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(54) **FIREARM BOLT HAVING DEAD STOP EJECTOR PIN**

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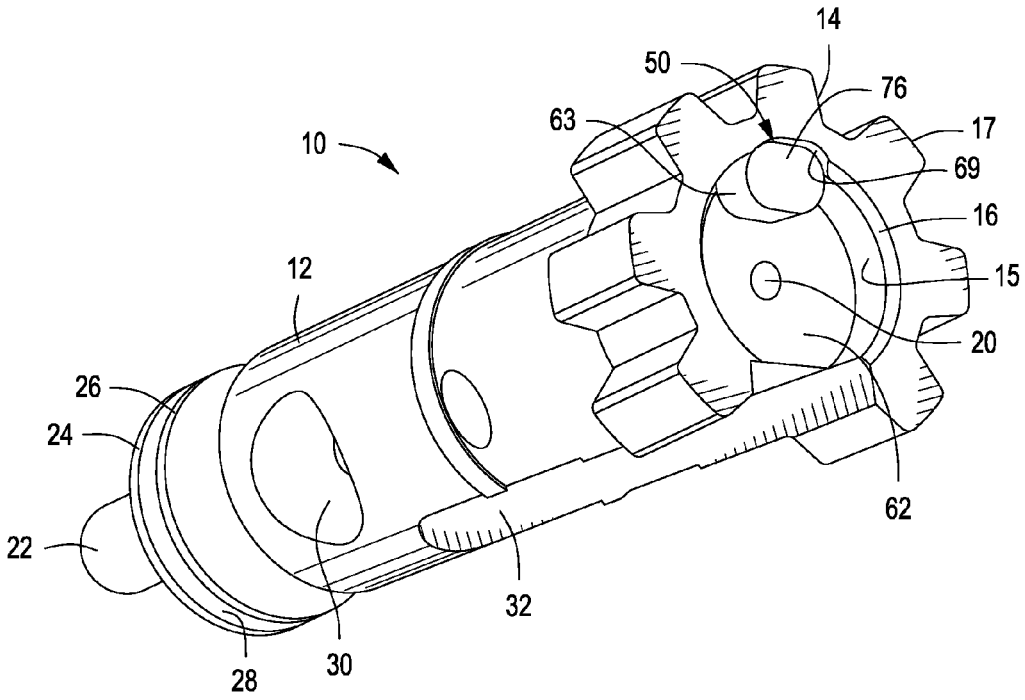
(57) **ABSTRACT**

A bolt mechanism for gas operated auto-cycling firearms is provided with a spring urged ejector having a geometry that provides a dead stop to limit excessive ejector movement and force that might otherwise damage or cause excessive wear of the ejector. The bolt member defines an ejector receptacle having an enlarged receptacle portion of oval configuration having the radial width of a standard ejector and defining an internal dead stop shoulder. The ejector member has limited linear movement within its receptacle and has a corresponding stop shoulder that is positioned for engagement with the internal stop shoulder and serves to positively stop ejector movement if the ejector is subjected to excessive force.



