

[54] **LINEAR LINKLESS AMMUNITION FEED SYSTEM**

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[22] Filed: **Apr. 12, 1971**

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[63] Continuation of Ser. No. 826,814, May 22, 1969, abandoned.

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[51] Int. Cl. **B65g 37/00, B65g 47/06, F41f 9/02**

[58] Field of Search **89/33 R, 33 B, 33 D, 89/33 MC, 33 BB, 33 BC, 34, 45; 198/54, 79, 81**

[56]

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Primary Examiner—Stephen C. Bentley

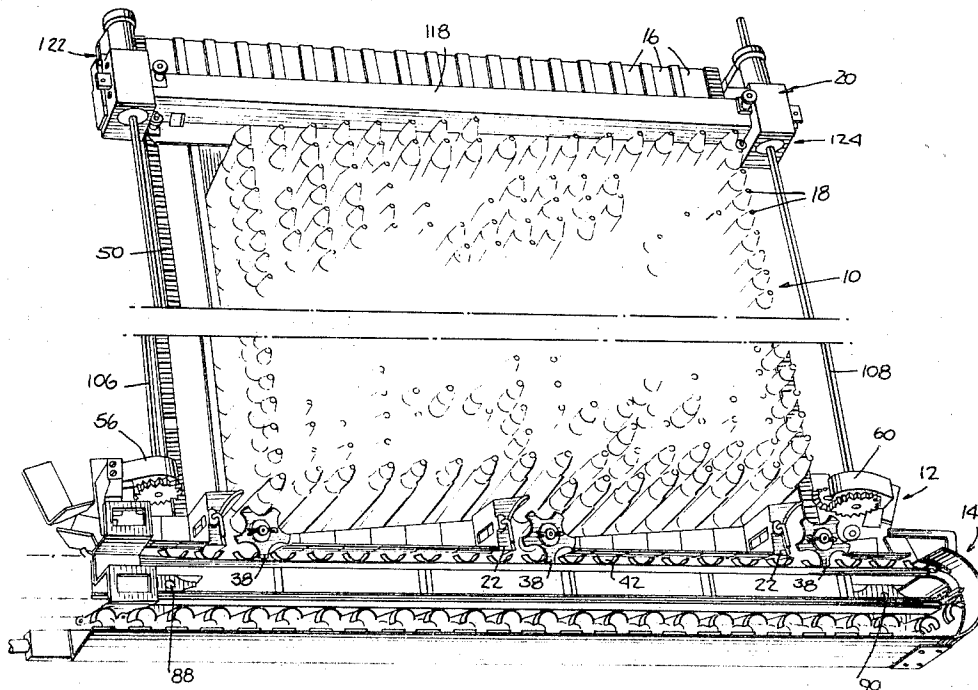
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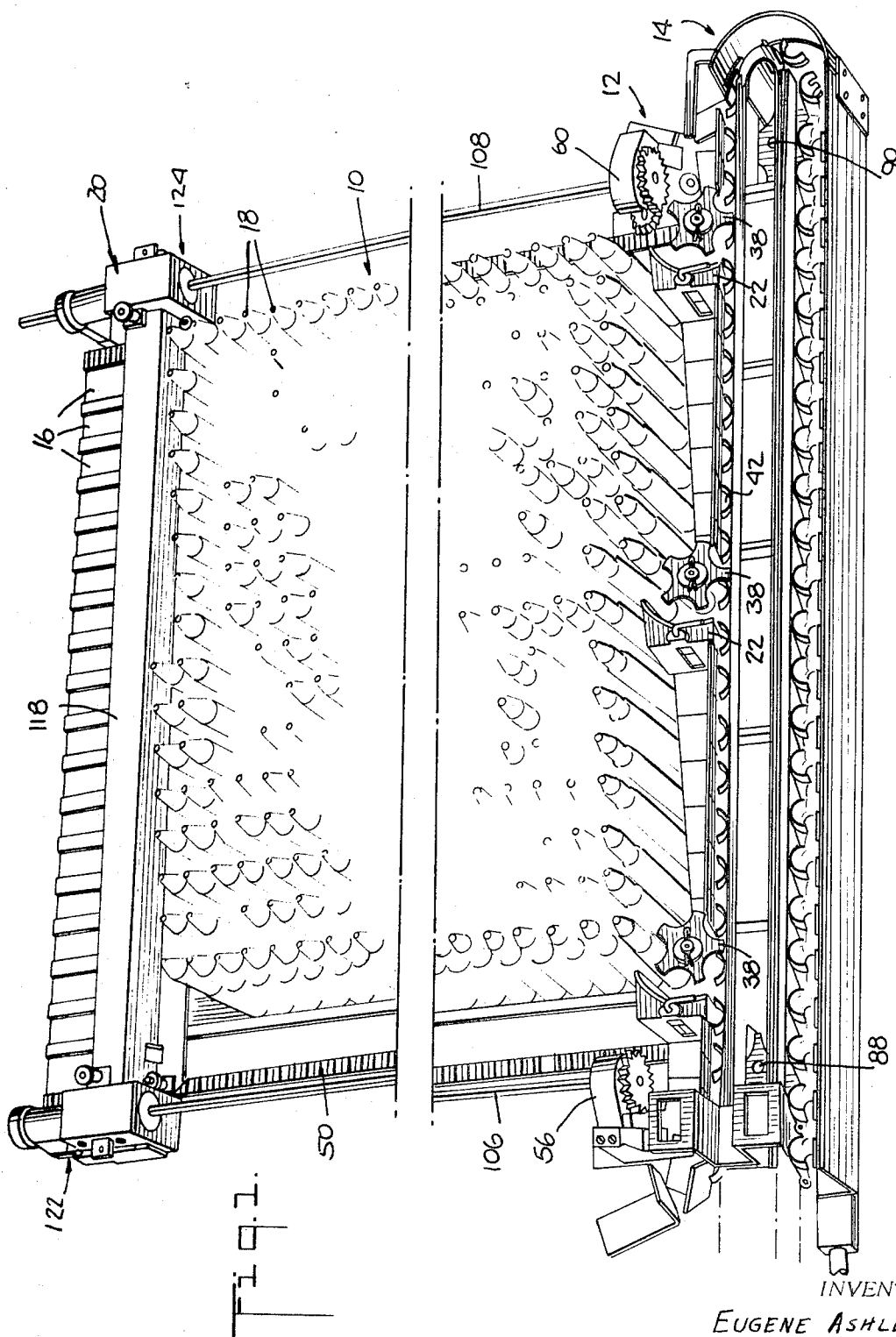
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ABSTRACT

A cartridge storage and feed system includes a magazine having a flat assembly of a plurality of side by side channels, each channel for storing a column of cartridges, and an endless stripping conveyor for cyclically withdrawing the leading cartridge from each of said channels seriatim to provide a train of cartridges for feeding to a weapon.

