May 30, 1961 P. H. DIXON 2,986,074

AMMUNITION FEEDERS FOR AUTOMATIC GUNS

Filed Dec. 9, 1946 4 Sheets-Sheet 1

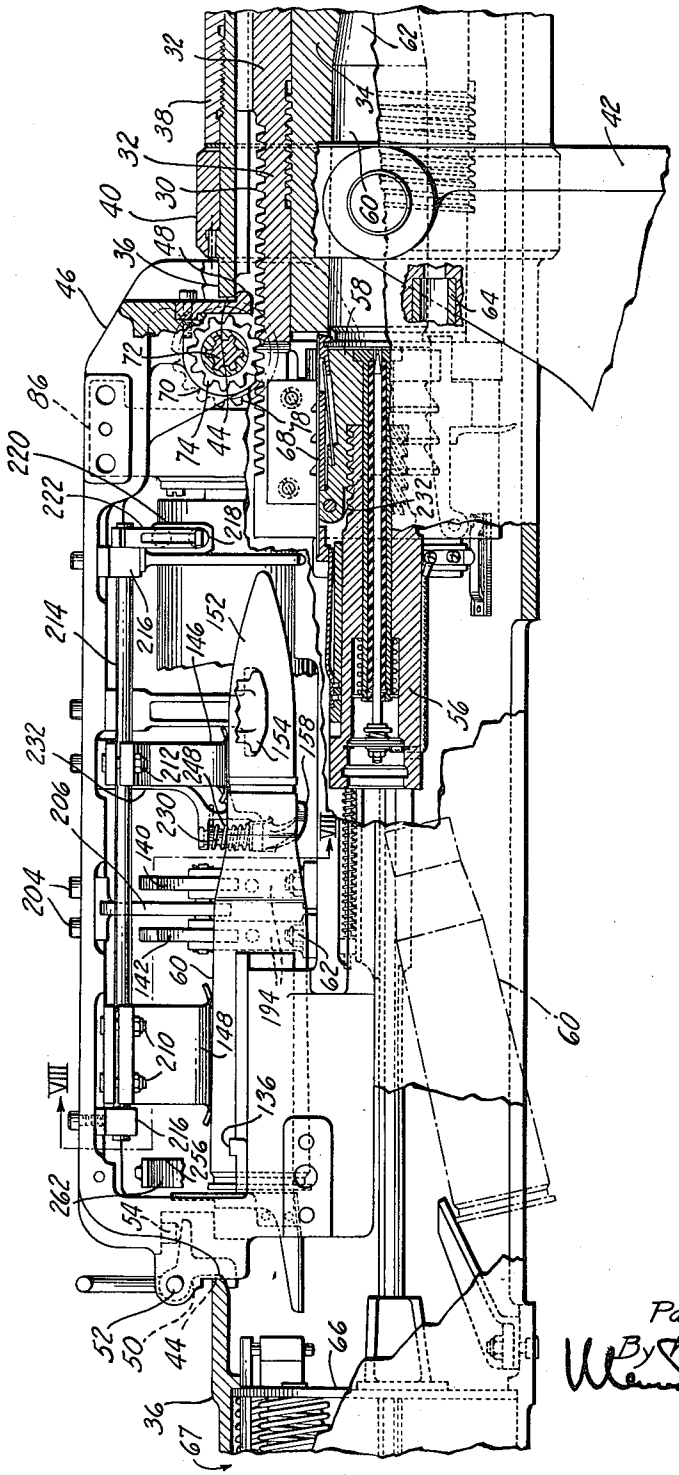

Fig. 1

