

[54] **GRENADE FUSE LEVER**
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 [22] Filed: **May 9, 1972**
 [21] Appl. No.: **251,755**
 [52] U.S. Cl. **102/64, 102/8**
 [51] Int. Cl. **F42b 27/00, F42b 23/28**
 [58] Field of Search **102/8, 64**

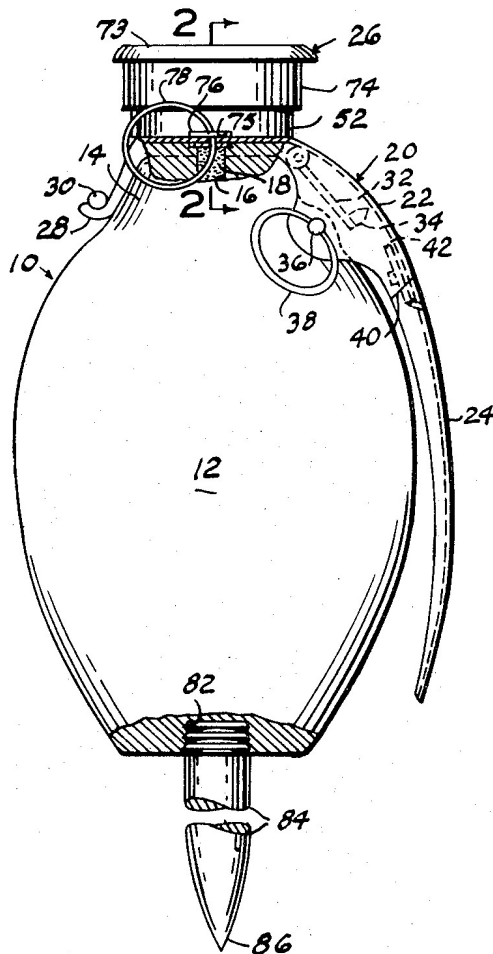
FOREIGN PATENTS OR APPLICATIONS
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Primary Examiner—Verlin R. Pendegrass
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[57] **ABSTRACT**
 A hand grenade having an explosive filled projectile body is provided with a handle spring urged away from the body by a spring urged firing pin with the handle normally retained on the body by a safety pin. The handle is provided with a head portion containing a pressure sensitive firing or striker pin normally rendered inoperative by a safety bar.

[56] **References Cited**
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6 Claims, 6 Drawing Figures



