Aug. 28, 1945. J. C. TROTTER ET AL 2,383,830

AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

Filed June 10, 1941 6 Sheets-Sheet 1

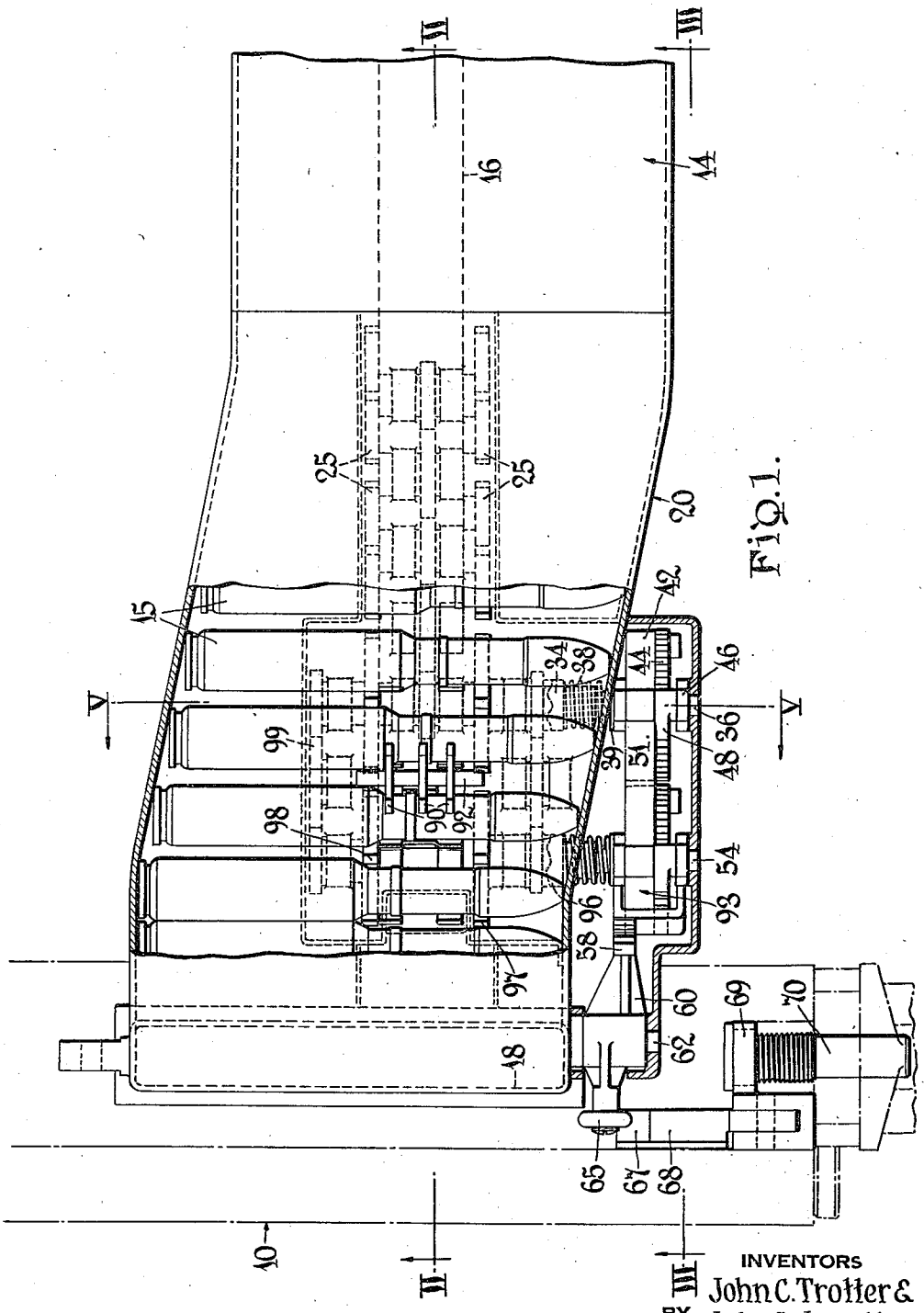


Fig. 1.

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AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

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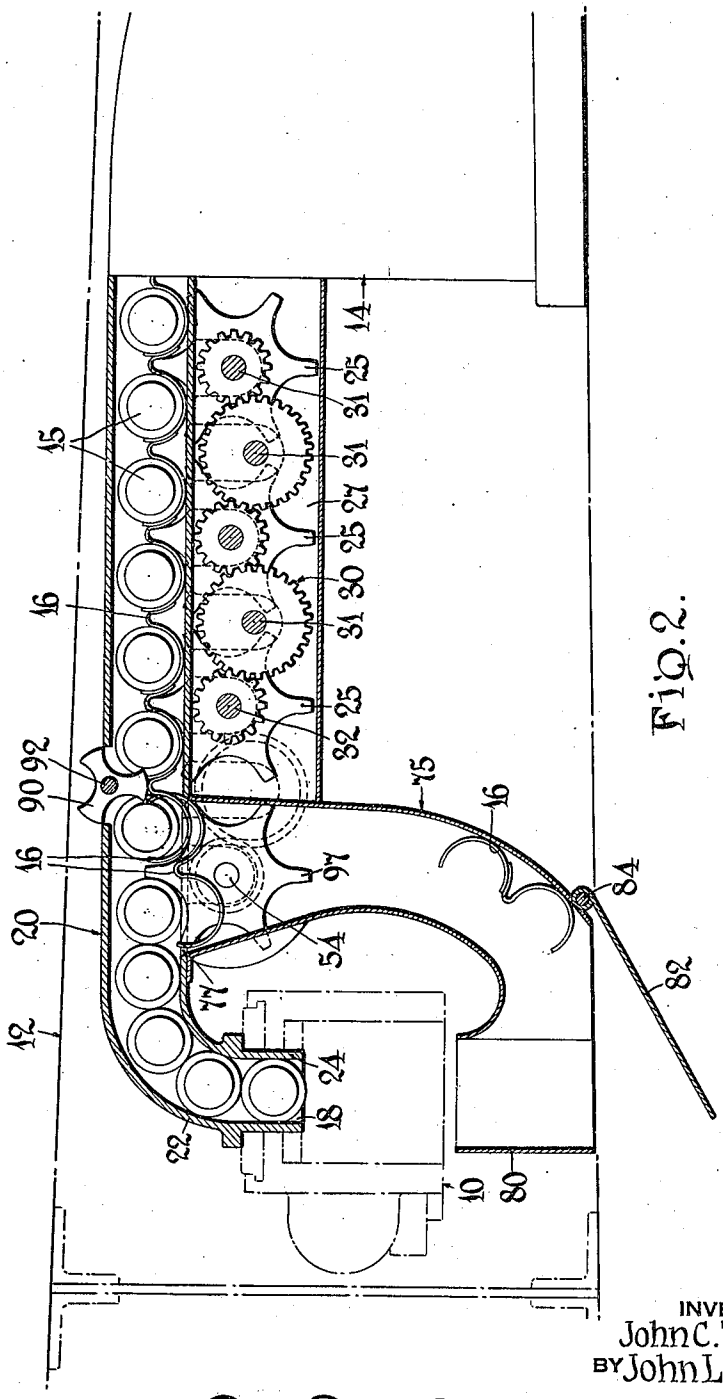