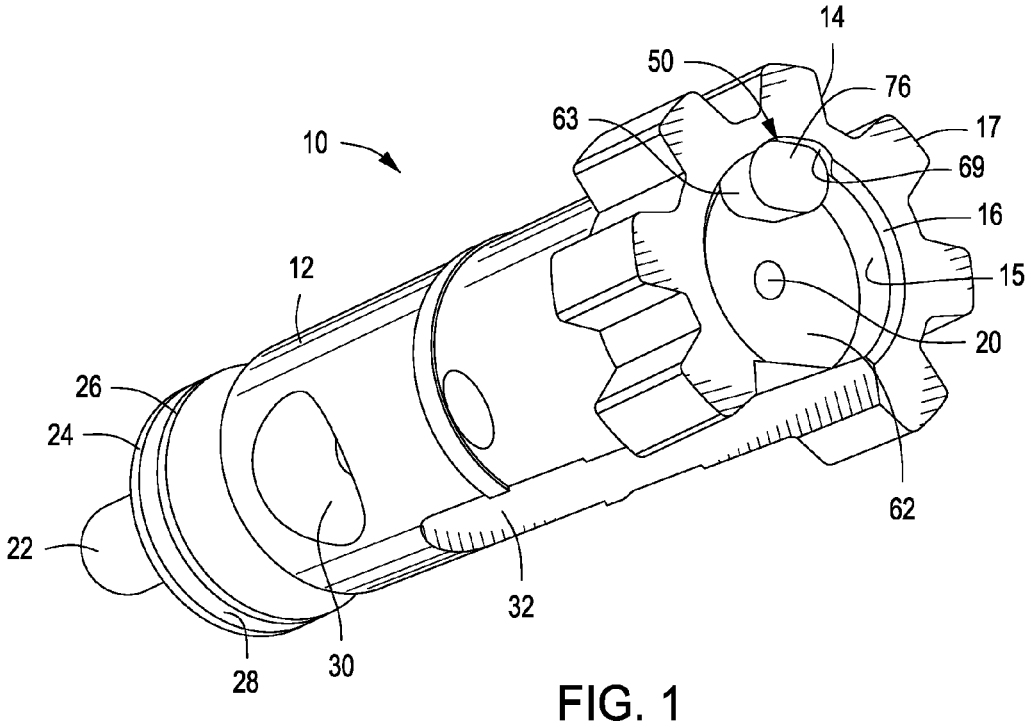

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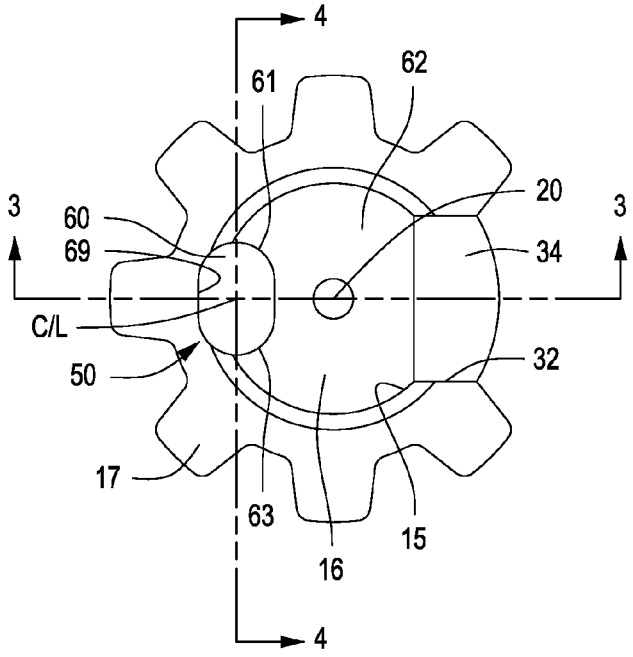
FIG. 1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C/L
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FIG. 2