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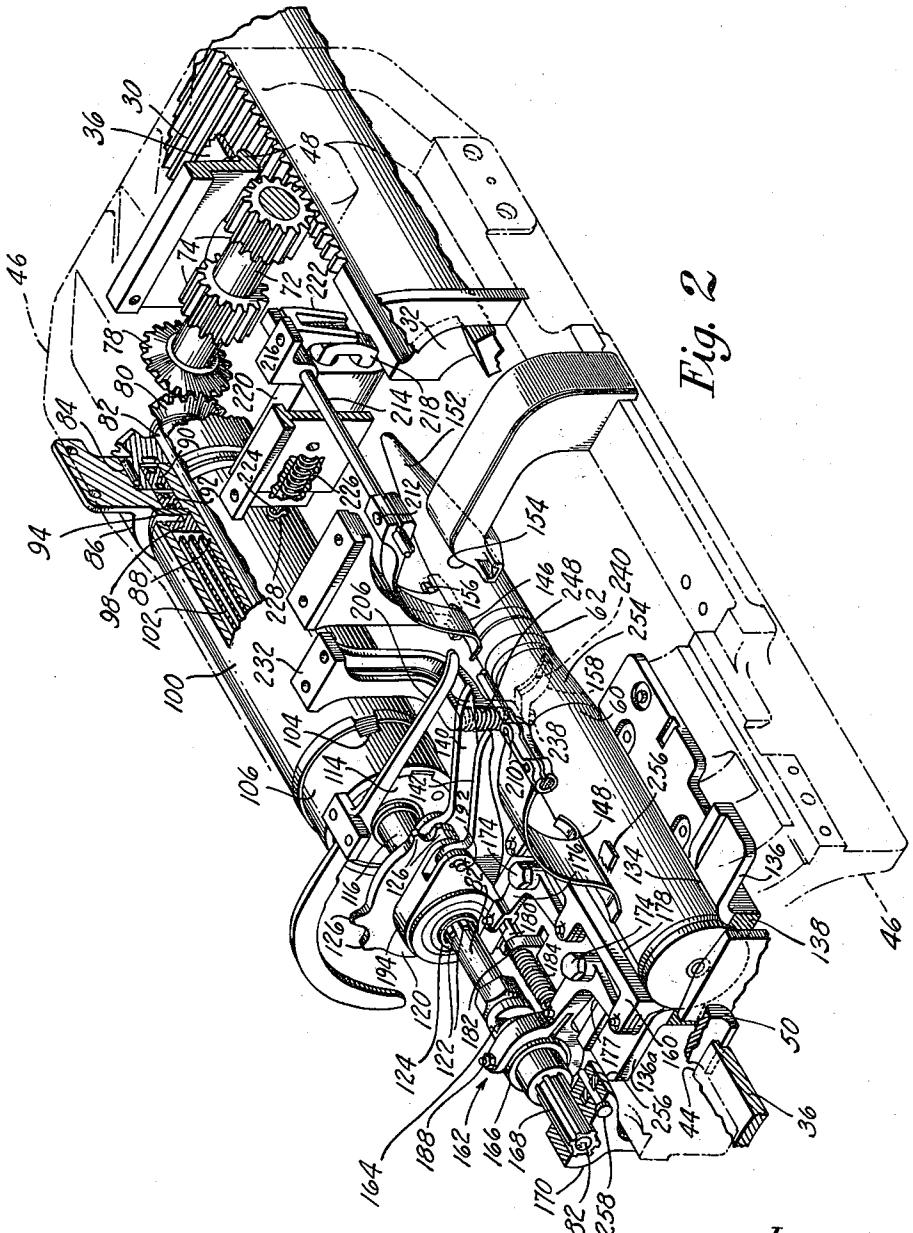

Fig. 2

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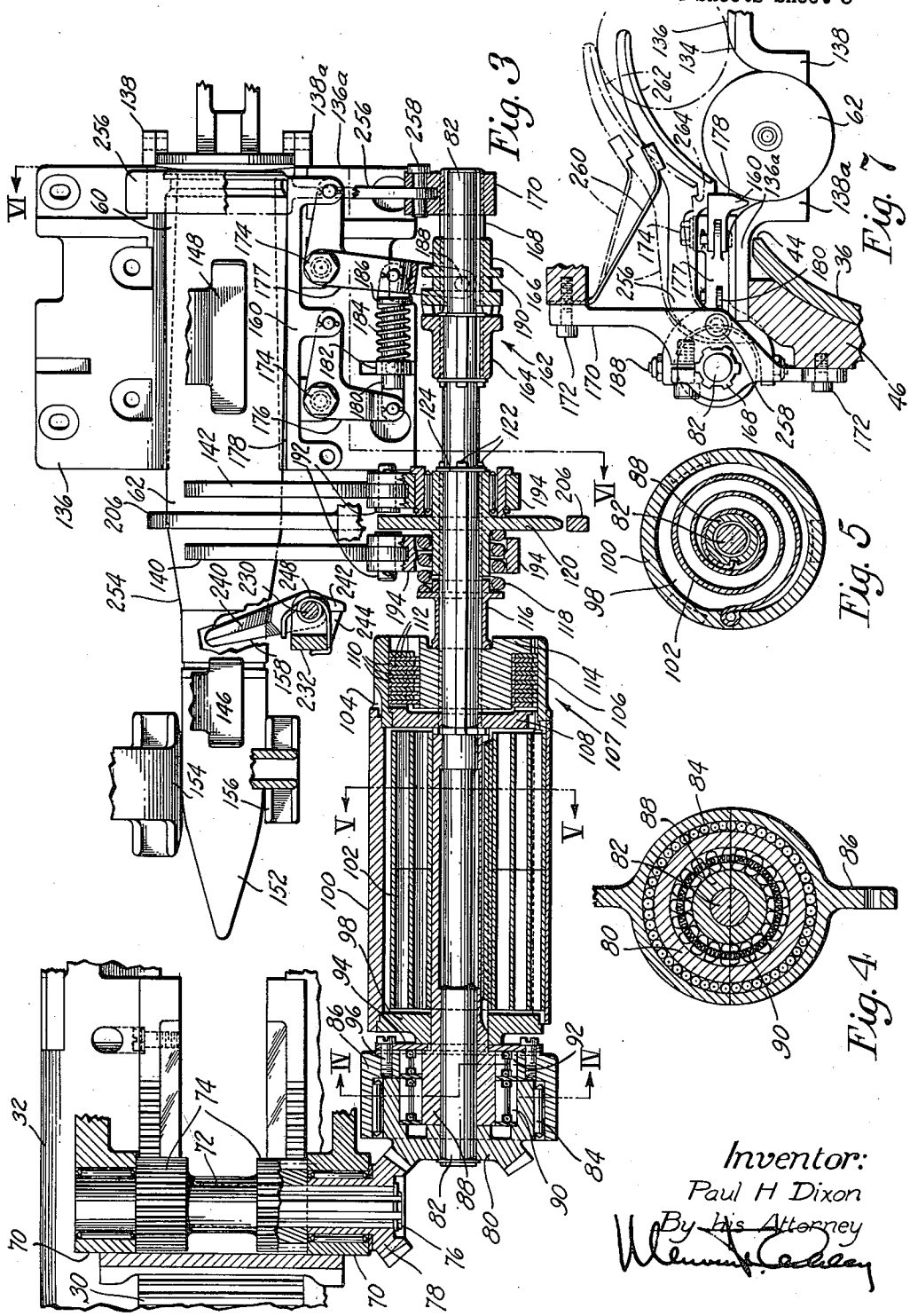