Fig. 2.

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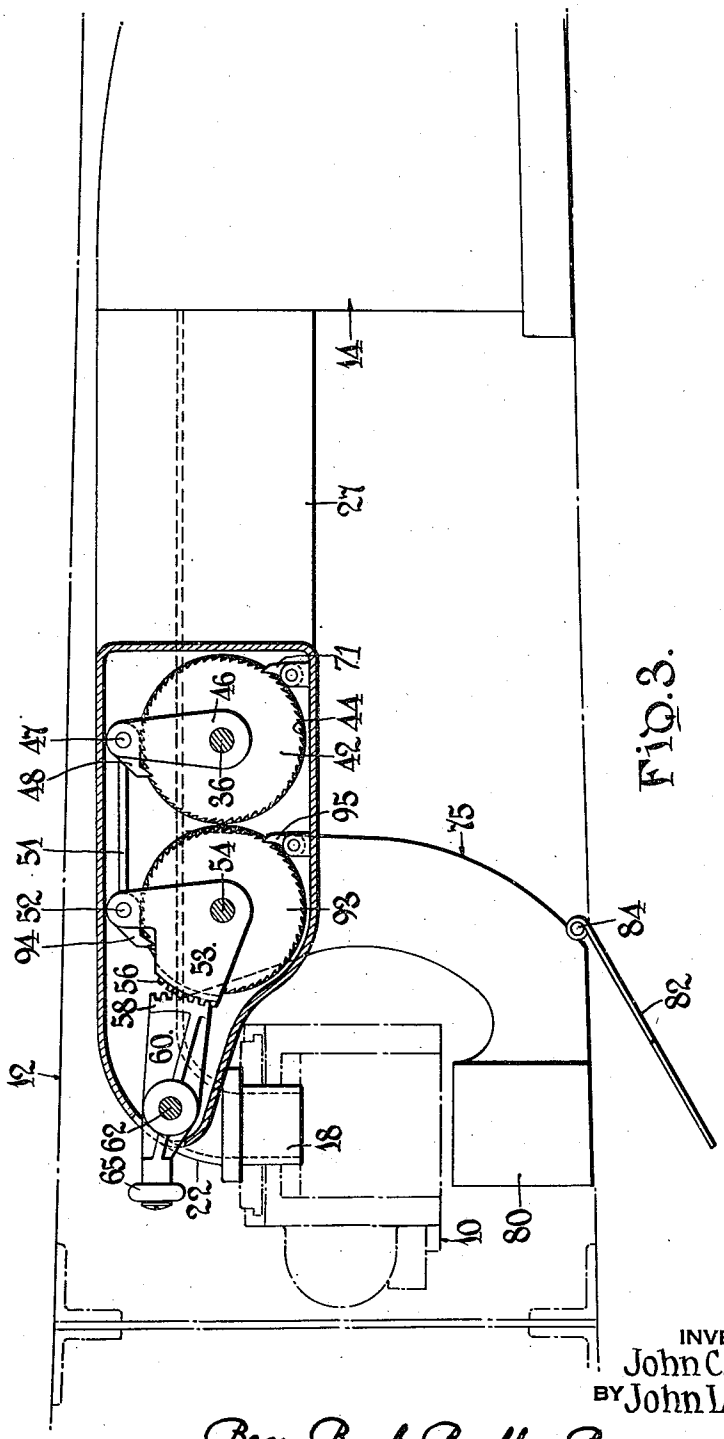


Fig. 3.

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AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