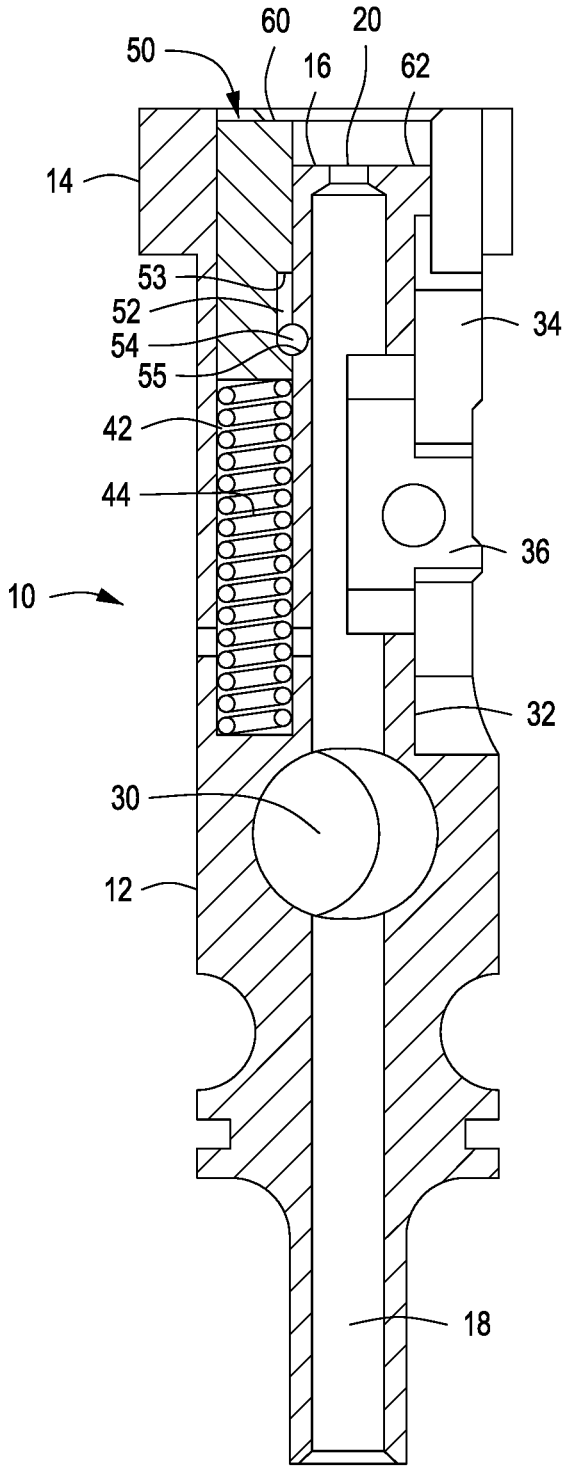

FIG. 3

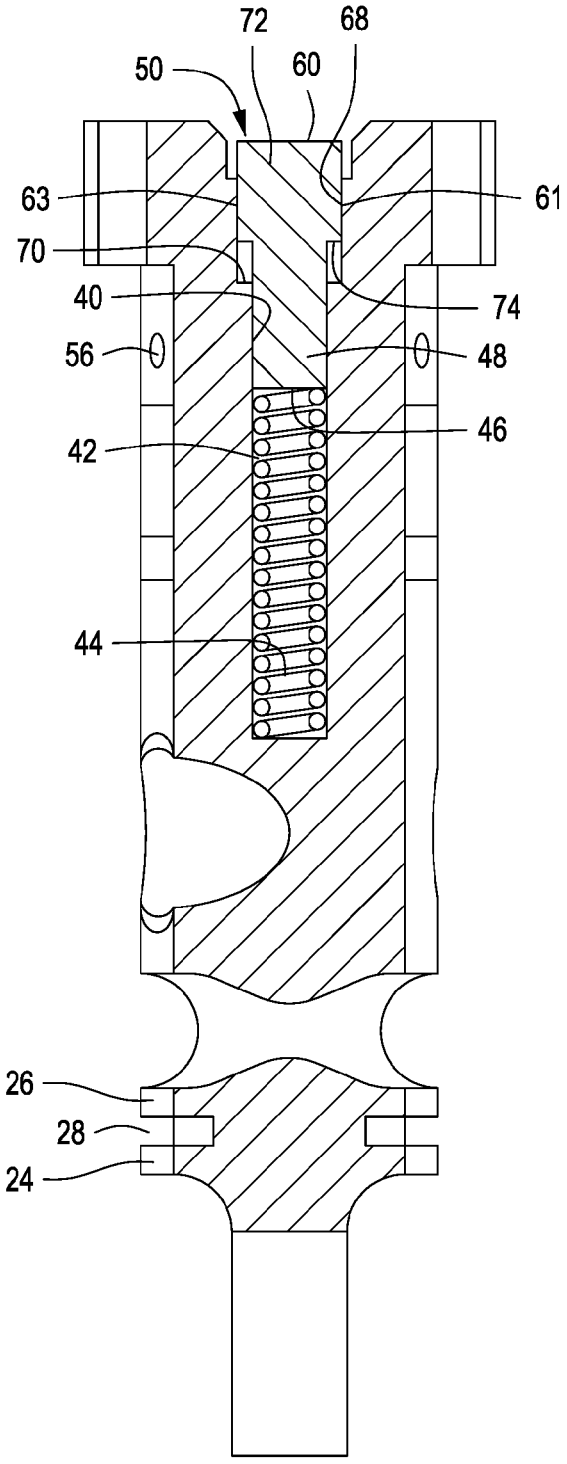

FIG. 4

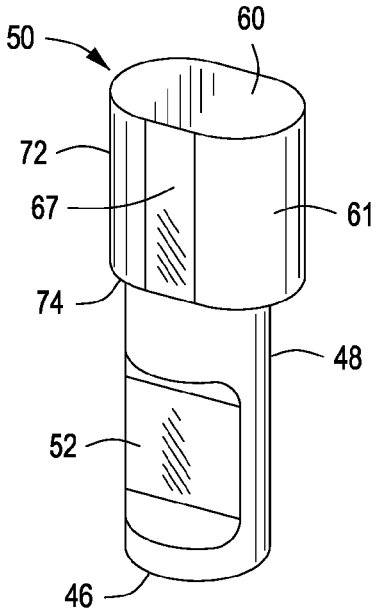

FIG. 5

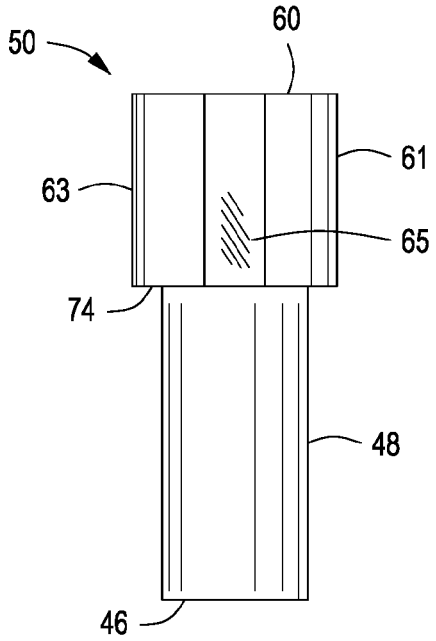

FIG. 6

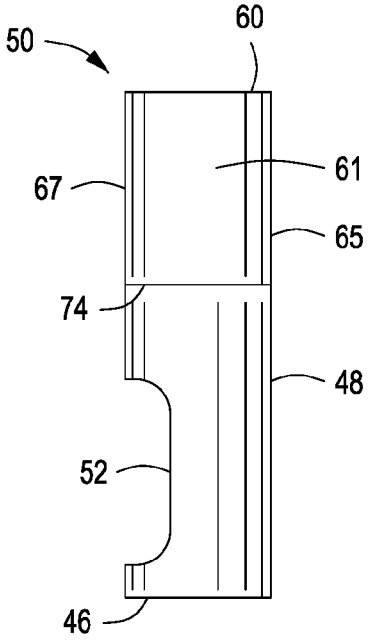

FIG. 7

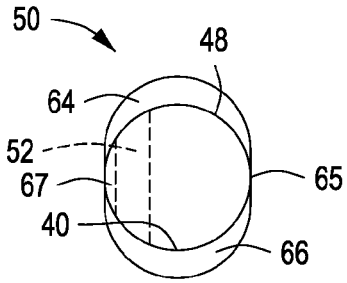

FIG. 8

FIREARM BOLT HAVING DEAD STOP EJECTOR PIN

RELATED PATENT APPLICATION

[0001] Applicant hereby claims the benefit of U.S. Provisional Application No. 62/242,093, entitled "Firearm Bolt Having Dead Stop Ejector Pin" filed on Oct. 15, 2015 by Mark C. LaRue, which Provisional application is incorporated by reference herein for all purposes.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention generally concerns the geometry and function of a bolt member of a semi-automatic or full automatic firearm, such as the M-4 and M-16 military rifles or the AR-15 rifles that are presently in wide use by marksmen and sportsmen of the public, collectively referred to herein as "firearms". More particularly, especially when high performance extreme pressure type ammunition is being used in firearms, the present invention concerns a dead stop ejector component of a bolt assembly that protects the ejector and ejector spring from damage and excessive wear and ensures that the structural integrity of the bolt will accommodate operating at extremely high propellant pressure without failing.

Description of the Prior Art

[0003] When a firearm is discharged a firing pin extending through a bolt member is struck by a hammer that is released by a trigger mechanism and the forward end of the firing pin is caused to strike the primer of a cartridge within a cartridge chamber of a barrel, igniting the primer and igniting a powder charge within the cartridge chamber. The propellant gas that is suddenly generated within the cartridge by the burning gunpowder of the cartridge propels a projectile, such as a bullet, from the cartridge case and through the bore of a gun barrel toward a target. After the bullet or other type of projectile has cleared a gas port intermediate the length of the barrel bore a portion of the propellant gas of the cartridge is routed to a gas system of the firearm, causing rearward propellant gas actuated movement of a bolt carrier and bolt assembly against the bias of a buffer or bolt carrier return spring to extract and eject a spent cartridge case. The buffer spring then causes the bolt carrier and bolt to be moved forward, picking up a fresh cartridge from a magazine and moving it into seated relation within a cartridge chamber of the barrel. As the cartridge is seated within the cartridge chamber the bolt member is rotated by cam activity, thus positioning the locking lugs of the bolt head in locked relation with bolt retainer lugs within the locking recess.

[0004] The bolt member is rotated during locking and unlocking movement, thus causing the face of the bolt to be rotated relative to the cartridge. Such bolt face rotation relative to the base of a cartridge case is typically no problem during locking rotation of the bolt member and typically represents no problem during bolt unlocking rotation when the ammunition being used develops standard pressure, such as a pressure range of about 50,000 psi. However, when the ammunition being employed develops extremely high propellant pressure upon discharge, such as when magnum loads or special high velocity super performance loads are employed, problems can develop that result in damage to the bases of cartridge cases and excessive wear or damage to the ejectors of bolt mechanisms for gas operated auto-cycling firearms.

