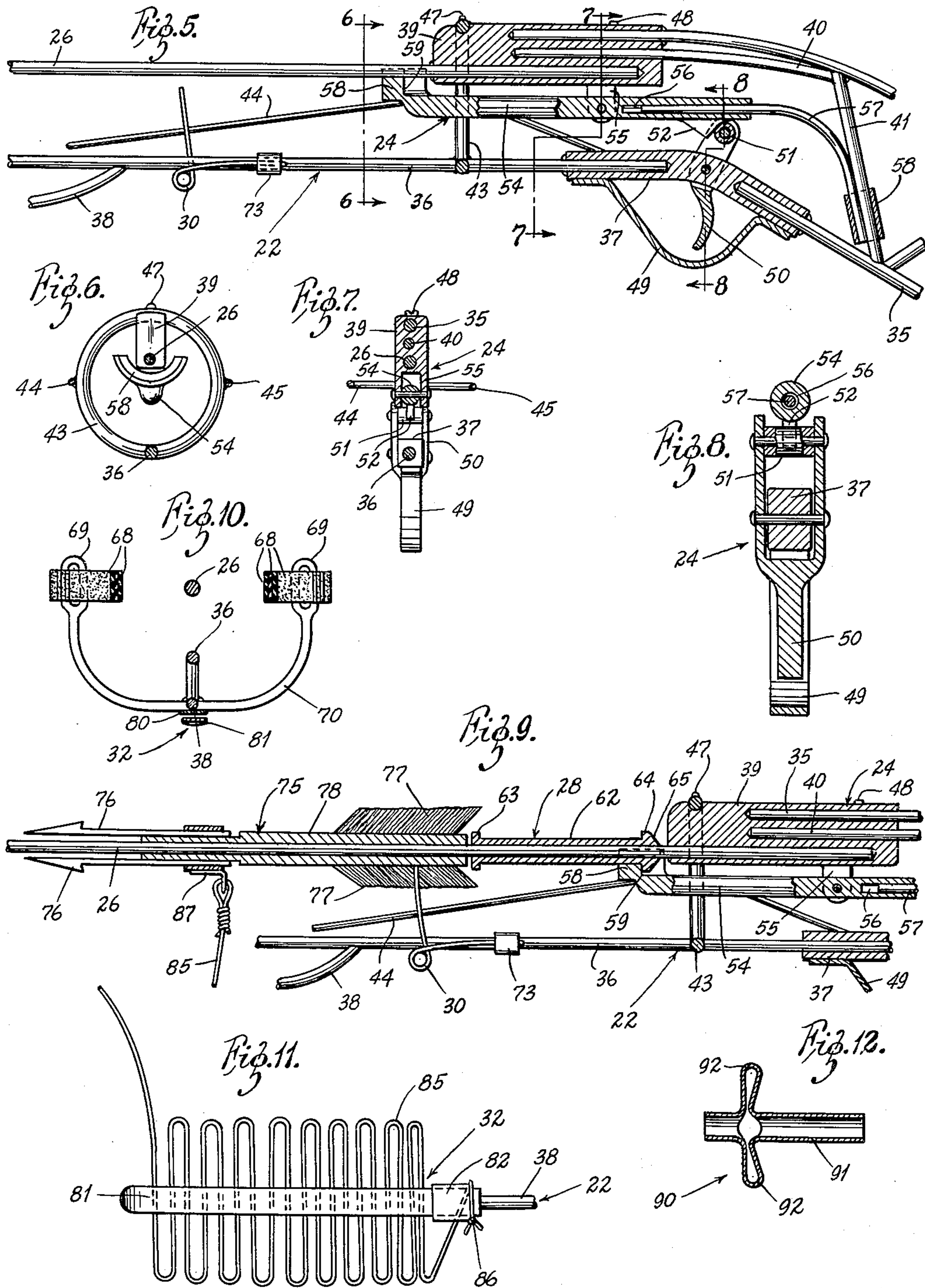
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2 Sheets-Sheet 2



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SHOULDER MISSILE LAUNCHER
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The present invention relates generally to missile launchers, and more particularly to a shoulder missile launcher powered by an elastic material which is capable of launching missiles of various forms and for many uses.