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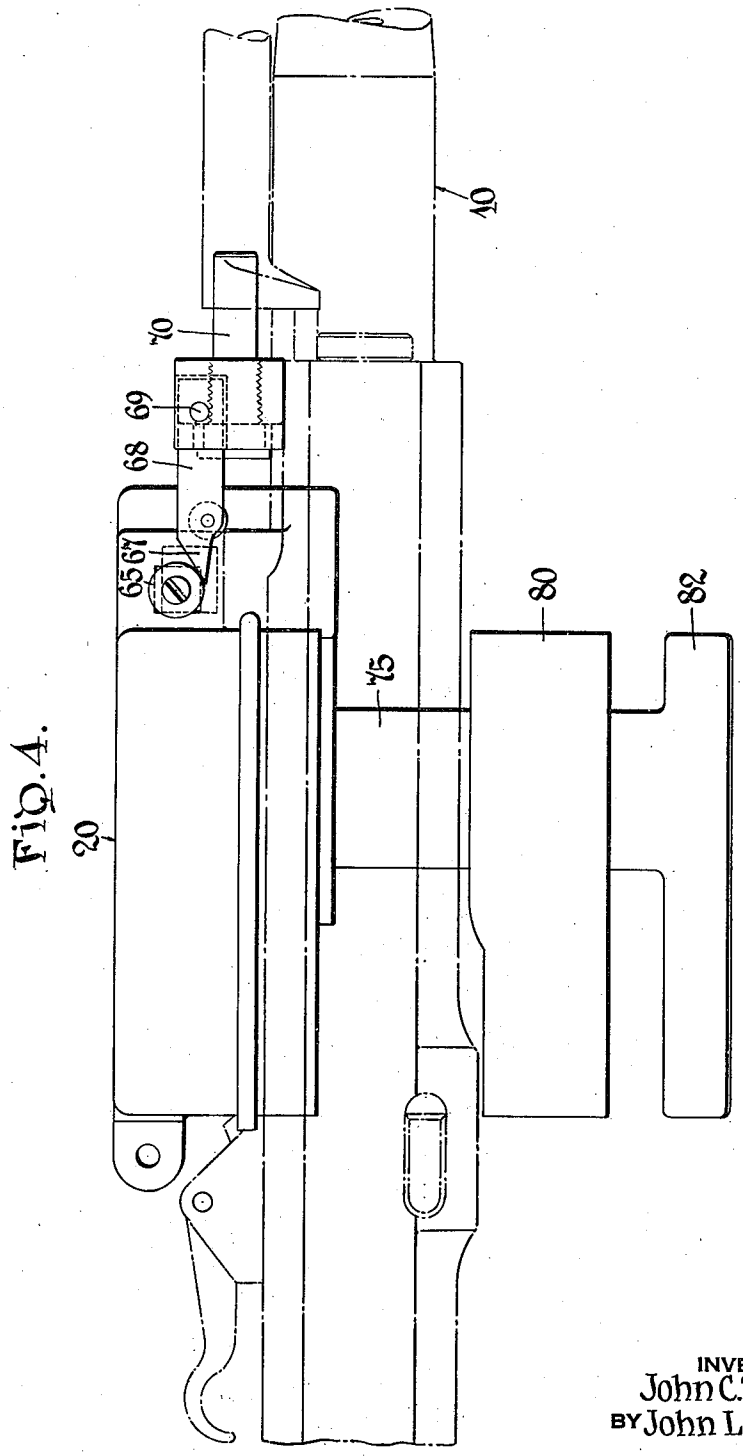


Fig. 4.

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AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

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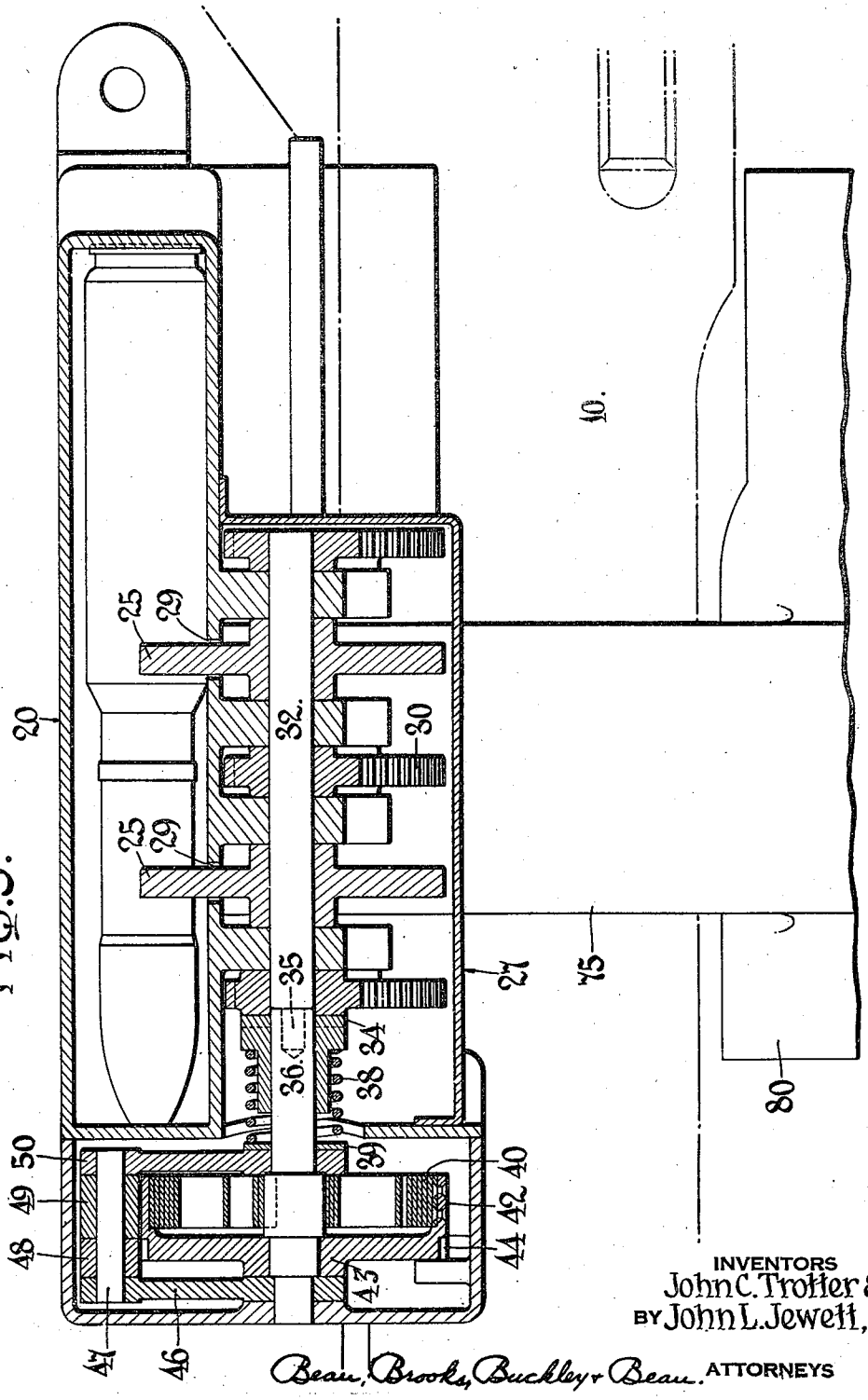


Fig. 5.