[0005] Extremely high propellant pressure, together with the heat of gun powder oxidation, can cause deformation and extrusion of cartridge case components. The relatively soft brass material of a cartridge case or a primer seated within the primer pocket of a cartridge case can become somewhat "liquid" and can be extruded so that it essentially "flows" into the crevasses of the bolt face. When the bolt member is rotated under this condition the extruded brass is sheared off, forming brass particles that accumulate and can cause fouling within the upper receiver of a firearm. The ejector or ejectors of typical firearm bolt mechanisms for auto-cycling firearms are typically of circular cross-section of a specific diameter and are received with circular bores of the bolt member. The size or diameter of the bore within which the ejector is movably retained is designed to maintain optimum structural integrity of the bolt member to ensure its optimum serviceability. Since high performance ammunition with high propellant pressure is becoming more the norm at the present time, it is anticipated that increased ejector surface area is needed. However the current standard ejector bore size and ejector design has been proven over a long period of time to protect auto cycling bolt members from damage or failure; thus to increase the ejector dimension by decreasing the structural integrity of the bolt member is not considered a viable option.

[0006] Some manufacturers have chosen to employ two normal sized ejectors to achieve an increase ejector surface area. For example, the bolt member shown in U.S. Pat. Nos. 8,826,945 and 9,151,556 of Lewis is provided with two ejectors. The standard bolt assembly of virtually all M-16 and AR-15 rifles have a single ejector of circular cross-section which incorporate the tested and proven design. The cross-sectional dimension of these circular ejectors is limited by the dimension of the space between the firing pin opening and the outer circular wall of the cartridge recess of the bolt face. Thus, ejectors of much larger circular cross-sectional configuration cannot be employed. If any extruded material is present at the bolt face, rotation of the bolt will cause the ejector to engage and shear or otherwise loosen the material. This activity, due to the limited cross-sectional configuration of the ejector, often causes excessive wear of or damage to the ejector so that ejector replacement is often necessary. Breakage of ejector springs due to be repetitively overstressed is also a distinct problem. Active marksmen often carry a number of replacement ejectors and ejector springs in a tool and parts kit for this reason. It is desirable, therefore, to provide a bolt mechanism having an ejector of sufficient structural integrity to adequately resist damage or excessive wear due to rotation of the bolt mechanism in the presence of extruded or deformed cartridge case material. It is also desirable to provide a bolt design that protects the ejector springs from being overstressed by extremely high propellant pressure conditions.