Fig. 3

Fig. 7

Fig. 5

Fig. 4

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AMMUNITION FEEDERS FOR AUTOMATIC GUNS

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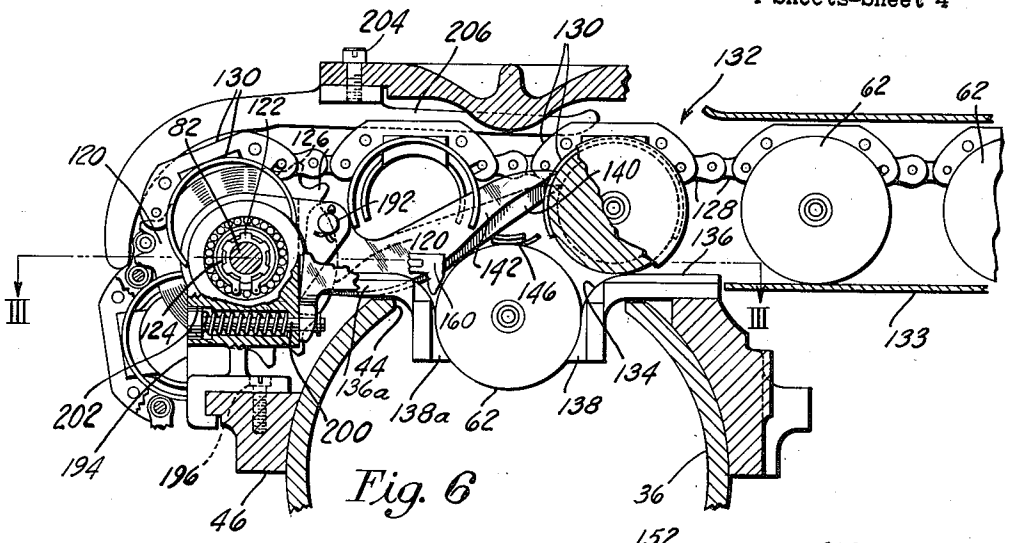

Fig. 6

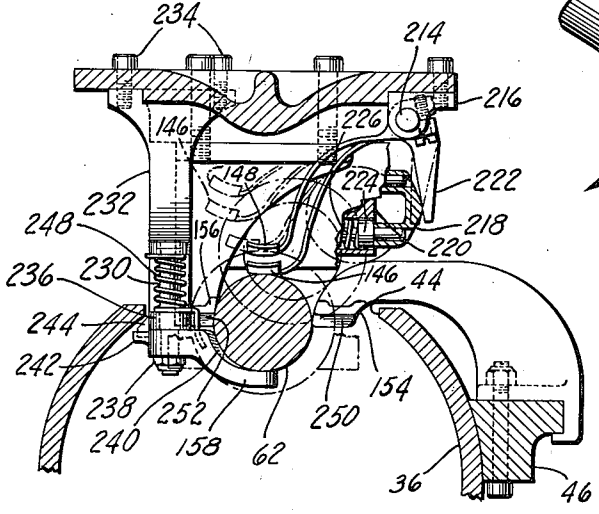

Fig. 8

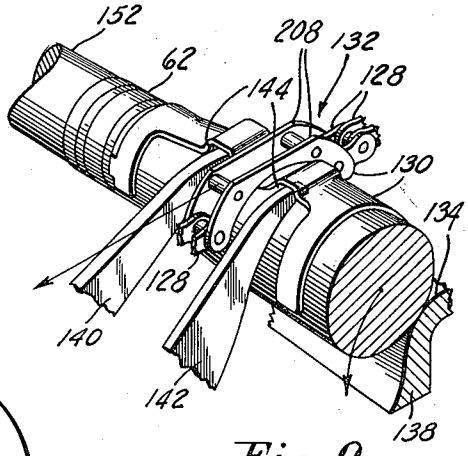

Fig. 9

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United States Patent Office

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Patented May 30, 1961

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AMMUNITION FEEDERS FOR AUTOMATIC GUNS

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Filed Dec. 9, 1946, Ser. No. 715,079

8 Claims. (Cl. 89—33)

This invention relates to ordnance and is illustrated as embodied in an improved ammunition feeder for an automatic gun, such as that disclosed in an application for United States Letters Patent Serial No. 721,058, filed January 9, 1947 in my name.