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AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

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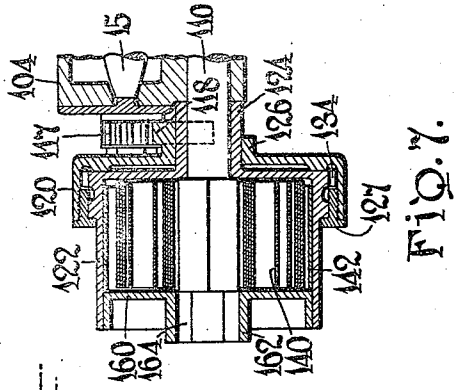


Fig. 7.

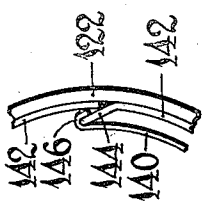


Fig. 8.

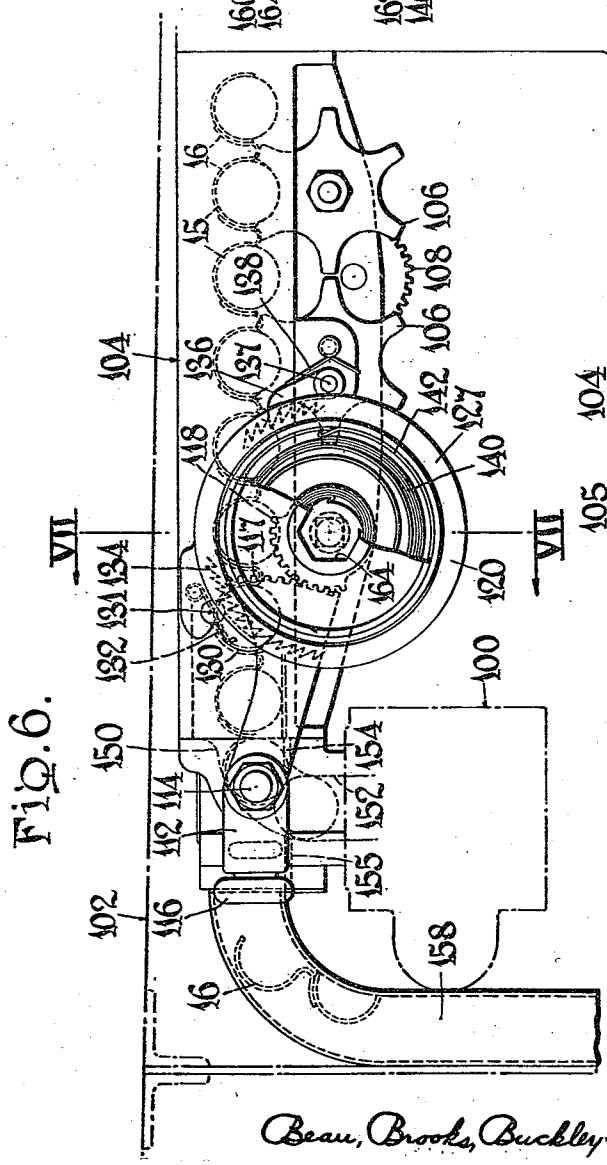


Fig. 6.

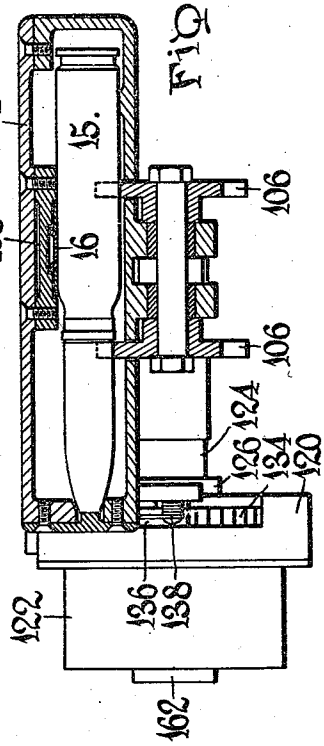


Fig. 9.

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UNITED STATES PATENT OFFICE

2,383,830

AERIAL CANNON AMMUNITION FEED ASSIST ACCESSORY MECHANISM

John C. Trotter, Williamsville, and John L. Jewett, Buffalo, N. Y., assignors to Bell Aircraft Corporation, Buffalo, N. Y.

Application June 10, 1941, Serial No. 397,422

6 Claims. (Cl. 89—33)

This invention relates to rapid firing guns, and more particularly to an improved means for feeding ammunition thereto. One of the objects of the invention is to provide an improved ammunition feed accessory device adapted to be mounted in conjunction with an aerial cannon within a relatively restricted space, such as in an airplane wing or the like. Another object of the invention is to provide an automatic gun cartridge belt feed device which is adapted to segregate cartridges and cartridge connecting links prior to entrance of the cartridges into the gun feedway, in an improved manner. Another object of the invention is to provide an improved cartridge belt feed accessory device for automatic guns which is adapted to feed the cartridge belt to the gun in an improved manner. Other objects and advantages of the invention will be apparent from the specification hereinafter.

In the drawings:

Fig. 1 is a fragmentary plan of an aerial cannon and an ammunition feed accessory device of the invention;

Fig. 2 is a section taken substantially along line II—II of Fig. 1;

Fig. 3 is a section taken substantially along line III—III of Fig. 1; and

Fig. 4 is a fragmentary side elevation of the gun and feed mechanism of Fig. 1;

Fig. 5 is a section, on an enlarged scale, taken along line V—V of Fig. 1;

Fig. 6 is a view corresponding to Fig. 3 of another form of the invention;

Fig. 7 is a section taken along line VII—VII of Fig. 6;

Fig. 8 is an enlarged view of a detail of Fig. 6; and

Fig. 9 is a transverse section through the guide throat casing of the device of Fig. 6.