In brief, the present novel shoulder missile launcher comprises a supporting frame on which are mounted a trigger unit, a missile launching rod, a missile launching unit, a missile retainer, and a cord holder. The launching unit includes a sleeve member mounted on the launching rod which is powered by heavy rubber bands. Various forms of missiles can be launched by the present invention.

An object of the present invention is to provide a novel shoulder missile launcher capable of discharging a selected missile at high speed.

Another object is to provide a novel shoulder missile launcher incorporating a simplified missile launching device.

Another object is to provide a novel shoulder missile launcher which incorporates an improved simple trigger construction for releasing the launching device.

Another object is to provide a novel shoulder missile launcher which is formed to receive missiles upon a shaft or rod for subsequent discharge therealong to place the same in effective flight.

Another object is to provide a novel shoulder missile launcher which is extremely simplified in overall construction, yet which sacrifices none of the required power and accuracy of launching a missile.

Other objects are to provide a novel shoulder missile launcher which can be effectively used without extensive instruction and practice, which can be employed for many purposes, as fishing, rodent hunting, target practice, etc., which is sturdy of construction, which can be manufactured relatively inexpensively, and which otherwise fulfills the objects and advantages sought therefor.

The foregoing and other objects and advantages are apparent from the following description taken with the accompanying drawing, in which:

FIGURE 1 is a side elevational view of a shoulder missile launcher incorporating the teachings of the present invention, the missile launching unit being shown in inoperative position;

FIGURE 2 is a side elevational view thereof, the missile launching unit being shown in cocked position;

FIGURE 3 is an enlarged plan view thereof; a portion of the launching rod and a portion of the shoulder piece being omitted for purposes of conservation of space;

FIGURE 4 is an enlarged bottom plan view of the generally same portion of the launcher shown in FIGURE 3;

FIGURE 5 is an enlarged side elevational view, partly in section, of the central portion of the launcher illustrating details thereof;

FIGURE 6 is an enlarged vertical transverse cross-sectional view taken on substantially the line 6—6 of FIGURE 5;

FIGURE 7 is a vertical transverse cross-sectional view taken on substantially the line 7—7 of FIGURE 5;

FIGURE 8 is a vertical transverse cross-sectional view taken on substantially the line 8—8 of FIGURE 5;

FIGURE 9 is an enlarged cross-sectional view through the missile launching unit and related elements, showing the same in cocked or ready position with a missile in operative relation therewith;

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FIGURE 10 is an enlarged vertical cross-sectional view taken on substantially the line 10—10 of FIGURE 1; and

FIGURE 11 is a fragmentary bottom plan view of a portion of the front of the launcher showing a portion of cord in operative position in the cord-holding device; and
FIGURE 12 is a cross-sectional view through a cocking member.

Referring to the drawings more particularly by reference numerals, 20 indicates generally a shoulder missile launcher constructed in accordance with the principles of the present invention. The launcher 20 includes a supporting frame 22, a trigger unit 24, a missile launching rod 26 mounted on the supporting frame, a missile launching unit 28 including a member reciprocally disposed upon the missile launching rod 26, a missile retainer 30 mounted on the frame 22, and a cord holder 32 disposed beneath the frame 22.