11 Claims, 19 Drawing Figures

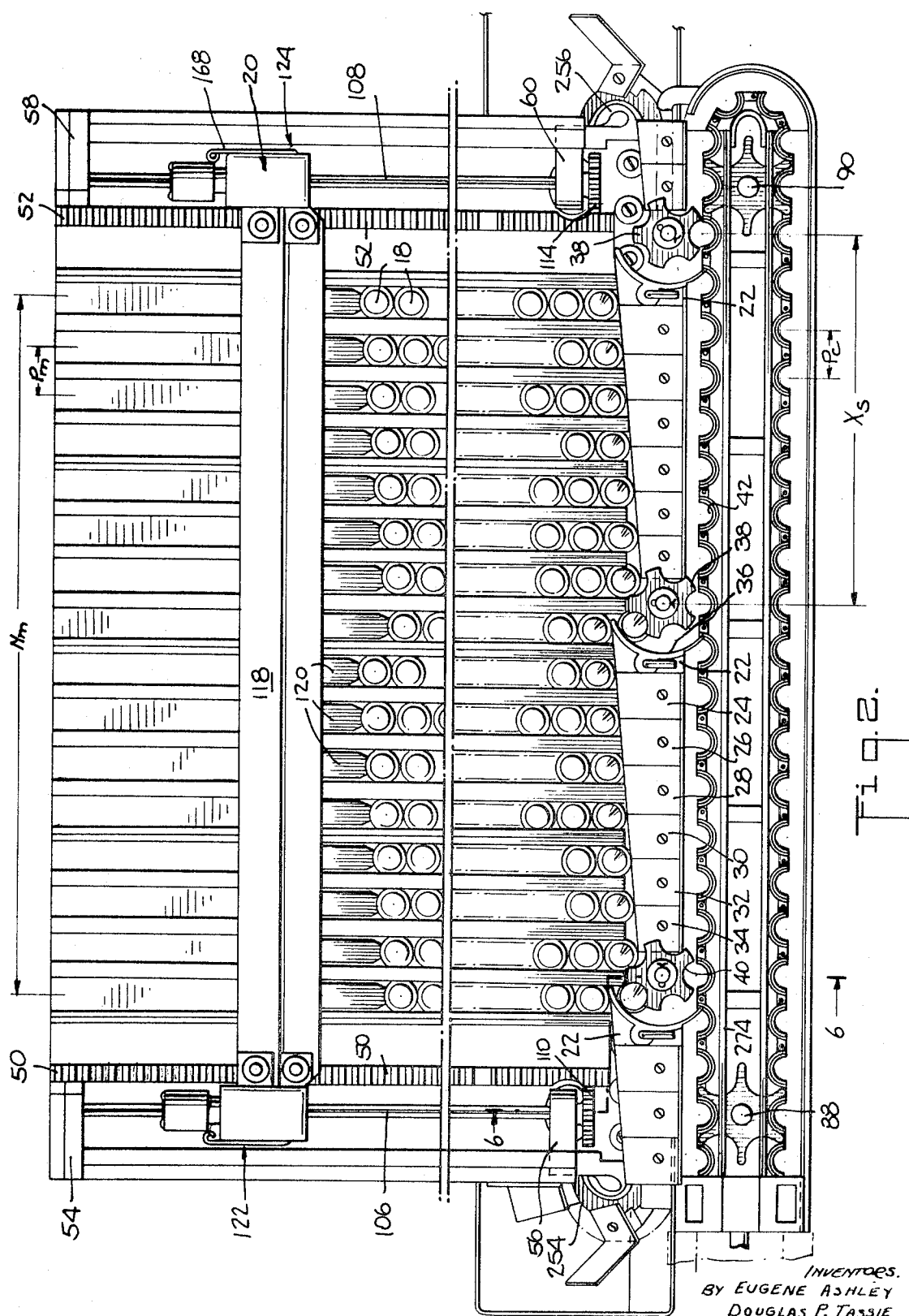




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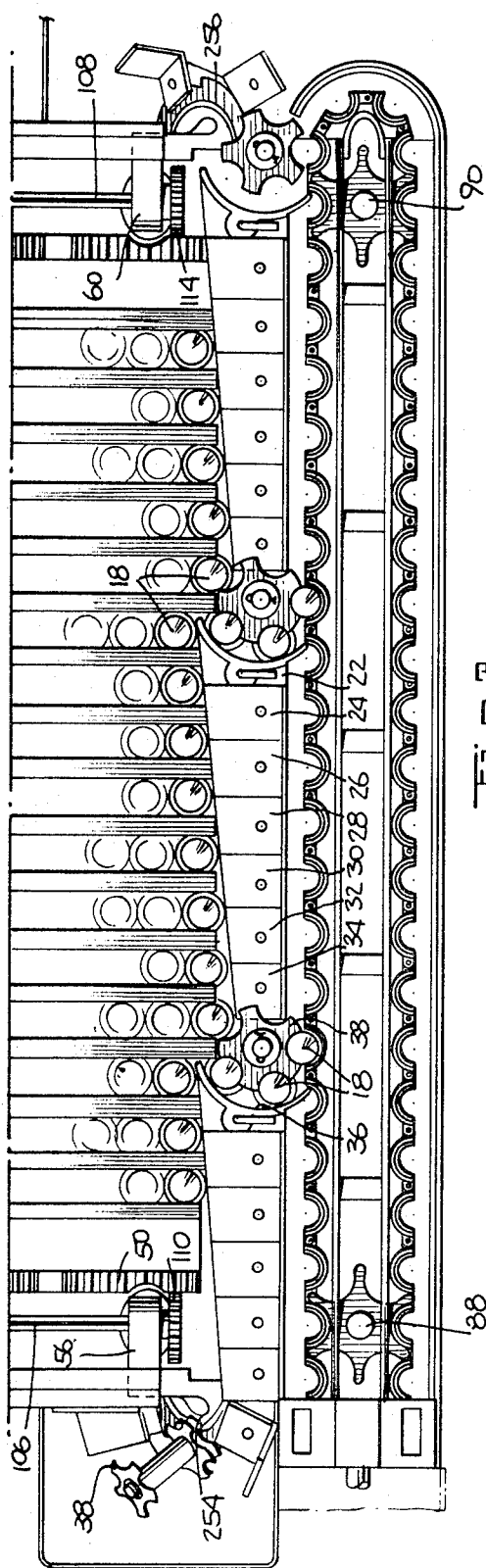
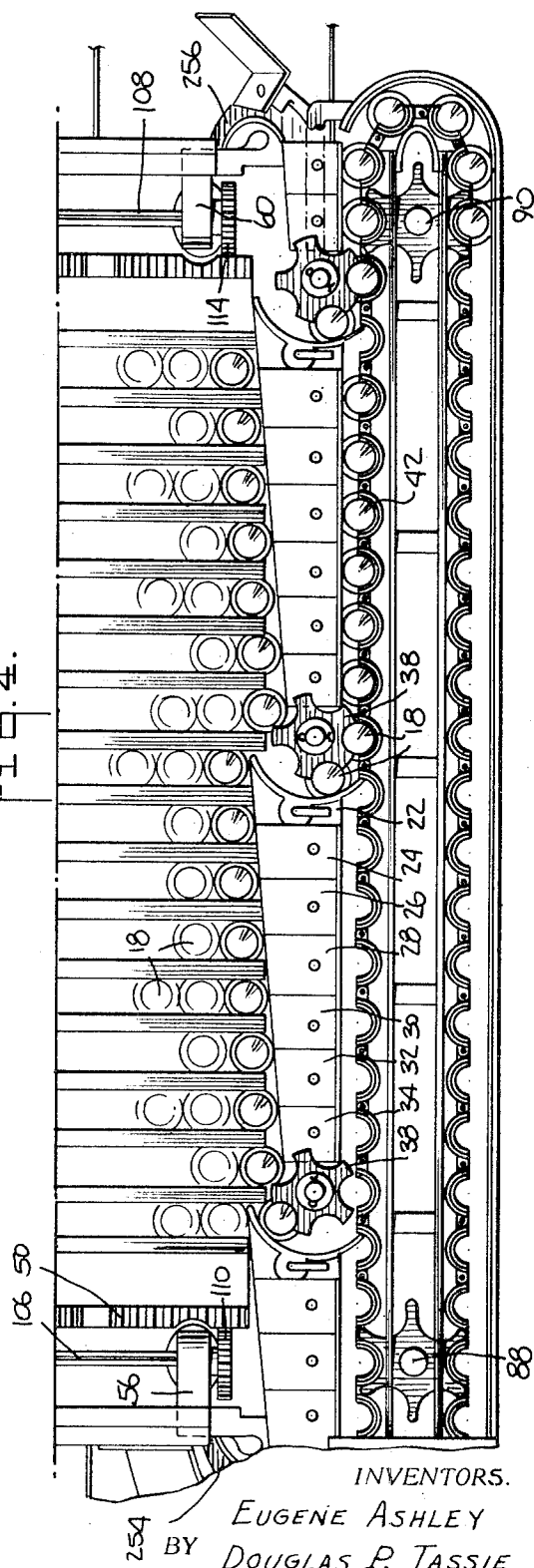


FIG. 3.