The invention is illustrated in Figs. 1–5 of the drawings in conjunction with a gun 10 of the so-called aerial cannon type which is shown mounted within an airplane wing cell indicated generally at 12 (Figs. 2 and 3). An ammunition magazine 14 is also mounted within the wing cell 12 at one side of the gun 10 so as to be adapted to contain a supply of shells 15 for the gun. The shells are connected in articulated manner by means of conventional open top type links 16, so as to form a continuous ammunition belt adapted to be folded and nested within the magazine 14 preparatory to feeding to the gun. The gun 10 is provided with an ammunition feedway 18 in registry with the breach mechanism thereof.

The accessory feed device comprises a feed throat 20 in the general form of a closed sleeve of rectangular sectional form for guiding the movement of the cartridges or shells 15 from the magazine 14 into the gun feedway 18. Because the cartridge feedway 18 of the gun 10 faces upwardly, the throat 20 is provided with a downwardly curved discharge end portion 22 which fits into detachable connection with the gun 10 as at 24, while the opposite end of the throat 20 is disposed in registry with the ammunition outlet portion of the magazine 14 at an upper side wall portion thereof. Consequently, the general arrangement of the parts enables the gun and magazine and feed mechanism to be compactly nested within the relatively restricted space provided interiorly of the wing cell.

To motivate the shells or cartridges 15 from the magazine 14 and into the gun ammunition feedway, a train of sprocket wheels 25 is provided adjacent the lower wall portion of the throat 20; each of the wheels 25 being rotatably mounted by means of suitable shafting upon a bracket structure 27 extending below the throat 20. The lower wall of the throat 20 is slotted as at 29 in the region of the star wheels 25, and the star wheels are so mounted upon the bracket 27 as to have their finger portions extending upwardly through the slotted portion 29 of the throat 20 for geared engagement with the cartridge belt when disposed within the throat 20. The star wheels 25 are arranged to be rotated in the necessary direction for propulsion of the shells 15 toward the gun feedway end portion of the throat 20 by means of a train of meshed gears indicated generally at 30; the gears 30 being also mounted upon the bracket 27 by means of shafts 31 and keyed to the star wheels 25 so that the star wheels 25 rotate simultaneously.

To drive the gear train 30 one of the star wheel shafts 32 is extended and coupled through means of a friction clutch 34 to a drive shaft 36; a pilot connection at 35 maintaining the shafts 32—36 in axial alignment. A compression spring 38 is fitted between an axially fixed bearing disc 39 and the friction clutch device 34 for urging the latter at all times to frictionally interconnect the shafts 36 and 32. The drive shaft 36 is connected to the inner end of a flat clock-type coil spring 40, the outer end of which is fixed to a housing 42 which is rotatably carried upon the shaft 36 by a bearing portion 43 and is peripherally toothed at 44 in the manner of a ratchet wheel. A lever 46 (Figs. 3 and 5) is rotatably carried at one of its ends upon the shaft 36 and carries at its outer end a pin 47 supporting a ratchet pawl 48 for

driving the ratchet casing 44 in response to oscillation of the lever 46. A spacer 49 and a link 50 (Fig. 5) mount upon the pin 48 and the shaft 36 behind the bearing disc 39 to complete a swingable ratchet pawl device.

A pitman 51 (Fig. 3) connects the spacer 49 with a pin 52 extending from a free end of a bell crank 53 which is pivotally mounted upon a shaft 54 similar to the shaft 36.

The bell crank 53 is formed with a gear segment 56 concentric of the axis of rotation about the shaft 54 for meshed engagement with a gear segment portion 58 of a lever 60 which is pivotally mounted at 62 upon a wall portion of the throat casing. At its opposite end the lever 60 carries a roller 65 for engagement with an inclined track portion 67 of a cam bar 68 which is arranged in longitudinally adjustable connection at 69 with a bolt 70 extending from a portion of the gun 10 which reciprocates in response to recoil forces when the gun is firing. Hence, upon firing of the gun 10 the cam 68 reciprocates in synchronism with the gun firing operation to cause the rocker 60 to oscillate in such manner as to intermittently drive the spring motor casing 42 in counterclockwise direction as viewed in Fig. 3 through the ratchet-pawl mechanism 48. A spring pressed pawl 71 is mounted upon stationary portions of the throat casing for operative connection with the ratchet teeth 44 to stop the housing 42 against return movements intermediately of driving operations of the pawl 48. Thus, the outer end portion of the driving spring 40 is rotated in counterclockwise direction as viewed in Fig. 3, and there is thus transmitted to the drive shaft 36 spring-loaded forces tending to rotate the sprocket wheel mechanism in the required direction of movement for propulsion of the cartridges 15 into the gun feedway. The connection 69 between the cam 68 and the gun bolt 70 is arranged to be adjustable so that the throw imparted by the cam 68 to the rocker 60 may be modified as required to provide approximately the correct amount of driving action of the sprocket wheel assembly to suit the cartridge feeding requirements of the gun. However, it will be understood that the cam adjustment will be preferably so arranged that the rocker operation provides slightly more than the required star wheel driving action, and that as the spring 40 becomes overloaded with the star wheels under full torque, the friction clutch 34 will slip to absorb the overrunning operation of the cam and rocker mechanism.

As illustrated in Fig. 1, the throat 20 is laterally distorted in plan view in such manner that the opposed side wall portions of the throat member 20 are adapted to cam the shells or cartridges 15 endwise as they approach the gun feedway whereby the enlarged body portions of the cartridges are displaced out of connection with the corresponding curved finger portions of the connecting link devices 16, whereby the links 16 are freed to fall into a link ejection chute 75 disposed below the throat 20 and in registry with an apertured wall portion 77 thereof; it being understood that the links 16 are of the convention open side type and adapted to remain engaged only upon the larger diameter portions of the shells which are dimensioned to fit the link recesses snugly. Thus, as illustrated in Fig. 2, just prior to arrival of each successive cartridge over the aperture 77 in the lower wall of the throat 20, the cartridges engaging each successive link 16 will be cammed endwise out of engagement with the link so that the latter is free to pivot and then to slide downwardly through the chute 75. The chute 75 is provided with a cuff portion 80 which is disposed below the case ejecting port of the gun 10 so as to convey the empty cartridge cases as they are ejected by the gun through the wing cell for discharge into the airstream below the airplane. A door 82 is hinged at 84 to the chute structure 75—80, and is spring urged so as to normally remain closed to complete the airplane wing contour, but it will be understood that the weight of accumulated links and cases upon the door 82 will cause the latter to periodically open for discharge of the contents of the chute.