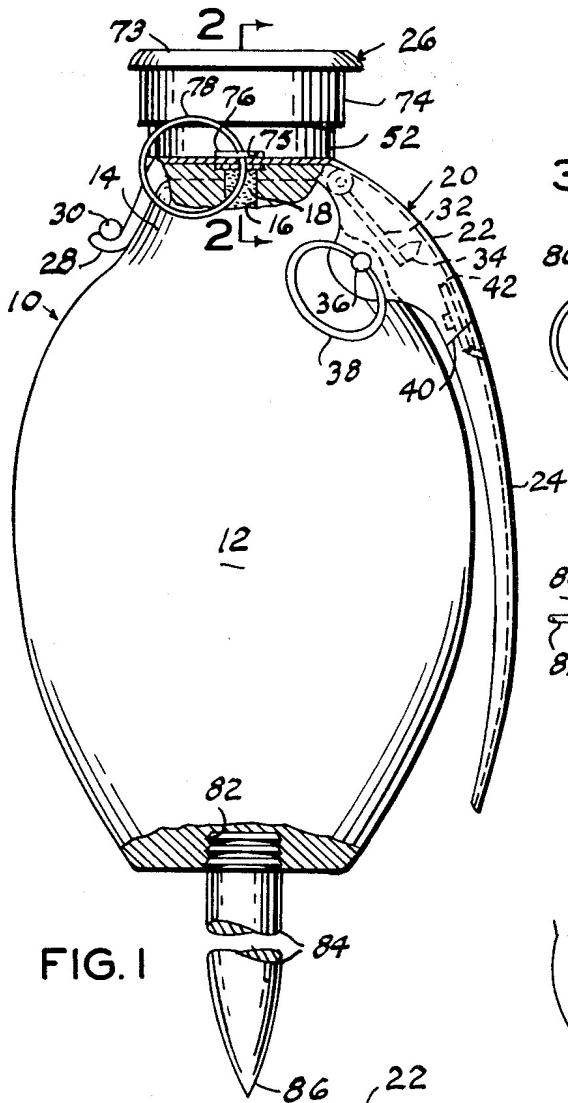


FIG. 1

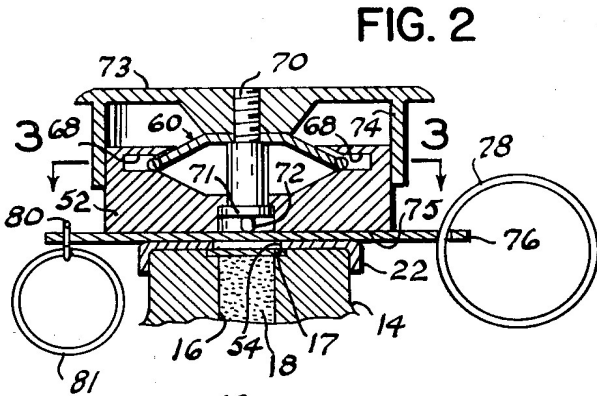


FIG. 2

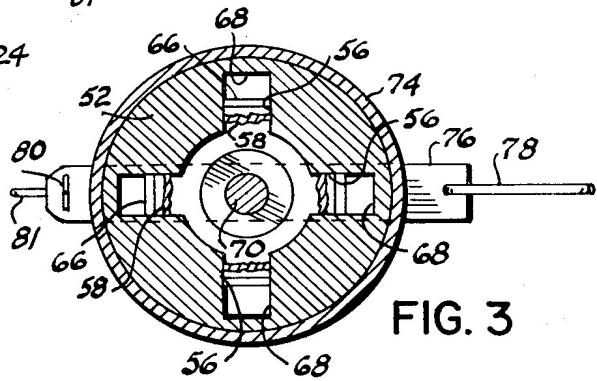


FIG. 3

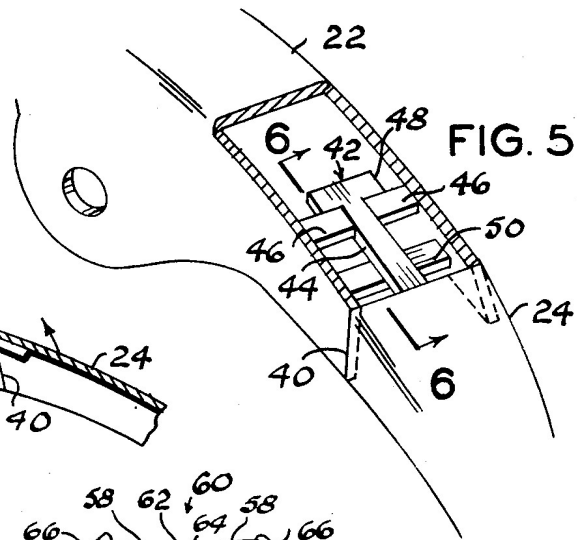


FIG. 4

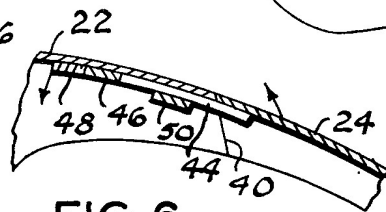


FIG. 5

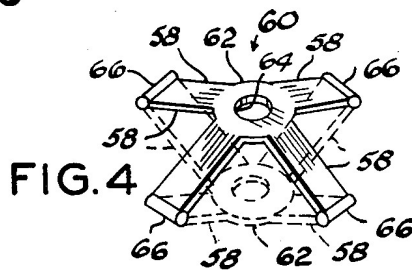


FIG. 6