FIG. 4.



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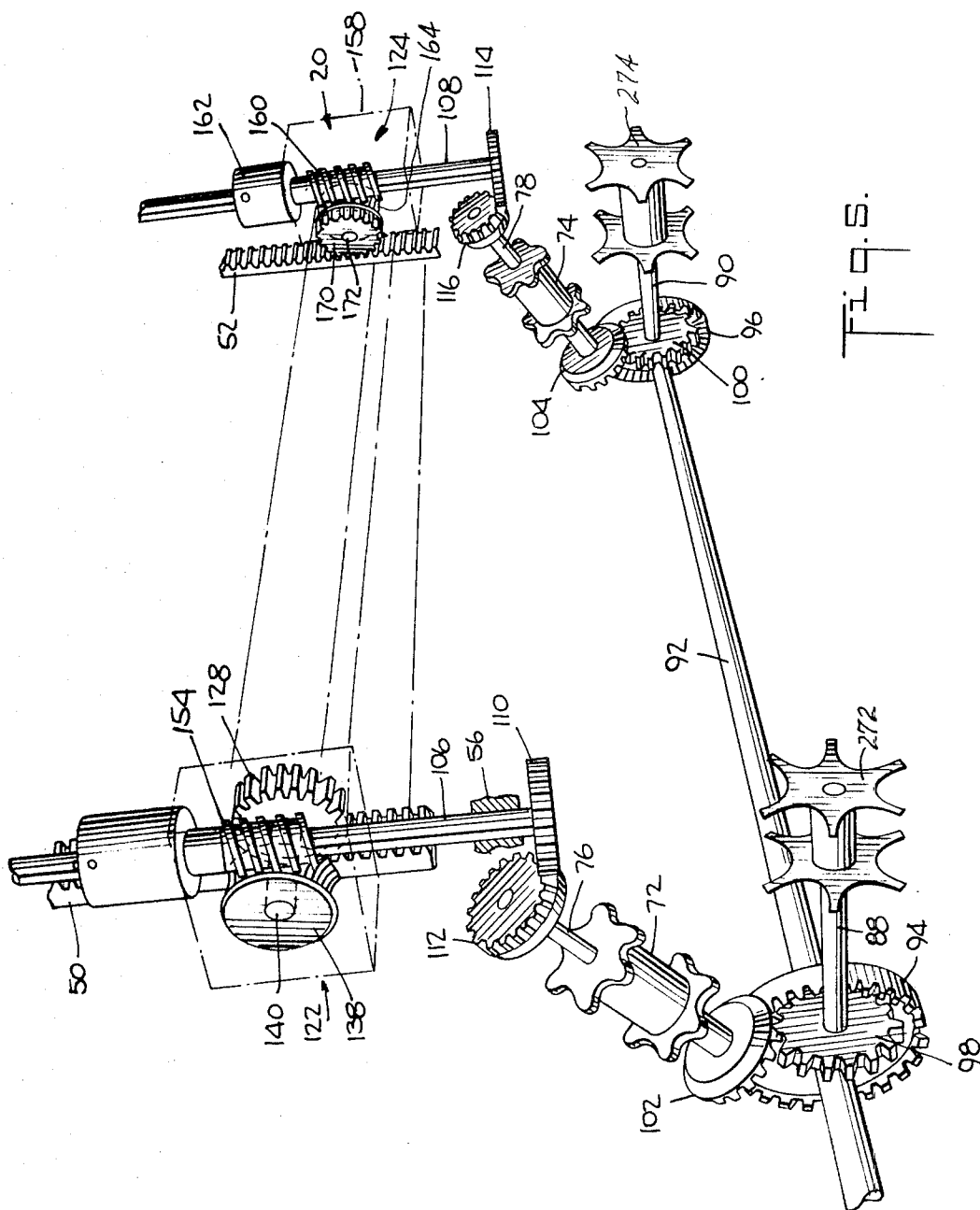
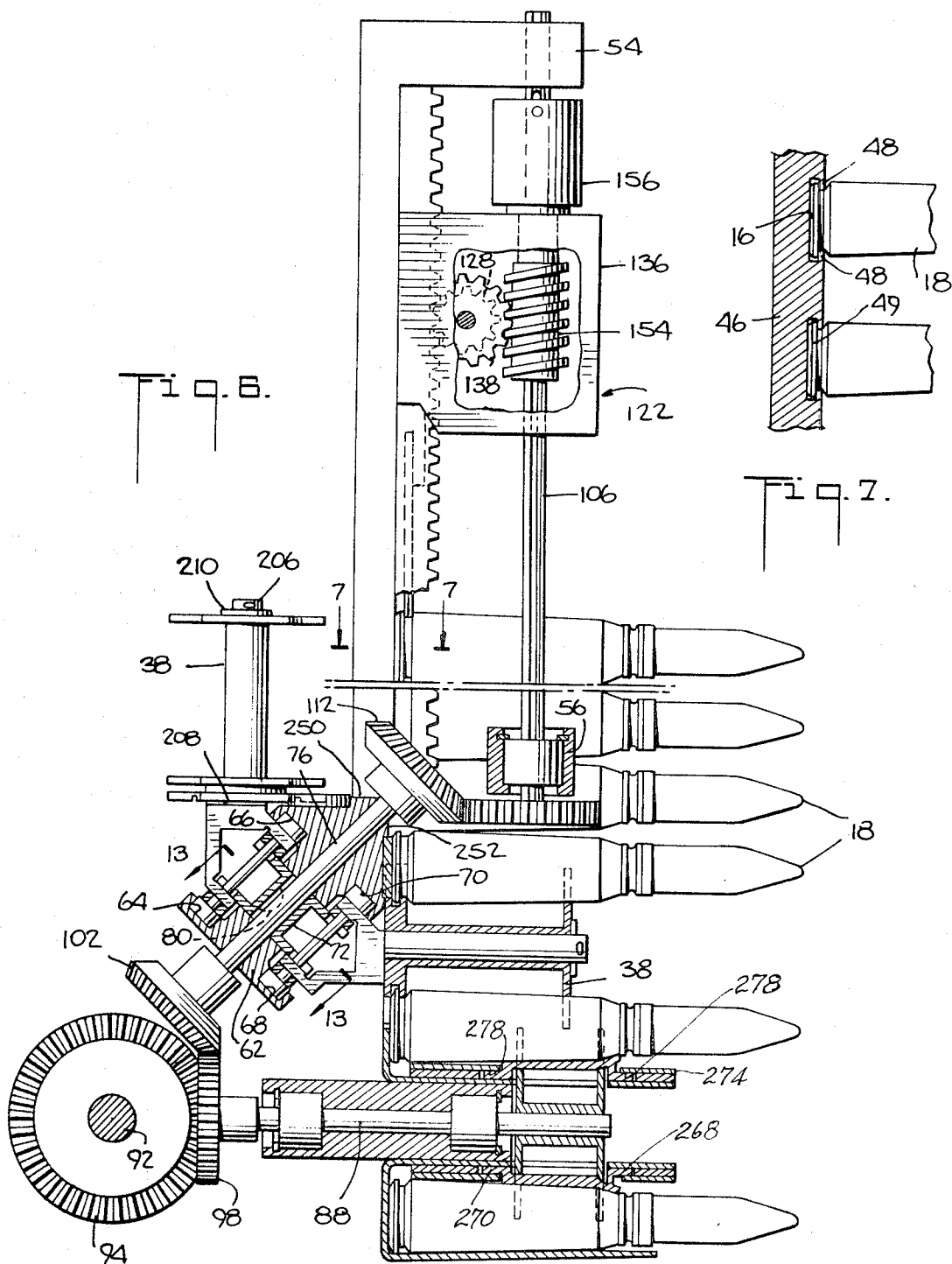


FIG. 5.