Preferably, a sprocket wheel device 90 is rotatably mounted by means of a shaft 92 within a suitably apertured portion of the upper wall of the throat 20 substantially opposite the leading edge of the link receiving aperture 77 of the lower wall portion of the throat 20. The sprocket device 90 is arranged to register with the links 16 as they move into registry with the chute 75 so as to bear against the trailing end portion of each succeeding link as it pivots preparatory to entrance into the chute 75. Thus, the links are prevented from simply rotating at their rear end portions about the engaging cartridges so as to remain suspended therefrom as the cartridges proceed toward the gun feedway as would otherwise cause jamming of the cartridge feeding operation.

As illustrated in Fig. 1, the links 16 engage the shells 15 intermediately of their ends and adjacent shouldered portions of the shells so that relatively slight endwise movements of the shells relative to the corresponding links dispose reduced diameter portions of the shells in the region of the clamping finger portions of the links 16 so that the articulated connections between the links and shells are thereby disengaged. The sprocket wheels 25 are relatively arranged so as to be in spaced opposed relation at opposite sides of the links 16 as the cartridge belt moves through the guide throat 20. Thus, the sprocket wheels 25 function simultaneously to drive the cartridge belt and to maintain the links 16 in unchanged alignment while passing through the mechanism of the invention, thus preventing lateral shifting of the links 16 coincident with shifting of the cartridges 15 for disengaging purposes under the camming action of the oblique side walls of the feed throat.

A second spring motor unit similar to the motor unit of the spring 40 is arranged in conjunction with the shaft 54, and is designated generally at 93. The spring motor unit 93 also comprises a casing having a ratchet-toothed portion for cooperation with pawls 94 and 95 in the manner of the arrangement of the spring motor unit in conjunction with the drive shaft 36. The shaft 54 is arranged to drive through a friction clutch 96 a sprocket 97 corresponding to the sprockets 25 for conveying the shells 15 over the region of the link outlet aperture 77, and as illustrated in Fig. 1, the sprocket 97 is disposed in plan view so as to avoid interference with passage of links 16 through apertured portion 77 of the throat casing for conveyance of the links through the discharge chute 75. A similar sprocket 98 is rotatably carried in opposed relation with respect to the sprocket 97 at the other side of the link receiving aperture 77, and is driven by a train of gears 99 which engage with the shaft 32. Thus, as the shells 15 pass successively over the link receiving aperture 77 they are driven by the oppositely

placed sprockets 97—98 which operate in synchronism with the driving sprockets 25, and thus the shells 15 are positively driven and directed through the throat 20 into the gun cartridge feedway in an improved manner.

Figs. 6 to 9 illustrate an ammunition feed device of the invention in conjunction with a cannon 100 shown mounted within air airplane wing structure designated at 102. The cartridge feed throat is indicated generally at 104 as being generally similar to the feed throat 20 of Figs. 1 to 5, and it will be understood that the feed throat 104 comprises essentially a closed conduit of rectangular sectional form for accommodating the shells 15 in laterally sliding relation for passage through the throat 104 into the cartridge feedway of the gun. It will be understood that the feed throat 104 is formed obliquely in plan view, as in the case of the device of Fig. 1, for automatic disengagement of the cartridges 15 from the links 16 as explained hereinabove. However, in this form of the invention it is preferred that the links 16 be arranged in inverted attitude and carried upon the upper portions of the corresponding shells 15, as illustrated by Fig. 6. A link guideway 105 is mounted upon the inner upper wall of the throat 104 (Fig. 9) to extend longitudinally of the feed throat and to slidably engage and guide the links 16 against lateral displacement during the camming of the shells out of articulated connection. Sprockets 106 corresponding to the sprockets 25 of Figs. 1 to 5 are rotatably carried upon the lower structural portion of the feed throat 104 and are arranged to extend into the interior of the throat for driving engagement with successive cartridges as the cartridge belt feeds into the throat. The sprockets 106 are arranged to be driven by a train of gearing, a portion of which is indicated at 108, and the gearing is arranged to be driven by a power supply shaft 110 which corresponds to the power supply shaft 32 of Figs. 1 to 5.

The power supply shaft 110 is arranged to be actuated in a continuously rotating manner through means of a resilient power transmission device which is in turn arranged to be actuated by the recoil motion of a reciprocating part of the gun 100. For this purpose a lever 112 is pivotally mounted upon a stationary casing portion of the feed throat 104 by means of a pivot pin 114, and carries at its outer end a roller 116 which corresponds to the roller 65 of Figs. 1 to 4. At its opposite end 117 the lever 112 is of gear segment form for driving connection with a toothed member 118 extending from a cup-like casing 120. The casing 120 is formed concentrically of the shaft 110 and substantially encloses a driving shell 122 which is also concentric of the shaft 110 and rotatably mounted thereupon by means of a reduced extending end portion 124. The casing 120 is provided with a similar reduced extending end portion 126 which encompasses the bearing portion 124, and thus the casing 120 and the shell 122 are both rotatably mounted and carried by the shaft 110. A detachable annular flange 127 is arranged to be screw-threaded into engagement with the casing 120 upon assembly of the device for maintaining the casing and shell members in operative relation.