[0007] One of the problems that is encountered when magnum or super performance ammunition is employed in auto-cycling firearms is that the excessive propellant pressure acts to force a portion of the cartridge case material or pressurized gas, or both, into the ejector opening, thus driving the ejector rearwardly against the force of its spring to the point that the designed spring resistance is exceeded. This occurrence causes weakening of the ejector spring and

often results in fracture of the spring. It is desirable, therefore to provide a bolt mechanism for auto-cycling firearms having an ejector and ejector spring, and being designed with an ejector stop to limit pressure responsive movement of the ejector and prevent repeated over-compression of the ejector spring as firearm shooting activities are conducted.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] So that the manner in which the above recited features, advantages and objects of the present invention are attained and can be understood in detail, a more particular description of the invention, briefly summarized above, may be had by reference to the preferred embodiment thereof which is illustrated in the appended drawings, which drawings are incorporated as a part hereof.

[0009] It is to be noted however, that the appended drawings illustrate only a typical embodiment of this invention and are therefore not to be considered limiting of its scope, for the invention may admit to other equally effective embodiments.

[0010] In the Drawings:

[0011] FIG. **1** is an isometric illustration showing a bolt member for an automatic or semi-automatic firearm, such as an M-4, M-16 or AR-15 rifle, the bolt member having a dead stop ejector according to the principles of the present invention;

[0012] FIG. **2** is a forward end elevation view showing the cartridge engaging and locking end of the bolt member of FIG. **1** and showing the forward end portion of the dead stop ejector;

[0013] FIG. **3** is a longitudinal section view taken along line **3-3** of FIG. **2**, the section view being taken along the longitudinal center-line of the bolt member and being taken through the dead stop ejector and showing its structure and operational components;

[0014] FIG. **4** is a longitudinal section view taken along line **4-4** of FIG. **2**, the section view being taken through a lateral portion of the bolt member and being taken though the dead stop ejector and the ejector receptacle and spring of the bolt member;

[0015] FIG. **5** is an isometric illustration showing the dead stop ejector pin of FIGS. **1-4**;

[0016] FIG. **6** is a front elevation view showing the dead stop ejector pin of FIGS. **1-4**;

[0017] FIG. **7** is a side elevation view showing the dead stop ejector pin of FIGS. **1-4**; and

[0018] FIG. **8** is a plan or top view showing the relative locations and configuration of the pin and head sections of the dead stop ejector and further showing the location and configuration of the bolt receptacles for the pin and head portions of the dead stop ejector.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0019] Referring now to the drawings and first to the isometric illustration of FIG. **1**, a bolt member for a firearm is shown generally at **10** and has a bolt body **12** having a bolt locking head **14** defining a cartridge recess **16**. The bolt locking head has a plurality of radiating locking lugs **17** that are retained by corresponding locking lugs within a locking recess adjacent the cartridge chamber of a barrel of the firearm. Rotation of the bolt locking head in one rotational direction positions the locking lugs of the bolt head in locked relation within the locking recess. Rotation of the bolt locking head in the opposite rotational direction positions the locking lugs of the bolt head in released relation within the locking recess and permits rearward linear movement of the bolt member during cartridge case ejection and extraction. A firing pin is longitudinally moveable within a central passage **18** of the bolt body and has a forward cartridge striking end that is moveable through a passage opening **20** within the cartridge recess **16** when the firing pin is struck by the hammer of the firearm trigger mechanism.

[0020] The rearmost section of the bolt body **12** defines an alignment pin or shaft **22** and provides spaced circular flanges **24** and **26** defining an annular space **28** between the flanges within which gas seal rings are located to establish sealing of the bolt member within a bolt carrier. A cam pin is received within a cam opening of a bolt carrier and is engaged within a cam pin opening **30** of the bolt body. As the bolt carrier is moved linearly, either by the force of propellant gas pressure or by the force of a buffer or bolt carrier return spring, the bolt member, traveling with the bolt carrier, is rotated by cam activity of the cam pin with a cam surface of the bolt carrier for unlocking or locking motion.

[0021] An elongate slot **32** extending longitudinally along the outer portion of the bolt body **12** provides for mounting an extractor member **34** in moveable relation with the bolt body **12** and provides for mounting a firing pin retainer **36** so that a firing pin is retained in longitudinally moveable relation with the internal passage **18**. A retainer pin **38** extends through a transverse pin receptacle of the bolt body and secures the extractor member and firing pin retainer in assembly with the bolt body.