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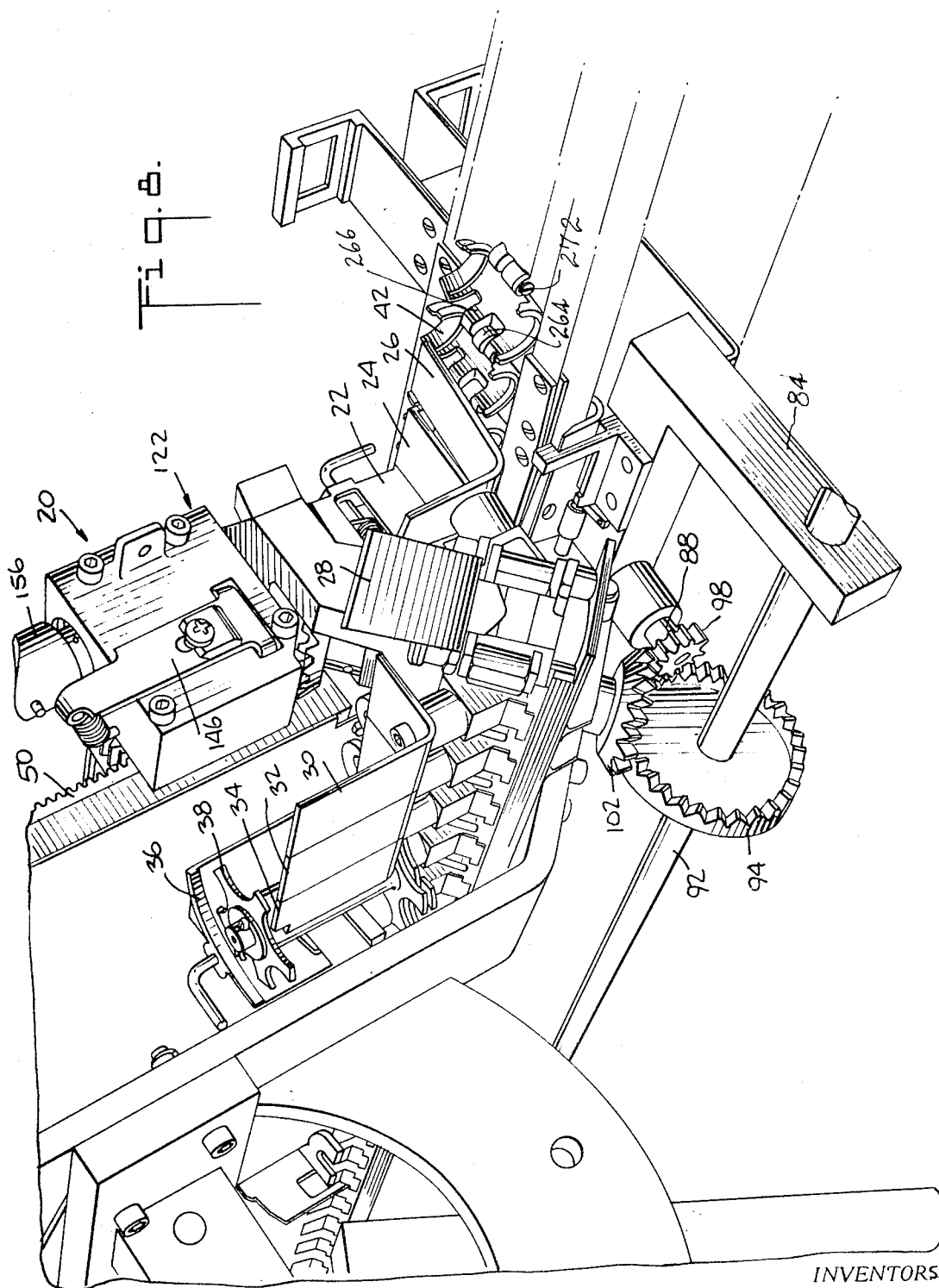
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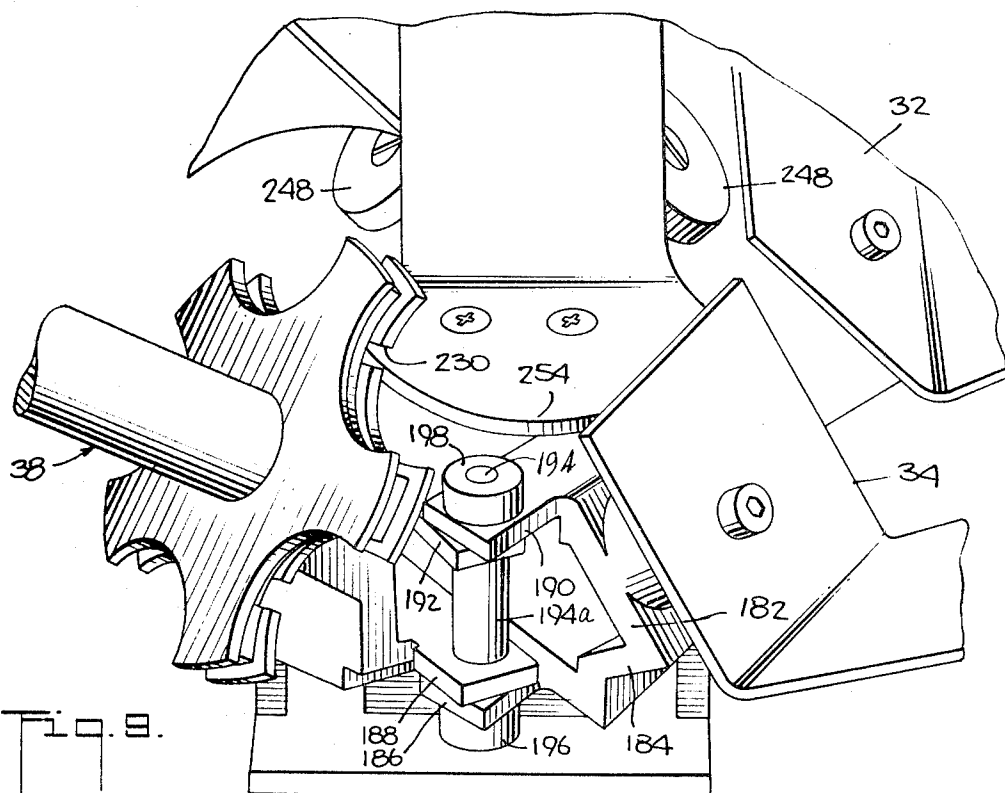


Fig. 9.