A driving connection device for transmitting power impulses from the casing 120 to the shell 122 is provided in the form of a pawl 130 which is pivotally mounted by means of a pin 131 upon the casing 120 and spring-pressed by means of a spring 132 into operative engagement with a ratchet toothed portion 134 of the shell 122. A second pawl 136 is pivotally mounted by means of a pin 137 to a stationary portion of the structure of the throat 104 and is arranged to be spring-pressed by means of a spring 138 into operative engagement with the toothed portion 134 of the shell 122 in such manner as to prevent the shell 122 from rotating in a clockwise direction as viewed in Fig. 6, but to allow the casing 122 to rotate in a counter-clockwise direction. Thus, upon oscillation of the lever 112, as a result of the recoil operation of the gun, as explained hereinabove in connection with the form of the invention of Figs. 1 to 5, the casing 120 will be caused to oscillate while the shell 122 will be driven counter-clockwise as viewed in Fig. 6 with intermittently applied power impulses.

A clock-type coil spring 140 is operatively connected at its outer and inner ends with the shell 122 and the drive shaft 110, respectively, for translating the intermittent power impulses imposed upon the shell 122 into continuous rotation of the shaft 110. For this purpose a clutch plate 142 of leaf spring form is arranged within the shell 122 and is so dimensioned as to fit therein in frictional engaging relation with the inner wall portion of the shell 122. An end portion of the clutch plate 142 is turned inwardly as at 144 (Fig. 8) for abutting engagement with an outwardly turned end portion 146 of the spring 140, whereby counter-clockwise movements of the shell 122 will tend to drag the clutch plate 142 in the same direction and to thereby pull the outer end portion of the spring 140 also in a counter-clockwise direction. At its inner end the spring 140 is formed with an inwardly bent finger portion for engagement with a ratchet toothed portion 148 of the drive shaft 110, the interconnection being so arranged that counter-clockwise movement of the spring 140 tends to rotate the shaft 110 in similar direction, but the shaft 110 is free to rotate in a counter-clockwise direction independently of such movement of the spring 140, as during manual charging of the cartridge belt into operative connection with the feed pawl mechanism of the gun prior to firing of the latter.

Thus, it will be understood that upon oscillation of the lever 112 in response to recoil motions upon firing of the gun, the casing 120 will oscillate to impart intermittent one-way movements to the shell 122 which in turn charges the spring 140 with power to drive the sprocket drive shaft 110 in continuous manner, whereby the cartridge belt will be fed smoothly to the gun 100 as long as the firing operation continues. Upon cessation of the gun firing operation the cartridge feeding operation will automatically cease, and the power transmission mechanism of the invention will at all times function to eliminate jerks and strains upon the mechanism during starting and stopping of the gun firing and cartridge feeding operations.

It will also be understood that in the event the operation of driving the spring 140 exceeds the power supply demands upon the spring, the spring will become excessively tensioned and will thereby pull the turned end portion 144 of the clutch plate 142 inwardly and out of frictional engagement with the shell 122, whereby the clutch plate will be enabled to slip relative to the shell 122, and the driving pawl mechanism will be enabled to overrun the driving spring portion of the mechanism until such time as further

tensioning of the spring 140 is required. Thereupon the clutch plate will be automatically permitted to return to frictional engaging relation with respect to the shell 122, and the spring driving operation will continue.

As illustrated in Fig. 6, an end wall portion of the casing structure is formed to provide a trackway 150 for the shells 15, and is so arranged as to divert the shells successively from the feed throat 104 into the cartridge feedway 152 of the gun. Link support plates 154 and 155 are mounted upon the throat 104 and are arranged to extend in opposed relation and in substantially horizontal alignment with the bottom of the shell trackway within the throat 104 for engaging the links 16 after they become disconnected from the cartridges 15. The plates 154—155 are so proportioned and arranged as to provide no interference with passage of the cartridges 15 into the gun cartridge feedway, but they cooperate to prevent the links 16 from falling thereinto and act to convey the links into a link ejection chute 158 arranged at the opposite side of the gun 10. Thus, upon driving of the cartridge belt through the feed throat 104 under the action of the drive sprockets 106, the cartridges are automatically cammed endwise out of connected engagement with the corresponding links 16 which previously connected the cartridges to form the cartridge belt, just prior to movement of the successive cartridges downwardly into the cartridge feedway mechanism of the gun. However, the connecting links 16 are prevented from entering the gun cartridge feedway and are automatically conveyed by the cartridge belt driving action to the opposite side of the gun and into the link ejection chute 158 for discharge therethrough for further disposal as desired.

The side wall portion 160 of the casing shell 122 is formed with a central boss portion 162 which is provided with an angularly shaped central opening 164 adapted to slidably receive the key shaped end of a manually operable crank (not shown), whereby the shell 122 may be manually rotated in a counterclockwise direction as viewed in Fig. 6 to pre-load the drive spring 140 preparatory to automatic operation of the ammunition feed mechanism. Thus, upon initial charging of the gun preliminary to combat operations the drive spring 140 may be pre-loaded by manual rotation of the shell 122 to a condition of tension sufficient to impose a cartridge belt feeding thrust upon the drive sprocket system of the device so that immediately upon commencement of a firing operation and attendant movement of cartridges through the gun the drive sprocket mechanism of the invention will simultaneously motivate the cartridge belt so as to force new cartridges into the gun cartridge feedway. Subsequent operation of the gun automatically actuates the sprocket-pawl mechanism to maintain the spring 140 in charged condition, as explained hereinabove.