The various features of the invention are fully disclosed hereinafter and will be understood and appreciated from the following detail description of one embodiment thereof, selected for purposes of illustration, when read in connection with the accompanying drawings, in which

Fig. 1 is a side view, partly broken away and partly in section, of feed mechanism of the illustrative gun which is fully disclosed in said application Serial No. 721,058;

Fig. 2 is a perspective view of the feed mechanism illustrated in Fig. 1;

Fig. 3 is a plan view in section on line III—III of Fig. 6;

Figs. 4, 5 and 6 are sectional views on lines IV—IV, V—V and VI—VI respectively of Fig. 3;

Fig. 7 is a rear view of a portion of the feed box;

Fig. 8 is a transverse section of a portion of the feed box on line VIII—VIII of Fig. 1; and

Fig. 9 is a perspective view showing a cartridge which is assembled in a link belt about to be stripped from said belt.

The illustrative ammunition feeder, which forms part of the 37 mm. gun disclosed in said application Serial No. 721,058, comprises a rack **30** (Figs. 1, 2 and 3) formed at the upper portion of a barrel extension **32** into which is screwed a barrel **34** (Fig. 1) of the gun. The barrel extension **32** is slidingly mounted for recoil and counter-recoil movement in a receiver **36** (Figs. 1, 2, 6, 7 and 8), the barrel being partly guided for reciprocation by a spring housing assembly **38** forming in effect a forward extension of said receiver. Clamped between a shoulder of the receiver **36** and the spring housing assembly **38** is a trunnion block **40** supported upon a mount or turret **42**.

Mounted on the receiver **36** over and extending into an elongated opening **44** (Figs. 1, 2, 6, 7 and 8) formed in the top of said receiver is a feed box **46** which has at its forward end locating ribs **48** (Figs. 1 and 2) (only one shown), underlapping the top of the receiver, and which has at its rear end a locking latch **50** pivoted to said box at **52** (Fig. 1) and constantly urged clockwise, as viewed in Fig. 1, by a spring-pressed plunger **54** carried by the feed box. The feed box **46** may be quickly and effectively mounted upon the receiver by positioning the ribs **48** under the top of the receiver and, after moving the latch **50** counterclockwise to permit its hooked lower end to enter the receiver, releasing said latch to permit it to be forced against the inside wall of the receiver by the spring-pressed plunger **54**.

As fully disclosed in said application Serial No. 721,058, when the gun is fired the barrel **34** and its extension **32** move longitudinally in recoil approximately 4½ inches in the receiver against the action of heavy springs (not shown) and quickly return to battery position under the action of said springs. A slider **56** (Fig. 1) and a bolt **58** carried by the slider are unlocked from the barrel extension **32** near the end of their recoil movement with said extension, and under blowback action of a case **60** of a fired cartridge **62** against the bolt, and rearward force supplied by gas-operated pistons **64** (Fig. 1) (only one shown), operating against the slider, move rearward in recoil approximately 21 inches against a buffer plate **66** of a reaction unit **67**. While the barrel **34** and its extension **32** are in battery position, a cartridge or round **62** is delivered to the receiver **36** into a cradled or ramming position, such as illustrated in Figs. 1, 2, 3 and 7, a rocker **68** (Fig. 1), which constitutes a combined extractor and rammer and is pivotally mounted upon the bolt, engaging the rear end of the cradled round, during counter-recoil movement of the bolt, and cooperating with mechanism, which will be described later, to cause said round to be chambered.

Rotatably mounted in bearings **70** (Figs. 1 and 3) of the feed box **46** is a shaft **72** (Figs. 1, 2 and 3) to which is secured a pair of feeder drive gears **74** having teeth meshing with teeth of the rack **30**. Splined on the shaft **72** and held against one of the gears **74** by a snap ring **76** (Fig. 3) is a bevel gear **78** which meshes with a clutch bevel gear **80** (Figs. 2, 3 and 4) rotatably mounted upon the forward end of a spring feed shaft **82**. A cylindrical portion of the bevel gear **80** is rotatably supported in a roller bearing **84** in a clutch bearing bracket **86** secured to and forming part of the feed box **46**. Interposed between the cylindrical portion of the bevel gear **80** and a feed spring winding sleeve **88** mounted for rotation upon the shaft **82** is a conventional sprag clutch **90** for moving the sleeve counterclockwise, as viewed from the rear, in response to recoil action of the barrel extension **32**, the gear **80** during counter-recoil of the barrel extension **32** being moved clockwise, as viewed from the rear, with relation to the sleeve **88** which is held against retraction by a sprag clutch **92** (Figs. 2 and 3) interposed between the sleeve and the clutch bearing bracket **86**.