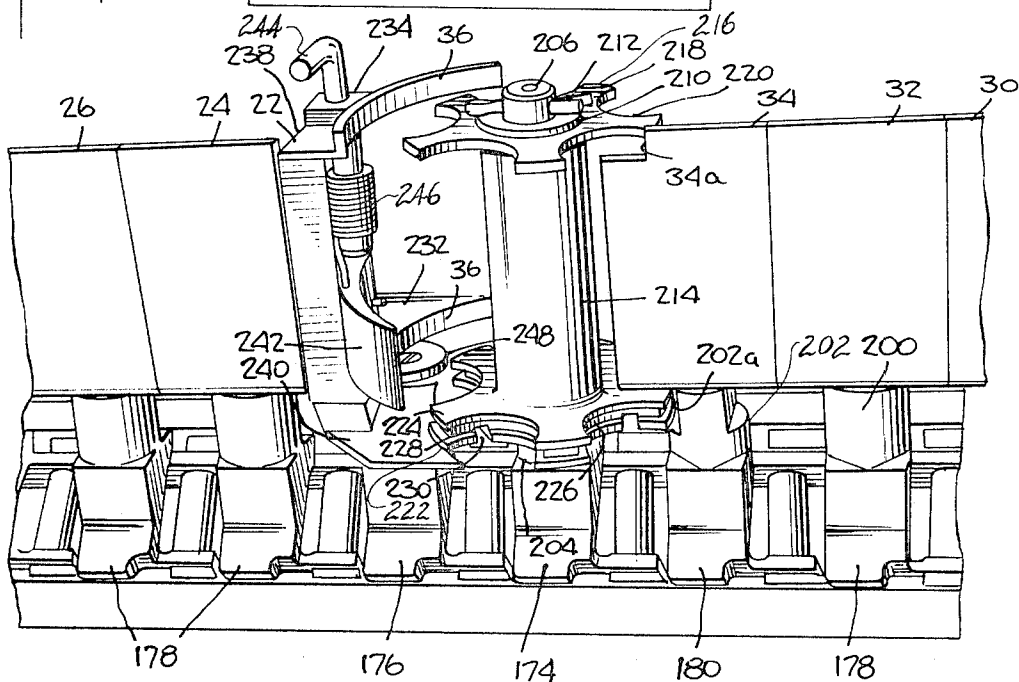


Fig. 10.

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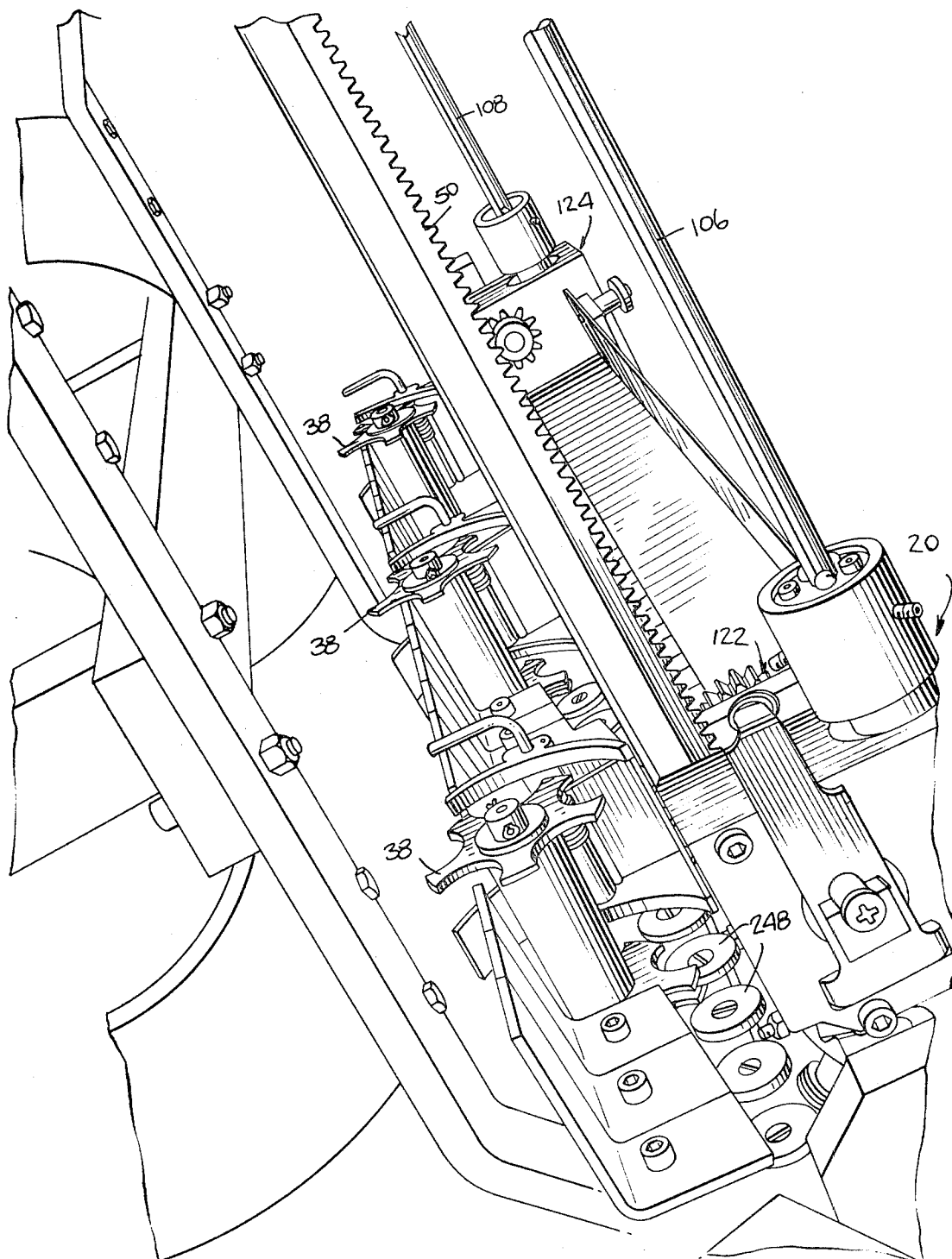


Fig. 11.