GRENADE FUSE LEVER

BACKGROUND OF THE INVENTION

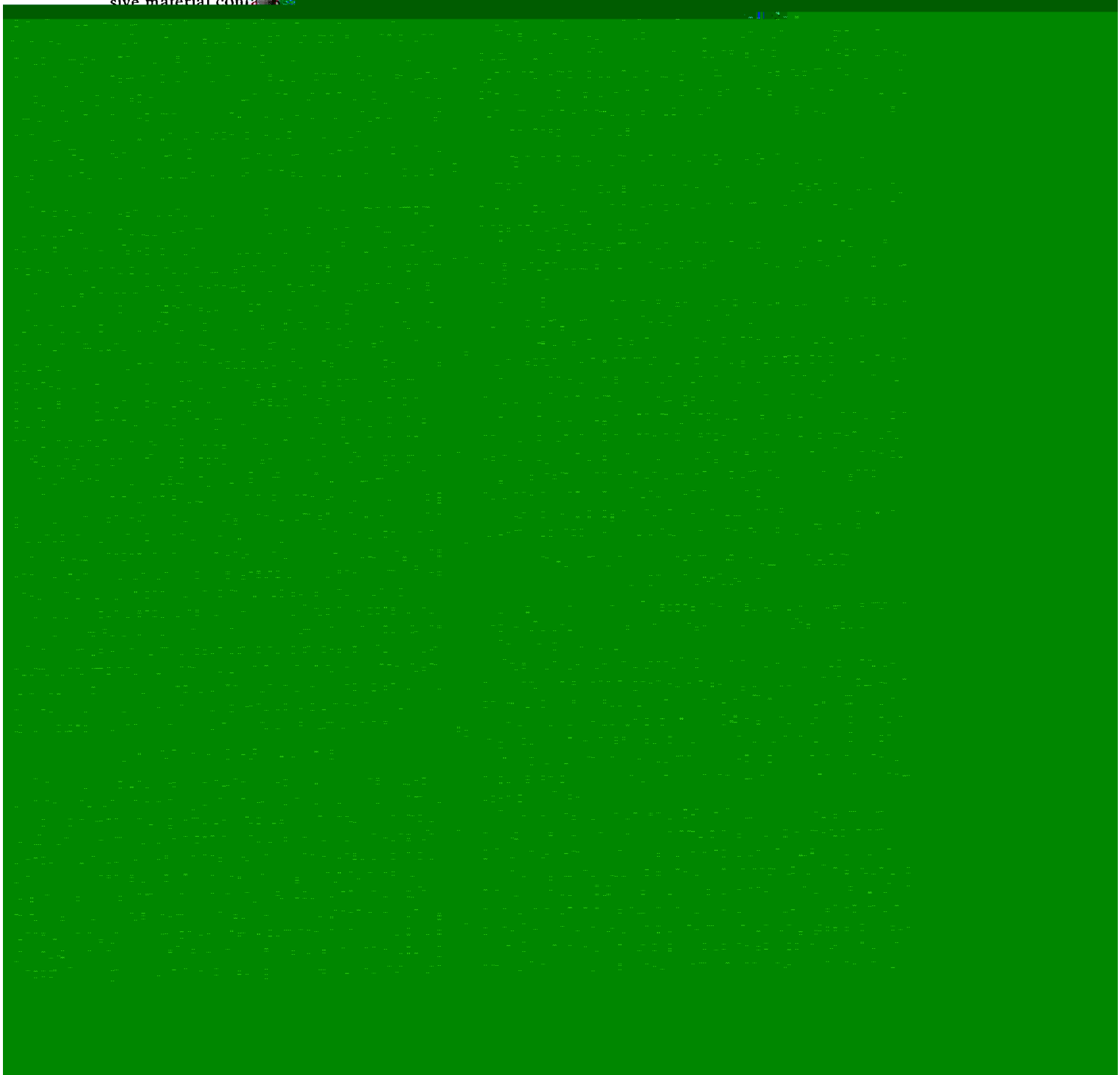
1. Field of the invention

The present invention relates to hand grenades and more particularly to a dual purpose hand grenade fuse lever permitting use of the grenade in a conventional manner and as a land mine or booby-trap.