[0022] The bolt body **12** is drilled from the bolt face to define an ejector bore **40** of circular cross-sectional configuration as indicated by the central circular portion of the top plan view of FIG. **8**. A section of the ehector bore **40** defines a spring chamber **42** within which is located a helical type ejector spring **44** that applies a spring force to the rear end surface **46** of the elongate generally cylindrical shaft portion **48** of an ejector member shown generally at **50**. The ejector member **50** is shown in detail in FIGS. **5-8** as well as being shown in the assembly views of FIGS. **1-4**. A lateral portion of the ejector shaft **48** is cut away as shown in FIG. **3**, such as by a milling operation, and defines an elongate lateral recess **52** within which an ejector retainer pin **54** is received to permit limited linear movement of the ejector member as the result of firearm operation. The elongate lateral recess of the shaft portion **48** of the ejector member **50** has a forward end surface **53** and a rearward end surface **55**. The forward and rearward end surfaces **53** and **55** have substantially the same internal surface curvature as the external surface curvature of the ejector retainer pin **54** to ensure maximum surface to surface engagement of the ejector member with the ejector retainer pin, thus ensuring that the ejector retainer pin cannot be damaged by the ejector member due to the force of the ejector spring **44**. The forward end surface **53** is prevented from damaging the retainer pin when propellant pressure responsive movement of the ejector member is stopped by engagement of the stop shoulder **74** of the ejector head with the internal forwardly facing stop shoulder **70**. Propellant pressure responsive rearward movement of the ejector member is stopped by engagement of the stop surface with the stop shoulder just as the ejector reaches the ejector retainer pin, thus prevent the retainer pin from being subjected to potentially damaging mechanical force. The

retainer pin **54** is secured within a transverse pin passage **56** of the bolt body **12**. Propellant pressure responsive linear movement of the ejector member is thus limited by the length of the elongate lateral recess **52** and by the dimension of the ejector retainer pin **54** and is also limited by the positions of the stop surface **74** of the ejector head and the stop shoulder **70** of the ejector pocket. The forward most position of the ejector member is shown in FIG. **1**. In absence of other forces, the ejector spring **44** urges the ejector member **50** forwardly, so that the leading end surface **60** of the ejector member **50** either protrudes forwardly of the generally planar face surface **62** of the cartridge recess **16** or is urged into face to face contact with the base of a cartridge within the cartridge recess and applies a spring force to the cartridge. When the ejector member has been moved rearwardly to its maximum extent against the bias of its spring **44** its forward end face **60** will be located even with or slightly rearwardly of the planar surface **62** of the cartridge recess **16**, depending on the bolt and ejector design.

[0023] As mentioned above, it is important that the ejector member have a radial dimension that is substantially the same as the radial dimension, i.e., diameter, of a standard ejector to accommodate the internal geometry of a conventional bolt member. As shown in the longitudinal section view of FIG. **4** and in the top plan view of FIG. **8**, the leading end portion of the ejector bore **40** is enlarged by milling or by any other suitable means, thus forming lateral enlargements **64** and **66** and defining an ejector stop recess **68** of oval or non-circular cross-sectional configuration.

[0024] The ejector stop recess or pocket **68** is of non-circular configuration, such as oval configuration or elongate configuration with its radially outer portion extending along the generally circular wall surface **15** and defining a pocket wall surface **69** having intersecting relation with the surface **15**. The ejector stop recess or pocket **68**, has curved internal end surfaces as shown in FIGS. **1** and **2** and defines an internal forwardly facing stop shoulder **70** as best shown in FIG. **4** that functions as a dead stop to prevent excessive propellant pressure responsive linear movement of the ejector within the ejector receptacle of the bolt member.

[0025] The ejector **50** is provided with an enlarged non-circular ejector head **72** that is shown to be of corresponding oval configuration that is received within the ejector stop recess or pocket **68**. It should be borne in mind that the ejector head may be of any suitable non-circular configuration such as oval, having curved end surfaces **61** and **63** as shown in FIG. **2**, or having rectangular end surfaces, or arcuately arranged planar end surface facets etc. Between the curved end surfaces **61** and **63** of the ejector head **72** are disposed side surfaces **65** and **67**. The side surfaces are preferably of planar configuration and merge smoothly with the curved end surfaces **61** and **63**. It is important that its radial dimension of the ejector head **72** be substantially the same as the diameter of the cylindrical shaft portion **48**. As shown in FIG. **2** at the juncture of the section lines **3-3** and **4-4** the center-line C/L indicate that the longitudinal center-lines of the cylindrical shaft portion **48** and the elector head **72** are coextensive.