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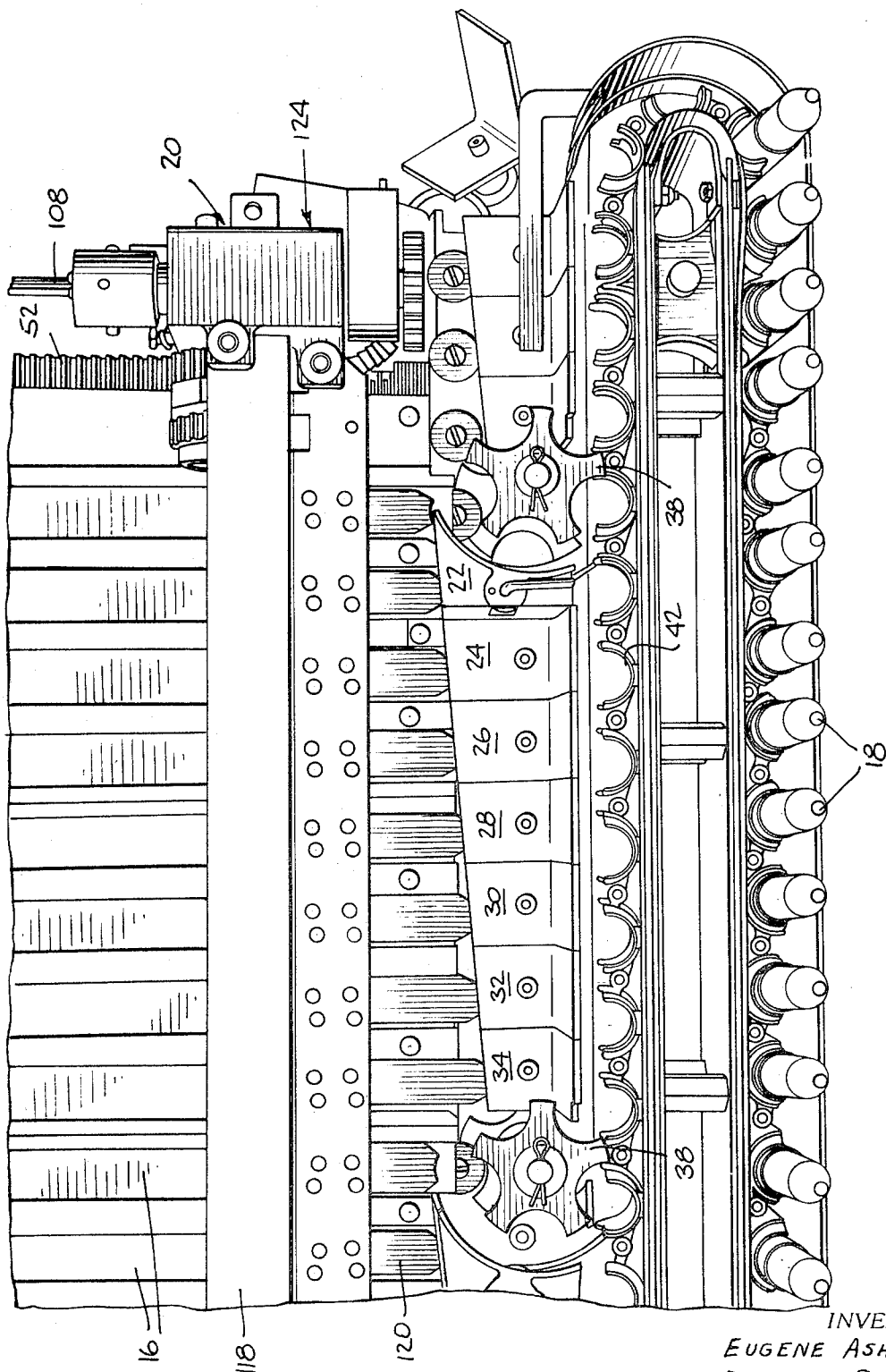
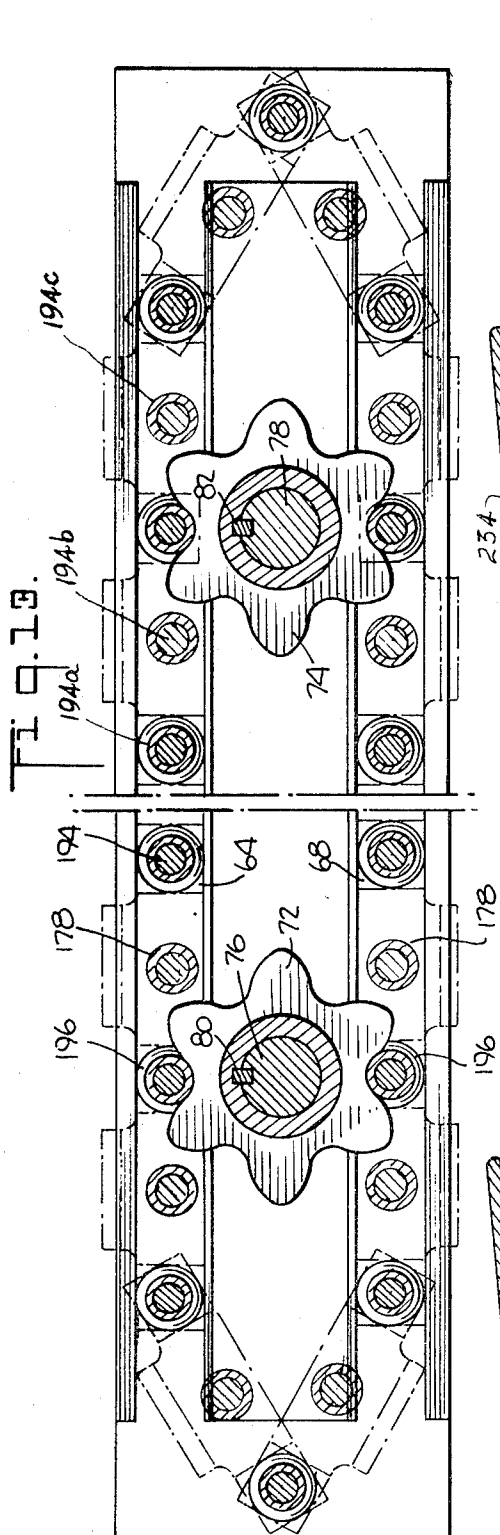
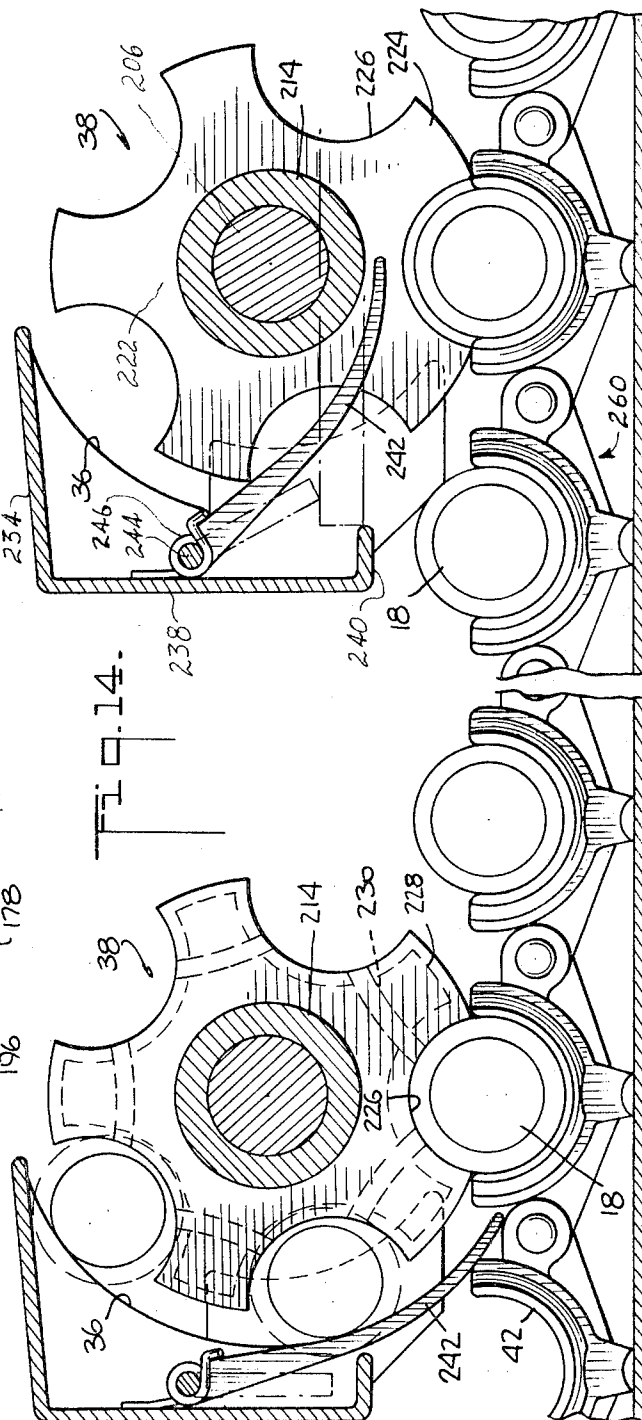


Fig. 12.