Thus, the invention provides a simple and rugged and automatically operating device in the form of an easily attached accessory for use in conjunction with any type of automatic gun or cannon or the like whereby the oscillative movement of actuating parts thereof are automatically translated and transmitted to the feed accessory mechanism in an improved manner for feeding the cartridge belt to the gun in an improved manner. It will also be understood that the mechanism of the invention is particularly advantageous and of improved form because of its compactness and close adherence to the associate gun, whereby minimum space is required for installation of the device of the invention, and marked advantages in connection with aerial machine guns and cannons such as wing-mount types are made available. Although only a limited number of forms of the invention have been shown and described in detail it will be apparent to those skilled in the art that the invention is not so limited but that various changes may be made therein without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds linked by corresponding rounds-encircling links in articulated relation, said feed accessory device comprising a guide member having opposed side and top and bottom wall portions adapted to slidably encompass the belted ammunition when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, sprocket means rotatably mounted upon said guide member to extend into geared engagement with successive of said ammunition rounds when feeding interiorly of said guide member, said sprocket means being disposed with corresponding side edge portions thereof in directional alignment with corresponding side edge portions of said links as they enter said guide member whereby said sprocket means slidably engage against and guide said links to move in a predetermined direction while passing through said guide member, the side wall portions of said guide member at positions intermediately of the ends thereof being inclined relative to the sprocket-guided direction of movement of said links whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portions while said links are maintained by said sprocket means against similar cammed displacement so as to withdraw said ammunition rounds successively from attachment with the links thereof, said guide member having a link ejection opening extending through a wall portion thereof disposed in registry with the positions of said links subsequent to their becoming detached from said rounds, said ejection opening being adapted to permit said links to fall therethrough while preventing said ammunition rounds from passing therethrough.

2. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds linked by corresponding rounds-encircling links in articulated relation, said feed accessory device comprising generally a guide member having opposed side and top and bottom wall portions adapted to slidably encompass the ammunition belt when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, rotary drive means mounted upon said guide member to extend into geared engagement with said ammunition belt when disposed interiorly of said guide member for driving the ammunition rounds to feed the gun, said drive means being disposed with corresponding side edge portions thereof in directional alignment with corresponding side edge portions of said links as they enter said guide member where-

by said sprocket means slidably engage against and guide said links to move in a predetermined direction while passing through said guide member, a side wall portion of said guide member being inclined relative to the guided direction of movement of said links whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portion while said links are maintained by said drive means against similar cammed displacement so as to withdraw said rounds from attachment with said links.

3. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds clamped by corresponding rounds-encircling links in articulated relation, said feed accessory device comprising a guide member having opposed side and top and bottom wall portions adapted to slidably encompass the ammunition belt when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, drive means mounted upon said guide member to extend into geared engagement with said ammunition belt when disposed interiorly of said guide member for driving the ammunition to feed the gun, said drive means being disposed to positively guide said links to move in a predetermined direction while passing through said guide member, the side wall portions of said guide member being inclined relative to the drive means guided direction of movement of said links and disposed to slidably engage said rounds whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portions and thereby detached from the links thereof while the latter are maintained by said drive means to move in said predetermined direction.

4. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds of longitudinally tapering form linked by parti-circular links adapted to grip said rounds only at the larger diameter portions thereof to provide an articulated ammunition belt, said feed accessory device comprising a guide member having wall portions adapted to slidably encompass the ammunition belt when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, drive sprocket means mounted upon said guide member to extend into geared engagement with successive of said ammunition rounds and adapted to be driven to feed said belted ammunition through the interior of said guide member, said sprocket means being disposed with corresponding side edge portions thereof in directional alignment with corresponding side edge portions of said links as they enter said guide member whereby said sprocket means slidably engage against and positively guide said links to move in a predetermined direction while being driven by said sprocket means to move through said guide member, said guide member having a side wall portion inclined relative to the guided direction of movement of said links whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portion while said links are maintained by said sprocket means against similar cammed displacement so as to displace the larger diameter portions of the rounds from gripped positions within said links.

5. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds of longitudinally tapering form linked by parti-circular links adapted to grip said rounds only at the larger diameter portions thereof to provide an articulated ammunition belt, said links being disposed to underlie said rounds, said feed accessory device comprising a guide member having wall portions adapted to slidably encompass the ammunition belt when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, drive sprocket means mounted upon said guide member to extend into geared engagement with successive of said ammunition rounds and adapted to be driven to feed said belted ammunition through the interior of said guide member, said sprocket means being disposed with corresponding side edge portions thereof in directional alignment with corresponding side edge portions of said links as they enter said guide member whereby said sprocket means slidably engage against and positively guide said links to move in a predetermined direction while being driven by said sprocket means to move through said guide member, said guide member having a side wall portion inclined relative to the guided direction of movement of said links whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portion while said links are maintained by said sprocket means against similar cammed displacement so as to displace the larger diameter portions of the rounds from gripped positions within said links, said guide member having a link ejection port extending through a bottom portion thereof disposed in registry with the positions of said links subsequent to their becoming ungripped from said rounds, said ejection port being adapted to permit said links to fall therethrough while preventing said ammunition rounds from passing therethrough.

6. A gun ammunition feed accessory device adapted to be mounted in conjunction with the ammunition feedway of a gun for feeding to the gun an ammunition belt comprising ammunition rounds of longitudinally tapering form linked by parti-circular links adapted to grip said rounds only at the larger diameter portions thereof to provide an articulated ammunition belt, said links being disposed to overlie said rounds, said feed accessory device comprising a guide member having wall portions adapted to slidably encompass the ammunition belt when trained thereinto for guiding the ammunition rounds thereof into the ammunition feedway of the gun, drive sprocket means mounted upon said guide member to extend into geared engagement with successive of said ammunition rounds and adapted to be driven to feed said belted ammunition through the interior of said guide member, said sprocket means being disposed with corresponding side edge portions thereof in directional alignment with corresponding side edge portions of said links as they enter said guide member whereby said sprocket means slidably engage against and positively guide said links to move in a predetermined direction while being driven by said sprocket means to move through said guide member, said guide member having a side wall portion in-

clined relative to the guided direction of movement of said links whereby as the cartridge belt moves through said guide member the ammunition rounds thereof are successively cammed endwise by said guide side wall portion while said links are maintained by said sprocket means against similar cammed displacement so as to displace the larger diameter portions of the rounds from gripped positions within said links, said guide member having a link ejection port at the end thereof opposite to the feed-in end thereof and an ammunition round ejection port through a bottom portion thereof disposed intermediately of said link ejection end and said feed-in end portions thereof and in registry with the positions of said rounds subsequent to their becoming ungripped from said links, said ejection port being adapted to permit said rounds to fall therethrough while preventing said links from passing therethrough.

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