Rotatably mounted upon the sleeve **88**, and in engagement with a spacer disk **94** secured by screws **96** (Fig. 3) to the bearing bracket **86**, is a spring drum end **98** (Figs. 2, 3 and 5) upon which is mounted a spring drum **100**. The spring drum **100** has secured to it, as best shown in Fig. 5, an outer end of a feed drive spring **102**, an inner end of said spring being attached to the sleeve **88**. The rear end of the drum **100** fits into slots **104** (Figs. 2 and 3) of a coupling or clutch drive sleeve **106** which is rotatably mounted upon a plate **108** (Fig. 3) and has secured to it friction plates **110** arranged in interspersed relation with friction plates **112** secured to a coupling or clutch hub **114** fixed for rotation with the feed spring shaft **82**. A coupling or clutch represented by reference numeral **107** may be said to comprise driving and driven members **106**, **114** respectively, and the drum **100** may be considered as part of the driving member.

It will be clear that counterclockwise rotation of the gear **80**, as viewed from the rear, causes the shaft **82** to rotate counterclockwise thereby powering or winding up the spring **102** and rotating with it the feed spring drum **100** and, through the friction clutch or coupling formed by the driving and driven friction disks **110**, **112** forming part of a friction disk drive, the clutch hub **114**. The disks **112** of the hub **114** are constantly forced against the disks **110** of the sleeve **106** by a bushing **116** (Figs. 2 and 3) slidable on the feed shaft **82** and backed up by a strong spring **118** (Fig. 3), the rear end of which engages a feed sprocket **120** (Figs. 2, 3 and 6) fluted for

receiving splines **122** on said shaft and having its rear end in engagement with a snap ring **124** secured in slots of the splines.

The sprocket **120** is provided with three circumferentially spaced sets of teeth **126** (Figs. 2 and 6) shaped and arranged to enter openings of the links **128** (Figs. 6 and 9) connecting cartridge receiving clips **130** of an ammunition belt **132** which is moved from right to left as viewed from the rear of the gun along a chute **133** (Fig. 6), the cartridges being successively extracted from the belt and fed into the receiver **36** by mechanism which will be hereinafter described. It is desirable that the sprocket **120** be actuated intermittently to cause, through mechanism described later, another cartridge to be fed into the cradled or ramming position illustrated in Fig. 1 ready to be chambered by the rocker **68** as soon as the preceding cartridge has left such position. Although the invention is described with reference to an ammunition belt **132** which moves from right to left, as viewed from the rear of the gun, it will be understood that the belt may be moved in a reverse direction, in which case the various parts of the feed box would be reversed.

The feed drive spring **102** is intermittently wound by the recoil action of the barrel extension **32** and, through the friction plates **110**, **112** constantly urges the sprocket **120** counterclockwise, as viewed from the rear to feed the cartridges in the belt **132** along the chute **133**.

The spring **102** is of suitable construction to supply the necessary power, when the shaft **82** is released for rotation as will be explained later, to operate the ammunition belt **132** (Figs. 6 and 9) and to cause the cartridge **62** to be extracted from the belt and to be delivered through mechanism hereinafter described, from a transfer position into the cradled position shown in Fig. 1 in the receiver **36**. In order to prevent overwinding of the spring **102** the construction of the disk clutch is such that when the spring **102** is fully wound and shaft **82** is locked, by mechanism hereinafter described, further counterclockwise movement of the sleeve **88**, as viewed from the rear, will cause the disks **110** to slip with relation to the disks **112**.

As each of the cartridges **62** in the belt travels around a corner **134** (Figs. 2, 6, 7 and 9) of one of ways **136**, **136***a* formed integral with tray portions **138**, **138***a* respectively, which assist in supporting the cartridge in its cradled position, front and rear strippers **140**, **142** (Figs. 1, 2, 3, 6 and 9), which collectively may be referred to as a stripper, enter recesses **144** (Fig. 9) of the clip **130** carrying the leading cartridge to strip said cartridge from the clip. The tray portions **138**, **138***a* form and may be defined as a tray. At the same time the cartridge **62** is drawn against front and rear presser members or feet **146**, **148** (Figs. 1, 2, 3 and 8), which engage the projectile **152** and the case **60** of the cartridge **62** respectively, causing said feet, which themselves are flexible, to yield upward or to "climb" over each of the cartridges against spring actuated mechanism hereinafter described. When the leading cartridge **62** being stripped from the belt **132** has been moved to a position in which its case **60** is centralized above the opening **44** in the receiver and above the tray **138**, **138***a*, and the projectile **152** is centralized above spaced guide brackets **154**, **156** (Figs. 2, 3 and 8) between which the projectile **152** can be moved, the energized front and rear presser feet **146**, **148** force the cartridge to its cradled or ramming position, shown in Figs. 1, 2, 3 and 7, the case of the cartridge resting upon the tray **138**, **138***a* and the front end of said case being supported upon a cartridge support or finger **158** (Figs. 1, 2, 3 and 8).

It is desirable to stop movement of the belt **132** when the leading cartridge has been stripped therefrom, the belt remaining locked against movement while the cartridge is being thrust into its cradled position by the presser feet **146**, **148** and until said cartridge has been moved away from said cradled position by the rocker **68** during movement of the bolt **58** in counter-recoil. Accordingly, there is provided a feed bar or abutment **160** (Figs. 2, 3, 6 and 7) which, through suitable control mechanism, is moved in response to movement of the leading cartridge into its cradled or ramming position to cause the sprocket **120** to be locked against movement. Such mechanism comprises a clutch or lock **162** (Figs. 2 and 3) including a recessed collar **164**, which is fixed to the feed spring shaft **82** and a jaw slide **166** slidingly mounted for movement on splines of a bushing **168** (Figs. 2, 3 and 7) mounted upon the rear end of said shaft and fixed in a bracket **170** secured by screws **172** (Fig. 7) to the feed box **46**.