[0026] This FIG. also indicates that the radial dimension of the ejector stop recess or pocket **68** is substantially the same as the diameter of a conventional ejector shaft bore. The ejector bore **40** is of substantially the same dimension, and location within the bolt body **12** as the ejector bore of a standard bolt member of an auto-cycling firearm. This feature ensures that the structural integrity of the bolt member of the present invention is not impaired by the machining features that are designed for the larger ejector head design. The ejector bore is of cylindrical internal configuration, being formed by drilling and/or boring or being formed by a molding operation, and defines a bore center-line that is substantially parallel with the longitudinal center-line of the central passage **18**

[0027] At the juncture of the ejector head **72** and the generally cylindrical ejector shaft **48** the ejector head defines a rearwardly facing stop shoulder **74** that is disposed for stopping engagement with the forwardly facing stop shoulder **70** when the ejector has been moved rearwardly to its maximum extent against the force of the ejector spring **44**. Thus, in the event of very high gas pressure acting on the forward end surface **60** of the ejector member **50**, rearward movement of the ejector member will be stopped when the shoulders **70** and **74** come into engagement, providing a dead stop for the ejector that prevents the ejector spring **44** from being subjected to excessive force and preventing the ejector retainer and movement control pin **54** from being damaged by the mechanical force that could otherwise occur.

[0028] The lateral enlargements **64** and **66** and the oval or non-circular configuration of the ejector head **72** result in an ejector having a cartridge engaging surface area approaching double the surface area of a standard ejector. This feature also causes the ejector to have considerable structural integrity and to be resistant to damage when the bolt member of an auto-cycling firearm is rotated for unlocking in the presence of residual propellant gas pressure and force that is encountered when magnum or super-performance ammunition is being used.

[0029] In view of the foregoing it is evident that the present invention is one well adapted to attain all of the objects and features hereinabove set forth, together with other objects and features which are inherent in the apparatus disclosed herein.

[0030] As will be readily apparent to those skilled in the art, the present invention may easily be produced in other specific forms without departing from its spirit or essential characteristics. The present embodiment is, therefore, to be considered as merely illustrative and not restrictive, the scope of the invention being indicated by the claims rather than the foregoing description, and all changes which come within the meaning and range of equivalence of the claims are therefore intended to be embraced therein.

I claim:

1. A bolt member for a firearm, comprising:

a bolt body defining a bolt locking head having a generally circular internal wall surface defining a cartridge recess having a generally planar bolt face surface within said cartridge recess;

an ejector bore of predetermined diameter being defined within said bolt body and having substantially perpendicular relation with said generally planar bolt face surface, a portion of said ejector bore defining a spring chamber;

an ejector pocket being defined within said bolt body and about said ejector bore and having a radial dimension substantially the same as said predetermined diameter and a lateral dimension exceeding said radial dimension;

an ejector member having a shaft portion of a defined diameter being movably received within said ejector bore and having an ejector head extending from said ejector shaft portion band being movably received within said ejector pocket, said ejector head defining a stop surface;

a stop shoulder being defined within said ejector pocket and being engaged by said stop surface of said ejector head to limit propellant pressure responsive linear movement of said ejector member; and

a spring member being located within said spring chamber and being engaged by said shaft portion of said ejector member, said spring member urging said ejector member forwardly to apply ejecting force to a cartridge seated within said cartridge recess.

2. The bolt member of claim **1**, comprising:

said ejector head having a radial dimension being substantially the same as the dimension of the shaft portion of a conventional ejector member and having a lateral dimension exceeding the generally cylindrical cross-sectional dimension of a conventional ejector member.

3. The bolt member of claim **2**, comprising:

said cartridge recess having a generally circular internal wall surface;

said ejector pocket having an outer wall surface intersecting said internal wall surface of said cartridge recess; and

said ejector head being of oval configuration and defining oppositely facing curved end surfaces and having oppositely facing side surfaces, one of said side surfaces engaging said outer wall surface of said ejector pocket.

4. The bolt member of claim **1**, comprising:

said shaft portion of said ejector member having a longitudinal center-line; and

said ejector head having a longitudinal centerline being co-extensive with said longitudinal center-line of said shaft portion.

5. The bolt member of claim **1**, comprising:

said shaft portion of said ejector member defining an elongate lateral recess having forward and rearward recess end surfaces;

an ejector retainer pin extending through said bolt body and having a portion thereof positioned within said elongate lateral recess; and

during propellant pressure responsive rearward movement of said ejector member said stop surface of said ejector head contacting said stop shoulder of said ejector head pocket limiting further rearward movement of said ejector member to prevent damage to said retainer pin and prevent excessive compression of said ejector spring.

6. The bolt member of claim **5**, comprising:

said retainer pin being of circular cross-sectional configuration and having an external surface of defined curvature; and

said rearward recess end surface of said lateral recess of said shaft portion of said ejector member having an internal curvature matching said defined external curvature of said retainer pin and providing for surface to surface engagement thereof ensuring optimum force transmission of said rearward recess end surface of said lateral recess with said ejector retainer pin.

7. The bolt member of claim **1**, comprising:

said ejector head and said shaft portion of said ejector member being of integral one-piece construction;

said ejector head having a generally planar forward end surface having a non-circular configuration being defined by oppositely facing end surfaces and oppositely facing side surfaces; and

said ejector head and said shaft portion of said ejector member having a common longitudinal center-line.