The supporting frame 22 includes a shoulder portion 35 of the configuration illustrated, which, in the simplified construction, comprises a heavy wire formed to fit against the shoulder of the user. Extending forwardly from the bottom reach of the shoulder portion 35 is a rod 36 which is secured to the former by a coupling member 37 (FIG. 5). A brace member 38 is welded or otherwise secured to the rod 36 beneath the forward portion thereof. The forward end of the upper reach of the portion 35 is anchored in a block 39. A brace member 40 is also anchored in the block member 39 at the forward end and is welded or otherwise secured to the upper reach of the frame portion 35, as is a brace member 41 (FIG. 5). A circular bracing member 43 is welded or otherwise secured to the block 39 and to the rod 36. Side braces 44 and 45 are welded or otherwise secured to the circular bracing member 43. The side braces 44 and 45 are welded or otherwise secured at the forward ends to the rod 36 and at the rear ends to the coupling member 37. Other bracing elements may be employed if desired. A front sight 47 is secured to the circular bracing member 43 and a rear sight 48 is mounted on the block 39.

The trigger unit 24 is mounted on the supporting frame 22 and includes a trigger 50 of bifurcated form which straddles the coupling member 37 and is pivotally mounted thereon (FIG. 5). A trigger guard 49 is secured to the coupling member 37. Between the bifurcations of the trigger 50 above the connector 37 is rotatably mounted a roller 51 which engages a cam 52 welded or otherwise secured to the lower side of a releasing member 54, generally of shaft form, which is pivotally mounted upon a bracket 55 extending downwardly from the block member 39. The rear end of the releasing member 54 includes a well 56 into which extends one end of a curved spring member 57, the other end of the spring 57 being welded or otherwise secured to a sleeve 58 which is reciprocally mounted upon the brace 41. As is manifest, the spring 57 biases the releasing member 54 into the position shown in FIGURE 5. The forward end of the releasing member 54 is semiannular in form and is disposed beneath and adjacent to the missile launching rod 26, as is clear from FIGURES 5, 6 and 9. The forward end of the releasing member 54 is formed with an arcuate camming surface 58 and an arcuate shoulder 59. It is clear that pivotal movement of the trigger 50 counterclockwise in FIGURE 5 will effect counterclockwise pivotal movement of the releasing member 54. This same counterclockwise pivotal movement of the releasing member 54 will be effected by engagement of the missile launching unit 28 with the camming surface 59, as will appear from the following detailed description of the unit 28.

The missile launching unit 28 includes a sleeve member 62 reciprocally mounted upon the missile launching

rod 26 which has an annular flange 63 at the forward end and an annular flange 64 at the rear end, the latter including a beveled annular nose portion 65 (FIG. 9). Midway of the sleeve member are oppositely extending eye elements 67 formed integral therewith or welded thereto (FIG. 3). Each eye element 67 receives the ends of a plurality of heavy rubber bands 68 or the like, the forward ends of each plurality of bands being secured to the eye portion 69 of a U-shaped member 70 welded or otherwise secured to the forward end of the frame bar 36 (FIGS. 3 and 10). It is clear that the launching unit 28 can be readily moved rearwardly from the position of FIGURE 3 to the position of FIGURE 9 to cock the launcher 20.

The missile retainer 30 comprises a spring element which is clamped to the rod 36 by means of a sleeve 73, being frictionally engaged thereby to permit removal and replacement of the retainer 30 should it become broken or bent in use. In FIGURE 9, the retainer 30 is shown in engagement with a missile 75 disposed upon the launching rod 26 and adjacent to the flange 63 of the sleeve member 62. The particular missile 75 includes two barbed prongs 76 and control feathers 77 mounted upon an elongated sleeve-like body 78. The missile 75 may take any desired form, the configuration depending upon the objective.

The cord holder 32 is best observed in FIGURES 1 and 11, and includes a pair of flat leaf spring members 80 and 81 which are secured by a band 82 to the brace member 38. The flat spring 80 may be welded or otherwise secured to the brace 38 forwardly of the band 82, since the resiliency of the flat spring 81 is adequate for cord retaining purposes. In FIGURE 11, a cord 85 is shown operatively mounted within the cord holder 32, one end being anchored to an eyelet 86 welded or otherwise secured to the ring 82 and the other end being secured to the missile 75 as by an eyelet 87. The cord 85 will play out in the flight of the missile 75 without interference with its trajectory. Captive missiles 75 are useful in fishing, rodent hunting, and the like.