Pivotally mounted upon fulcrum pins **174** (Figs. 2, 3 and 7) threaded into the way **136***a* are bell-crank levers **176**, **177**. Pivotally connected to the rear ends of the bell-crank levers **176**, **177** is the feed bar **160** which is movable generally lengthwise of the belt **132** and has a face **178** constructed and arranged to be engaged by cases **60** of the cartridges **62** approaching and arranged in the tray **138**, **138***a*. Transversely extending arms of the bell-crank levers **176**, **177** are pivoted to the opposite ends respectively of a shifter connecting link **180** slidable in a bore of a stop **182** (Figs. 2 and 3) secured to the way **136***a*, a spring **184** surrounding a portion of the link and having its front and rear ends in engagement with the stop **182** and with a flange **186** (Fig. 3) of the link. The laterally extending arm of the bell-crank lever **177** is bifurcated and carries pins **188** (Figs. 2 and 3) (only one shown) extending into a circumferential slot **190** (Fig. 3) of the jaw slide **166** of the clutch **162**. The spring **184** normally urges the bell-crank levers **176**, **177** counterclockwise, as viewed in Fig. 3, the construction and arrangement being such that when the cartridge **62** is moved forward and downward away from its cradled position by the rocker **68**, the spring **184** moves the feed bar **160** to the right, as viewed from the rear, causing jaws of the slide **166** to be withdrawn from recesses of the collar **164** thereby permitting the feed drive spring **102**, which together with associated parts may be referred to as a spring motor, to rotate the sprocket **120** counterclockwise, as viewed from the rear, thereby moving the leading cartridge in the belt **132** against the strippers **140**, **142** preparatory to moving the cartridge to its cradled position as above described. After the advancing cartridge **62** has engaged the feed bar **160**, it moves the bar to the left, as viewed from the rear, the construction and arrangement being such that when the cartridge has been moved to its cradled or ramming position the teeth of the slide **166** are in interlocking engagement with the recesses of the collar **164**, thereby stopping all further rotation of the feed spring shaft **82**. Recoil movement of the barrel extension **32** acting through the above-described drive upon the feed spring **102** is such that the spring is at all times well wound to supply the necessary power to drive the belt **132**, the construction and arrangement of the friction disks **110**, **112**, as above explained, being such that whenever the shaft **82** is locked by the clutch **162** and the spring **102** has been wound to its limit, the disks **110** will rotate with relation to the disks **112**.

The front and rear strippers **140**, **142** are pivotally mounted upon pins **192** (Figs. 2, 3 and 6) carried by a bracket **194** secured by screws **196** (Fig. 6) to the feed box **46**. Each of the strippers **140**, **142** is held in its idle position in which a depending portion thereof is in engagement with the bracket **194**, by a spring-pressed plunger **200** housed in a recess **202** of the bracket. As leading wedge-shaped ends of the strippers **140**, **142** enter the recesses **144** (Fig. 9) in the clips **130** they pivot slightly upon the pins **192** against the action of the spring-pressed plungers **200** and tend slightly to raise the clips out of which the cartridges are being forced by the front and rear presser feet **146**, **148**. In order to assist in controlling movement of the ammunition belt **132** there is se-

cured by screws **204** (Figs. 1 and 6) to the feed box **46** a cartridge link guide **206** (Figs. 1, 2, 3 and 6) which is arranged between opposite plates **208** (Fig. 9) of the clips.

The front and rear presser feet **146**, **148**, which are preferably made of stiff spring steel, are clamped by screws **210**, **212** respectively (Figs. 1 and 2) to a rod or carrier **214** (Figs. 1, 2 and 8) rotatably mounted in bearings **216** secured to the feed box **46**. The presser feet **146**, **148** are normally held in their lowered positions by a plunger **218** which is slidingly mounted in a housing **220** secured to the feed box **46** and operates against an arm **222** secured to the rod **214**, the plunger being moved to the right as viewed in Figs. 2 and 8 by one or more rods **224** which are fixed to the plunger and which are slidable in bores of the housing and are constantly acted upon by springs **226**, the front ends of said springs being in engagement with the rods **224**, and the rear ends of the springs being in engagement with the rear ends of said bores. Movement of the plunger **218**, under the action of the springs **226**, is limited by the engagement of collars **228** (Fig. 2) carried by rods **224** with an outside face of the housing **220**.