8. The bolt member of claim **1**, comprising:

said cartridge recess having a generally circular internal wall surface;

said ejector pocket having an outer wall surface intersection said internal wall surface of said cartridge recess; and

said ejector head being of oval configuration and defining oppositely facing curved end surfaces and oppositely facing side surfaces, one of said side surfaces having intersection with said generally cylindrical internal wall surface of said cartridge recesss and having a part thereof projecting outwardly beyond said generally cylindrical internal wall surface.

9. The bolt member of claim **1**, comprising:

said bolt body defining a longitudinal center-line;

a longitudinal firing pin passage located substantially centrally of said bolt body along said longitudinal center-line and having a passage opening intersecting said generally planar bolt face surface; and

said ejector bore defining a longitudinal bore center-line having substantially parallel relation with said longitudinal center-line of said bolt body.

10. A bolt member for a firearm, comprising:

a bolt body defining a bolt locking head having a generally circular internal wall surface defining a cartridge recess and having a generally planar bolt face surface within said cartridge recess, said bolt body having a longitudinal center-line;

an ejector bore of predetermined diameter being defined within said bolt body and having substantially perpendicular relation with said generally planar bolt face surface, said ejector bore having a longitudinal center-line in substantially parallel relation with said longitudinal center-line of said bolt body, a portion of said ejector bore defining a spring chamber;

an ejector pocket being defined within said bolt body and about said ejector bore and having a radial dimension substantially the same as said predetermined diameter and a lateral dimension exceeding said radial dimension;

an ejector member having a shaft portion of a defined diameter being movably received within said ejector bore and having an ejector head extending from said ejector shaft portion band being movably received within said ejector pocket, said ejector head defining a stop surface;

a stop shoulder being defined within said ejector pocket and being engaged by said stop surface of said ejector head to limit propellant pressure responsive linear movement of said ejector member; and

an ejector spring member being located within said spring chamber and being engaged by said shaft portion of said ejector member and resisting propellant pressure responsive rearward movement of said ejector member, said spring member urging said ejector member for-

wardly to apply ejecting force to a cartridge seated within said cartridge recess.

11. The bolt member of claim **10**, comprising:

said ejector head having a radial dimension being substantially the same as a cylindrical shaft of a conventional ejector member and having a lateral dimension exceeding the cylindrical cross-sectional dimension of a conventional ejector member.

12. The bolt member of claim **11**, comprising:

said cartridge recess having a generally circular internal wall surface;

said ejector pocket having an outer wall surface intersection said internal wall surface of said cartridge recess; and

said ejector head being of oval configuration and defining oppositely facing curved end surfaces and oppositely facing side surfaces, one of said side surfaces having intersection with said generally cylindrical internal wall surface of said cartridge recess and having a part thereof projecting outwardly beyond said generally cylindrical internal wall surface.

13. The bolt member of claim **10**, comprising:

said shaft portion of said ejector member having a longitudinal center-line; and

said ejector head having a longitudinal center-line being co-extensive with said longitudinal center-line of said shaft portion of said ejector member.

14. The bolt member of claim **10**, comprising:

said shaft portion of said ejector member defining an elongate lateral recess having forward and rearward recess end surfaces;

an ejector retainer member extending through said bolt body and having a portion thereof positioned within said elongate lateral recess; and

said stop surface of said ejector head being disposed for contact with said stop shoulder of said ejector pocket to limit propellant pressure responsive rearward linear movement of said ejector member and protect said ejector retainer member from impact damage by said forward recess end surface.

15. The bolt member of claim **14**, comprising:

said ejector retainer member being a retainer pin of circular cross-sectional configuration and defined external surface curvature; and

said rearward end surface of said lateral recess of said shaft portion of said ejector member having an internal curvature matching said defined external curvature of said retainer pin and providing for surface to surface engagement with said retainer pin for optimum force transmission therewith.

16. The bolt member of claim **10**, comprising:

said ejector head and said shaft portion of said ejector member being of integral one-piece construction;

said ejector head having a generally planar forward surface having a non-circular configuration being defined by oppositely facing end surfaces and oppositely facing side surfaces; and

said ejector head and said shaft portion of said ejector member having a common longitudinal center-line.

17. The bolt member of claim **10**, comprising:

said bolt body defining a longitudinal center-line;

a longitudinal firing pin passage located substantially centrally of said bolt body along said longitudinal center-line and having a passage opening intersecting said generally planar bolt face surface; and

said ejector bore having a longitudinal bore center-line having substantially parallel relation with said longitudinal center-line of said bolt body.

18. The bolt member of claim **17**, comprising:

said shaft portion of said ejector member defining an elongate lateral recess having forward and rearward recess end surfaces;

an ejector retainer member extending through said bolt body and having a portion thereof positioned within said elongate lateral recess; and

said stop surface of said ejector head being disposed for contact with said stop shoulder of said ejector pocket to limit propellant pressure responsive rearward linear movement of said ejector member and protect said ejector retainer member from impact damage by said forward recess end surface.

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