2. Description of the prior art

Grenade fuse devices have usually comprised a handle member pivotally secured at one end portion across one end of the explosive containing projectile body having a percussion sensitive primer therein which, when struck by a firing pin, initiates the firing sequence of the grenade fuse resulting in detonation of the explosive material contained within the grenade body. The han-

grenade thrown. This fuse lever is provided with an opening coaxial with the grenade fuse primer with a telescoping head portion coaxially attached thereto and surrounding the handle opening. The head portion contains a pressure sensitive collapsible spring supporting a head striker pin coaxial with the handle opening and fuse primer. A head safety bar extends transversely through the head portion so that the head striker pin may be "armed" by removal of the head safety bar permitting the grenade to be implanted and function as a land mine. Intermediate its ends the lever is divided for removal of its free end portion which permits the grenade to be used as a booby-trap and fired by a trip-lanyard removing the conventional safety pin wherein the remaining portion of the handle, attached to the grenade, offers little or no resistance to the spring



The grenade head portion 14 is also provided with a spring urged lever 32 having a firing pin 34 secured to its free end which is normally maintained in a "cocked" position by the handle portion 22 overlying the lever and firing pin wherein the handle portion 22, opposite the hook members 28, is releasably secured to the grenade body by a primary safety pin 36, having a pull ring 38 connected with one end thereof.

The removable handle end portion 24 is manually separable from the handle head portion 22 along the line 40. The handle end portion 24 is normally maintained attached to the handle head portion 22 by a T-shaped tongue 42 having its stem portion 44 interposed between a pair of lugs 46 secured in opposing relation to the inner surface of the handle head portion 22 wherein the head portion 48 of the tongue engages the lugs 46 and prevents longitudinal movement of the handle end portion 24 away from the handle head portion 22. A cross bar 50, extending between and secured to the respective opposing inner surfaces of the head portion 22, below the tongue shaft 44, as viewed in FIG. 5, forms a fulcrum point for the tongue 42 when the handle end portion 24 is biased toward the grenade body 12 by a user grasping the handle and grenade body. The handle end portion 24 is removed from the handle head portion 22 by manually pivoting the handle end portion 24 away from the body 12 while the safety pin 36 is in place so that the head portion 48 of the tongue and its shaft 44 is released from engagement with the lugs 46 and may be manually pulled longitudinally out of the handle head portion in a sliding action over the cross bar 50.

The collapsible head portion 26 comprises a centrally drilled body 52 which is secured to the handle head portion 22 coaxial with the primer bore 16. The handle head portion 22 is provided with an opening 54 coaxial with the primer bore 16. The head body 52 is provided with a plurality, four in the example shown, of radial grooves or slots 56 open to the upper surface of the body 52 for respectively receiving a like plurality of legs 58 of a collapsible spring element 60. The spring element 60 comprises a central disk-like portion 62, having a central aperture 64, to which the legs are radially attached in downwardly diverging relation, as viewed in FIG. 4. The free end of each of the legs 58 is provided with an arcuate or rolled end edge surface 66 which is slidably received respectively by horizontal sockets 68 communicating with the respective leg receiving groove 56. The spring member 60 is preferably formed of metallic material having a resilience for resisting a pressure of predetermined magnitude which, if exceeded, collapses the spring 60, to its dotted line position of FIG. 4, in a snap or slam action for the purposes presently described.

The spring aperture 64 surrounds one end portion of a head striker pin 70 with the other end of the striker pin coaxially received by the bore of the head body and aligned with the handle head portion opening 54.

The depending end portion of the striker pin 70, as viewed in the drawings, is provided with a circumferential shoulder or flange 71 coaxially received by a downwardly open counterbore formed in the head body 52 to prevent upward movement of the striker pin 70. The depending end of the striker pin 70 terminates in a coaxial nipple or prong 72 for rupturing the disk 17 and igniting the primer material 18 as hereinafter explained.