As the advancing cartridge **62** engages the presser feet **146**, **148** it raises said feet which bend slightly and also rotate against the action of the spring-pressed plunger **218**, the cartridge, during such time, being extracted from the belt **132** and moving around the corner **134** of the way **136** and into the opening formed between the round guiding brackets **154**, **156** until downward movement of the cartridge is stopped by the tray **138**, **138***a* and the cartridge supporting finger **158**. The finger **158** is rotatably mounted upon a pin **230** (Figs. 1, 3 and 8) threaded into a bracket **232** secured by screws **234** (Fig. 8) to the feed box **46**, said finger being positioned between a flange of the bracket and a nut **238** (Fig. 2) threaded onto a portion of reduced diameter of the pin. The finger **158**, which may be defined as rotatable about an axis extending generally height-wise of the feed box and arranged at one side of a cartridge about to be chambered, is normally so positioned that a face **240** thereof is engaged by the forward portion of the case **60** of the cartridge **62** in its cradled or ramming position, the finger assisting the tray **138**, **138***a* in supporting the cartridge in such position. The finger **158** is constantly urged to its cartridge-supporting position shown in the drawings with a lug **242** (Figs. 3 and 8) which extends from it in engagement with a stop **244** on the bracket **232**, by a spring **248** which is initially tensioned and has its upper and lower ends attached to the bracket **232** and to the finger **158** respectively. It will thus be apparent that when the cartridge **62** is moved forward by the rocker **68**, which as above explained serves as a rammer and also as an extractor, the finger **158** is swung counterclockwise as viewed in Figs. 2 and 3 against the action of the spring **248** with the result that, during said forward movement, the forward end of the cartridge is permitted to drop as it is cammed down by the guide brackets **154**, **156** as will now be explained. It will be noted that the guide brackets **154**, **156** are provided with cam or deflecting surfaces **250**, **252** (Fig. 8) which extend downward as they extend forward and which when engaged by the cartridge moved forward by the rocker **68**, deflect the nose of said cartridge downward. During forward movement of the cartridge **62** the finger **158**, engaged by a frusto-conical surface **254** (Figs. 2 and 3) of the case **60** of the cartridge **62**, is swung forward thereby permitting the nose of the cartridge to drop at the proper time as it is deflected downward by the cam surfaces **250**, **252** of the brackets **154**, **156**. When the cartridge has been moved away from the finger **158**, said finger swings back to its idle position under the action of the spring **248**. During forward movement of the cartridge **62** in the receiver **36**, the presser feet **146**, **148** continue to apply downward pressure against the cartridge and cooperate with the various cartridge engaging parts above described, in chambering said cartridge.

It is desirable that the clutch **162** remain engaged after the last cartridge **62** in the belt **132** has been moved from its cradled or ramming position by the rocker **68** since otherwise the feed drive spring **102** would fully unwind and there would be no energy available in said spring to feed cartridges of the succeeding belt into the receiver **36**. In order to retain the feed bar **160** in the position shown in the drawings, after the last cartridge of a run of cartridges in the belt **132** has been moved to its cradled position, there is provided a feed bar latch or detent **256** (Figs. 1, 2, 3 and 7) which is pivotally mounted upon a fulcrum pin **258** (Figs. 2, 3 and 7) carried by the stop shaft supporting bracket **170** and is constantly urged downward by a leaf spring **260** (Fig. 7) secured at its upper end to said bracket. The latch **256** has a curved upwardly extending face **262** which is engaged by a cartridge as it advances toward the corner **134** of the way **136** with the result that the latch is moved to its idle dash-dot position shown in Fig. 7, a shoulder **264** of the latch then being spaced above the front face **178** of the feed bar **160**. When the last round in the belt **132** has been moved to its cradled or ramming position, the latch **256**, under the action of the leaf spring **260**, remains in its full-line active or operative position shown in Fig. 7 and consequently the feed bar **160**, thus held by the latch, retains the clutch **162** closed and prevents unwinding of the feed drive spring **102**. When the leading cartridge in the following belt **132** engages the latch **256**, the latch is raised thereby permitting the feed bar **160** to move under the action of the spring **184** to disengage the clutch **162** and thus permitting feeding movement of the sprocket **120**.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In an ammunition feeder for an automatic gun, a spring, a member energized by said spring, means actuated by recoil action of the gun for powering said spring, a sprocket for driving a belt of cartridges, a friction disk drive and mechanism associated therewith for operatively connecting said member to said sprocket, a lock for securing said mechanism against movement, an abutment movable to an active position in response to movement of a leading cartridge from said belt for rendering said lock effective in securing said mechanism and accordingly the sprocket against movement, a detent for holding the abutment in its active position, and a receiver, said detent being constructed and arranged to be engaged by a cartridge following said leading cartridge in the process of being delivered to a cradled position in the receiver to retain said detent in an idle position until such time as the last cartridge in the belt is being fed into said cradled position and thereafter to secure the abutment in its active position to insure against movement of the sprocket and accordingly said belt after the last cartridge in said belt has been delivered to its cradled position.