In FIGURES 3 and 12 is shown a cocking member 90, which comprises a sleeve 91 and oppositely extending finger flanges or portions 92.

In use, to cock the launcher 20, the sleeve member 62 is moved rearwardly against the force of the heavy rubber bands 68 by use of the cocking member 90 until the annular flange 64 engages the arcuate shoulder 59. The cocking member 90 is then removed from the rod 26. A missile, such as the missile 75, is moved along the launching rod 26 until adjacent the flange 63 at the forward end of the sleeve member 62. The spring retainer 30 keeps the missile 75 from sliding off the launching rod 26 should the launcher 20 be pointed downwardly.

Thereafter, upon pivotal movement of the trigger 50, the releasing member 54 will be cammed counterclockwise about its pivot to release the sleeve member 62. The rubber bands 68 will power the sleeve member 62 and the missile 75 forwardly along the launching rod 26 to launch the latter.

The multiple separate rubber bands 68 permit ready adjustment and replacement, being tied at the ends in overlapping relation. The side braces 44 and 45 and the rod 36 form a hand support or grasp which will not interfere with the launching unit 28. The launcher 20 is normally aimed by use of the spaced sights 47 and 48 while held at the shoulder.

It is manifest that there has been provided a missile launcher which fulfills the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawings have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. A missile launcher comprising a frame, a trigger pivotally mounted on said frame, a releasing member pivotally mounted on said frame, a roller pivotally mounted on the upper end of said trigger and a cam secured to said releasing member, said roller being in engagement with said cam, spring means biasing said releasing member into one position of movement, a launching rod mounted on said frame, a sleeve member slidably mounted on said launching rod, said releasing member including means releasably engaging said sleeve member in one extreme position of movement of the latter, and power means mounted on said frame and connected to said sleeve member for moving said sleeve member along said launching rod to launch a missile disposed on said launching rod in front of said sleeve member, said power means including two groups of rubber strips, each group being connected at their rear ends to said sleeve member and at their forward ends to a transverse member mounted on said frame, said groups of rubber strips and said transverse member preventing movement of said sleeve member from said launching rod when said missile launcher is discharged.

2. A missile launcher comprising a frame, a trigger pivotally mounted on said frame, a releasing member pivotally mounted on said frame, a roller pivotally mounted on the upper end of said trigger and a cam secured to said releasing member, said roller being in engagement with said cam, a resilient rod member biasing said releasing member into one position of movement, said resilient rod member having one end reciprocally disposed in a well in one end of said releasing member, a sleeve, the other end of said resilient rod member being secured to said sleeve, said sleeve being mounted on a frame member for reciprocation, said resilient rod member being bowed and strongly urging said releasing member into missile retaining position, a launching rod mounted on said frame, a sleeve member slidably mounted on said launching rod, said releasing member including means releasably engaging said sleeve member in one extreme position of movement of the latter, and power means mounted on said frame and connected to said sleeve member for moving said sleeve member along said launching rod to launch a missile disposed on said launching rod in front of said sleeve member.

References Cited in the file of this patent

UNITED STATES PATENTS

| | | |
|-----------|---------------|---------------|
| 213,976 | Coloney | Apr. 8, 1879 |
| 1,133,189 | Shannon | Mar. 23, 1915 |
| 1,164,646 | Heyman et al. | Dec. 21, 1915 |
| 1,856,285 | Le Fever | May 3, 1932 |
| 1,866,926 | Colby | July 12, 1932 |
| 2,099,957 | Graham | Nov. 23, 1937 |
| 2,345,043 | Hall | Mar. 28, 1944 |
| 2,789,465 | McDonald | Apr. 23, 1957 |

FOREIGN PATENTS

| | | |
|--------|---------------|---------|
| 13,263 | Great Britain | 1890 |
| 11,306 | Great Britain | of 1910 |