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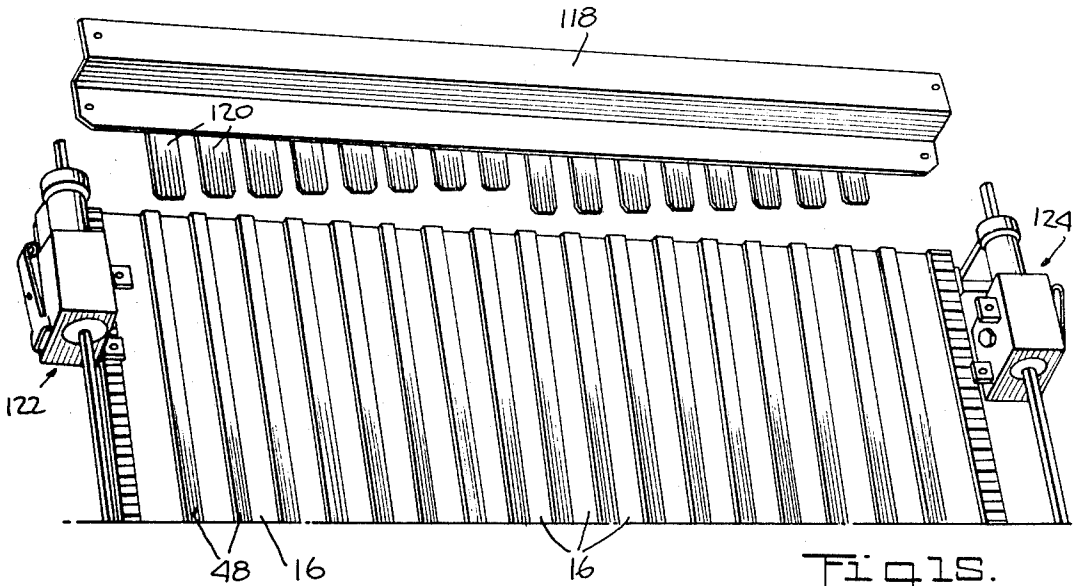


Fig. 15.

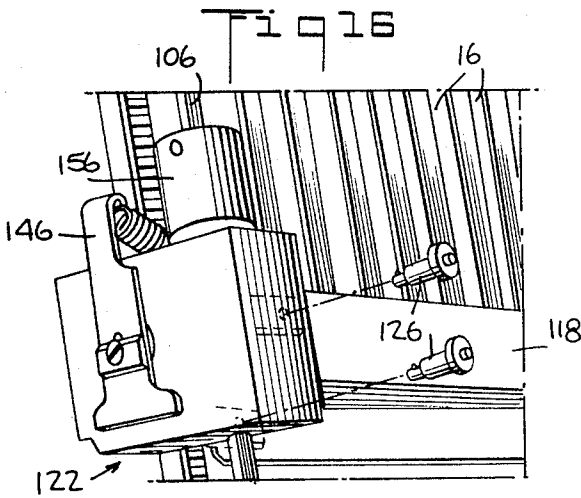


Fig. 16.

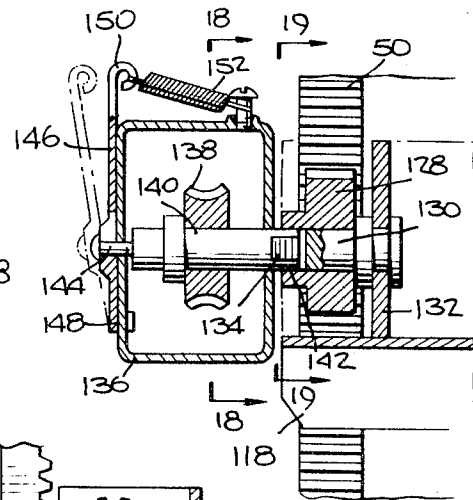


Fig. 17.

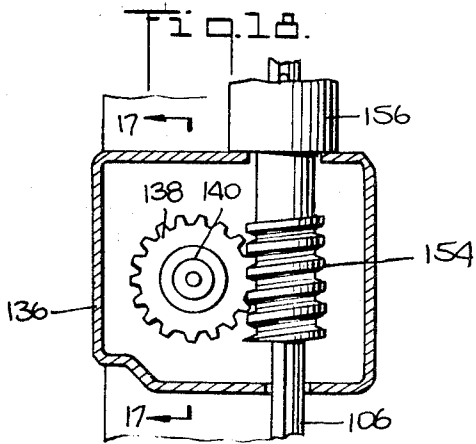
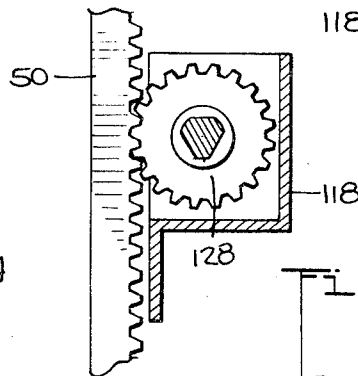


Fig. 18.



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LINEAR LINKLESS AMMUNITION FEED SYSTEM

This application is a continuation of Ser. No. 826,814, filed May 22, 1969, now abandoned.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

This invention relates to systems for supplying cartridges to automatic guns.

2. Background of the Invention

Aircraft armament now requires extremely high rates of fire, e.g., 6 to 12,000 shots per minute, in short or sustained bursts. While the modern Gatling type weapon disclosed by H. McC. Otto in U.S. Pat. No. 2,849,921 on Sept. 2, 1958 and by R.E. Chiabrandy et al in U.S. Pat. No. 3,380,343 on Apr. 30, 1968 is admirably suited to this task, the supplying of cartridges to the weapon becomes a more critical limitation as the individual mass and total number of cartridges to be accelerated and conveyed from the cartridge source to the weapon increases.

The original Gatling gun utilized an on-the-gun, gravity-feed hopper. Subsequently J.G. Accles in U.S. Pat. No. 290,622 on Dec. 18, 1883 disclosed a positive, helical magazine feed for the Gatling gun. Thereafter, under the lead of F. Bailey and H.P. Maxim, belt feeds, either continuous or link, became the mode. See "The Machine Gun Belt," by Col. Jim Crossman, in *The American Rifleman*, Dec. 1966, pp. 46-49. Departing from the belt approach, A. Miclaus, Jr. in U.S. Pat. No. 1,136,695 on Apr. 20, 1915 proposed a linear, linkless feed system. The magazine had a plurality of vertical storage channels, each containing a column of cartridges under downward spring bias. An endless conveyor belt below the magazine emptied each channel completely starting from the most remote channel, and serially conveyed the train of cartridges to the weapon. Recently, to supply a Gatling gun of the Otto type, B. Dorsie and R.H. Casler, in U.S. Pat. No. 2,935,914 on May 10, 1960 disclosed a linkless, positive, helical feed magazine, of drum shape, in the spirit of Accles. A feed chute permits the magazine to be spaced from the weapon. This type of magazine becomes quite complex, and the drum shape is uneconomical in its use of aircraft interior space.

SUMMARY OF THE INVENTION

Accordingly, it is an object of this invention to provide a cartridge storage and feed system including a magazine of relatively flat, rectangular configuration, for storing and positively feeding cartridges to an endless stripping conveyor belt for delivery to a remote weapon. The system is of relatively simple construction and capable of high acceleration of the train of cartridges.