2. In combination with an automatic gun which has a receiver, an ammunition feeder comprising a feed box, spring actuated means for delivering cartridges mounted in a belt successively to the feed box, control means movable to a locking position in response to movement of a leading cartridge, which has been stripped from said belt and is being delivered to a cradled position in the receiver, for rendering said spring-actuated means inoperative, said control means also being movable to a retracted position in response to movement of said stripped cartridge from its cradled position to permit cartridge delivering movement of said spring-actuated means again to be rendered operative, and a detent constructed and arranged to be actuated by a cartridge which is in the belt and follows said stripped cartridge, said detent being constructed and arranged to secure said control means in locking position when a last cartridge from the belt is in and has been moved from its cradled position in the receiver, thereby insuring against movement of the spring-actuated means until such time as a cartridge from another belt is delivered to the feed box.

3. In an ammunition feeder for an automatic gun, a feed box, a belt for delivering cartridges successively to said feed box, spring-energized means for operating said belt, means for stripping cartridges successively from said belt and delivering them to a predetermined position in said feed box, mechanism movable to an active position in response to movement of the cartridges delivered successively to said predetermined position for rendering said spring-energized means inoperative, and a latch constructed and arranged to lock said mechanism in said active position between the time that the last cartridge in the belt is being delivered to said predetermined position and the time that a leading cartridge in a succeeding belt is being introduced into the feed box against said latch.

4. In an ammunition feeder for an automatic gun, a feed box, means for successively feeding cartridges in a belt to the feed box, a tray constructed and arranged to be engaged by the rear portions of cases of said cartridges, a spring actuated support constructed and arranged to be engaged by the forward portions of the cases of said cartridges, a rammer for chambering said cartridges, strippers for removing said cartridges from the belt as they are delivered to the feed box, springs for successively forcing the stripped cartridges against the tray and the support to position such cartridges preparatory to ramming them forward into the barrel of the gun, and a pair of guides arranged at opposite sides of the projectiles of said cradled cartridges, said guides having surfaces which extend downward and forward and are constructed and arranged to deflect the forward ends of the cartridges downward as they are moved forward by said rammer, said support being mounted for rotation about an axis extending generally heightwise of the feed box and arranged at one side of the cartridges and being constructed and arranged to yield under forward pressure of the cartridges and laterally of the cartridges and in cooperation with guides to control the cartridges as they are chambered by the rammer.

5. In an automatic gun, a receiver, a barrel and a barrel extension mounted for recoil and counter-recoil movement in said receiver, a feed box secured to the receiver, a sprocket for delivering cartridges in a belt to the feed box, means for stripping the cartridges successively from the belt and delivering them to a ramming position, a friction coupling comprising driving and driven members, a one-way drive member movable in response to recoil movement of the barrel extension, a spring one end of which is attached to the driving member of the coupling and the other end of which is attached to said one-way driving member, resilient means, an abutment which is moved against the action of said resilient means by a cartridge being delivered to its ramming position in the feed box, and a lock movable in response to movement of the abutment for securing the sprocket and the driven member of the coupling against movement, said abutment being moved under the action of said resilient means, when the cartridge has been moved from its ramming position, to an inactive position, thereby permitting movement of the driven member of the coupling and accordingly the sprocket under the driving action of the spring.

6. In an automatic gun, a feed box, an energized spring, means comprising a sprocket and a friction coupling including a driving member operatively connected to the spring and a driven member operatively connected to the

sprocket for moving cartridges assembled in a belt into the feed box and for removing them successively from the belt and delivering them to a ramming position in the feed box, an abutment which is movable to an active position in response to movement of a cartridge to said ramming position in the feed box, and means responsive to movement of said abutment to its active position for locking said driven member of the friction coupling to insure against movement of the sprocket under the action of said spring, said last-named means also being responsive to movement of the abutment away from said active position for disconnecting said abutment from the driven member of the coupling to permit the sprocket to be driven through the friction coupling by said spring.

7. In an automatic gun, a receiver, a barrel and a barrel extension mounted for longitudinal movement in the receiver, a feed box secured to the receiver, a movable abutment, a stripper, means for successively moving cartridges assembled in a belt against said stripper and thereafter against the abutment into a ramming position preparatory to chambering the cartridge in the barrel, a spring which is energized by recoil movement of the barrel and the barrel extension, a friction coupling having a driving member operatively connected to the spring and having a driven member operatively connected to said means, and mechanism for locking the driven member of the friction coupling against movement when the abutment is in an active position and for permitting the driven member of the friction coupling to be moved by said driving member of said coupling actuated by the spring when the abutment is in a retracted position, thereby permitting said means to feed a cartridge in the belt into its ramming position.

8. In an automatic gun, a tray and a finger constructed and arranged to be engaged by the rear and forward ends respectively of a case of a cartridge to support said cartridge in a cradled position, a pair of guides arranged at opposite sides of the projectile of the cradled cartridge, a rammer movable forward against the rear end of the cradled cartridge, said guides having surfaces respectively which extend downward and forward and are constructed and arranged to deflect the forward end of the cartridge downward as it is moved forward by said rammer, said finger being supported for rotation about an axis arranged at one side of the cartridge and extending heightwise of the gun, and a spring for constantly urging the finger to an operative cartridge-supporting position, said finger being constructed and arranged to swing forward about said axis under pressure of the cartridge moved forward by the rammer and in cooperation with said deflecting surfaces to control dipping movement of the cartridge forced forward by the rammer in order to insure proper chambering of the cartridge in the barrel of the gun.

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