A pressure plate 73 coaxially overlies the head body 52 and is centrally bored for threaded engagement with the upwardly disposed end portion of the striker pin 70. A sleeve 74 is attached at one end to the depending surface of the pressure plate 73 with its other end portion slidably receiving, in telescoping relation, the upper end portion of the head body 52. The head body 52 is provided at its depending end with a diametric slot 75 for receiving a head safety bar 76 having a bar pull ring 78 attached to one end and a cotter pin 80, or the like, inserted through the other end portion to prevent accidental removal of the head safety bar. A cotter pin pull ring 81 is attached to the eye of the cotter pin 80 to facilitate its removal.

The projectile body 12 is preferably provided with a threaded socket 82, in its depending end as viewed in FIG. 1, for receiving an elongated stake 84 having threads at one end for engagement with the threaded socket 82 and having its opposite end sharpened, as at 86, for the purposes presently explained.

OPERATION

In operation the handle 20 and its head portion 26 is mounted on and connected with the grenade with the conventional firing pin 34 retained in cocked position by the handle and safety pin 36 as described hereinabove. When using the handle 20 and the grenade, in a conventional manner, the handle end portion 24 is manually grasped and gripped with the grenade, in a conventional manner, permitting the safety pin 36 to be removed and the grenade thrown so that the spring urged firing pin 34 pivots the handle away from the grenade, assisted by air resistance, thus permitting the firing pin 34 to strike the primer and in turn detonate the explosive.

When the handle and grenade is used as a land mine, the handle end portion 24 is removed, the safety pin 36 remains in place and the grenade is positioned below the surface of the earth with the handle head portion 26 disposed upwardly. The head safety bar 76 is removed for "arming" the grenade. Thereafter, a pressure of predetermined magnitude applied to the pressure plate 73 collapses the spring 60 thus forcing the head striker pin 70 toward and into the primer by rupturing the primer protective plate 17 and igniting the fuse.

When it is desired to use the grenade and attached handle as a booby-trap, the stake 84 is connected with the threaded socket 82 and the stake forced into the surface of the earth, not shown, and, if desired, at least a portion of the grenade may be similarly disposed below the surface of the earth. When used in this manner the handle end portion 24 is preferably removed and a lanyard, not shown, is connected with the safety pin pull ring 38 and connected at its other end to a suitable support or fixed object so that when the lanyard is encountered, intermediate its ends, the safety pin 36 is pulled permitting the spring urged firing pin 34 to pivot the handle portion 22 off the grenade thus igniting the primer 18.

Obviously the invention is susceptible to changes or alterations without defeating its practicability, therefore, I do not wish to be confined to the preferred embodiment shown in the drawings and described herein.

I claim:

1. In combination with a grenade having an explosive filled casing provided with a fuse including a primer in

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communication with a detonator rendered operative, to ignite the explosive, by a spring urged firing pin, the improvement comprising:

- a throw-off handle removably secured to said casing including a handle head portion overlying the primer; and,
- a pressure sensitive striker means secured to said handle head portion opposite said primer, said striker means including, an axially bored body coaxial with said primer,
- the head portion of said handle having an opening providing communication between said primer and the axial bore of said body,
- a sleeve telescopically receiving the end portion of said body opposite said handle head portion,
- a pressure plate overlying the end of said sleeve opposite said body,
- snap action resilient means supported by said body, a striker pin slidably received, coaxially, by the body bore and normally biased away from said primer by said resilient means, and,
- safety means normally preventing movement of said striker pin toward said primer.

2. The combination according to claim 1 in which said safety means includes:

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a bar extending transversely through said body and intersecting its bore.

3. The combination according to claim 2 in which said handle is transversely divided intermediate its ends to form a removable handle end portion, and, means connecting said removable handle end portion with said handle head portion.

4. The combination according to claim 3 in which said resilient means comprises:

a collapsible spring having a central portion surrounding said striker pin adjacent its end portion opposite said primer, said spring having diverging leg portions, said body having radial grooves nesting said spring leg portions.

5. The combination according to claim 4 and further including:

means for releasing and removing said bar from said body.

6. The combination according to claim 5 in which said casing is provided with a threaded socket in its end opposite said primer and further including:

an elongated stake having one threaded end engageable with the casing socket.

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