A feature of this invention is the provision of a cartridge storage and feed system including a magazine having a plurality of side by side channels, each channel for storing a column of cartridges, and an endless stripping conveyor for cyclically withdrawing the leading cartridge from each of said channels seriatim to provide a train of cartridges for feeding to a weapon.

RELATED CASE

Subject matter disclosed but not claimed in this application is disclosed and claimed in U.S. Pat. No. 3,612,255 issued to D. P. Tassie on Oct. 12, 1971.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects, features and advantages will be apparent from the following specification of the invention taken in conjunction with the accompanying drawing in which:

FIG. 1 is a perspective view of a cartridge storage and feed system embodying this invention;

FIG. 2 is a front view in elevation of the system of FIG. 1;

FIGS. 3 and 4 are similar to FIG. 2 and illustrate the progressive stripping of cartridges from the magazine channels by the stripping conveyor and their transfer to the delivery conveyor;

FIG. 5 is a perspective view of the synchronized drive system for the system of FIG. 1;

FIG. 6 is a left side view in elevation, in partial cross-section, of the system of FIG. 2;

FIG. 7 is a detail, showing the channel construction, taken along the plane 7-7 of FIG. 6;

FIG. 8 is a perspective detail view of the lower left rear corner of the system of FIG. 1

FIG. 9 is a perspective detail view of the turn around of the scoop conveyor of FIG. 1;

FIG. 10 is a perspective detail view (from the front looking up) of a scoop and sprocket of the stripping conveyor of FIG. 1;

FIG. 11 is a perspective detail view of the left rear of the stripping conveyor of FIG. 1;

FIG. 12 is a perspective view of the system of FIG. 1 illustrating the use of the delivery conveyor to reload the channels with cartridges;

FIG. 13 is a view in cross-section taken along plane 13-13 of FIG. 6 illustrating the guide and drive for the stripping conveyor;

FIG. 14 is a front detail view in elevation of the scoop and the delivery conveyor cradles;

FIG. 15 is an exploded perspective detail view of the system of FIG. 1 illustrating the pressure bar assembly for the channels;

FIG. 16 is an exploded perspective detail view of the mounting for the pressure bar of FIG. 15;

FIG. 17 is a front view in elevation in cross-section taken along the plane 17-17 of FIG. 18 of the gearing in the mounting of FIG. 16;

FIG. 18 is a left side view in cross-section taken along the plane 18-18 of FIG. 17; and

FIG. 19 is a left side view in cross-section taken along the plane 19-19 of FIG. 17.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The cartridge storage and feeding system shown in FIG. 1 includes a main plate assembly 10, a stripping conveyor assembly 12 and a delivery conveyor assembly 14. The main plate assembly includes a plurality of side by side channels 16, each channel adapted to receive and to hold a column of cartridges 18, and a pressure bar assembly 20 adapted to advance the cartridges contiguously forward into engagement with the stripping conveyor assembly 12. The stripping conveyor assembly withdraws the leading cartridge from each column serially and transfers these cartridges as a train of cartridges to the delivery conveyor assembly, which delivers the cartridges serially to the weapon (not shown).

As shown in FIGS. 2, 3 and 4, the stripping conveyor is an endless belt encircling the lower portion of the

main plate assembly and consisting of a plurality of wedge and sprocket assemblies or series. Each wedge assembly includes a plurality of ramp elements 22, 24, 26, 28, 30, 32, 34 of which all except 22 are L-shaped. The leading element 22 is of maximum height and the trailing element 34 is of minimum height. The difference between the maximum and minimum heights is equal to the maximum diameter of the cartridge. The leading edge 36 of the lead element is arcuate, or scooped, and is spaced from a sprocket 38 having a plurality of cut outs 40 and which is carried ahead of the leading element.

It will be seen that each wedge assembly advances across the front of the main plate assembly from left to right, its ramp elements gradually lower the lead cartridges in each channel to a level whereat the leftmost cartridge, which rides off the trailing ramp element, rides into a sprocket cut-out 40 and under the leading edge or scoop 36 of the adjacent leading element of left adjacent wedge assembly. The sprocket carries the scooped cartridge counter-clockwise around and down and onto a cradle 42 of the delivery conveyor assembly. The upper run of the delivery conveyor assembly advances from left to right under the stripping conveyor assembly and receives the scooped cartridge therefrom.

Various configurations in the combination are feasible, based on the following criteria:

If N_m = the number of cartridge channels of the main plate assembly;

P_m = the distance between the centerlines of immediately adjacent channels of the main plate assembly;

P_c = the distance between the centerlines of immediately adjacent cradles of the delivery conveyor assembly;

X_s = the distance between the centerlines of immediately adjacent sprockets of the stripping conveyor assembly;

V_c = the velocity of the delivery conveyor assembly; and

V_s = the velocity of the stripping conveyor assembly; then $X_s = N_m [P_c P_m / P_m + P_c]$; and $V_c / V_s = (P_c + P_m) / P_m$. Thus, if $P_c = P_m$, then $X_s = N_m / 2$; and $V_c = 2 V_s$.

In the embodiment here shown, $P_c = P_m$, there are 16 channels 16 in the main plate assembly, and six wedge assemblies in the stripping conveyor assembly. The delivery conveyor assembly runs twice as fast as the stripping conveyor assembly. It will be obvious that in any configuration to keep the delivery conveyor assembly filled, at least two wedge assemblies must be utilized.

The main plate assembly 10 includes a main plate 46 having a plurality of parallel, laterally spaced apart channels 16 in its front face, each channel having a pair of forward, laterally directed lips 48 to engage the extractor disks 49 of the cartridges 18. Also provided on the front face of the main plate are a left gear rack 50 and a right gear rack 52, a left, upper, forwardly directed, arm 54, a left lower, forwardly directed arm 56, a right, upper forwardly directed arm 58, and a right, lower, forwardly directed arm 60. A transverse beam 62 is secured to the lower margin of the main plate and extends downwardly and rearwardly therefrom. This beam supports the stripping conveyor system, the delivery conveyor system, the drive system and the main plate assembly.

Plane 13—13 is taken at 45° to the plane of the front face of the main plate 46. As seen on FIGS. 6 and 13, a rear lower guide groove 64, a rear upper guide groove 66, a front lower guide groove 68 and a front upper guide groove 70, all parallel, spaced apart and symmetrical are formed in the beam. A left sprocket 72 and a right sprocket 74 are disposed in apertures through the bar perpendicular to the plane 13—13. A left stripping conveyor sprocket drive shaft 76 and a right stripping conveyor sprocket drive shaft 78 are journaled through the bar and respectively keyed to the sprockets by a left key 80 and a right key 82. A left bracket assembly 84 and a right bracket assembly 86 are secured to the beam 62. A left, delivery conveyor sprocket drive shaft 88 is journaled through the left bracket assembly 84 perpendicular to the plane of the front face of the main plate; and a right, delivery conveyor sprocket drive shaft 90 is similarly journaled through the right bracket assembly 86. A main power shaft 92 is journaled through and between the bracket assemblies 84, 86, and this shaft is adapted to receive the power necessary to drive the total system. A left face gear 94 and a right face gear 96 are fixed to the drive shaft 92, and are respectively meshed with a left spur gear 98 fixed to the shaft 88 and a right spur gear 100 fixed to the shaft 90. A left bevel gear 102 is fixed to the lower end of the shaft 76 and is meshed with the gear 98, and a right bevel gear 104 is fixed to the shaft 78 and is meshed with the gear 100. A left splined shaft 106 is journaled through and between the left upper and lower arms 54, 56; and a right splined shaft 108 is journaled through and between the right upper and lower arms 58, 60. A left spur gear 110 is fixed to the lower end of the shaft 106 and is meshed with a bevel gear 112 fixed to the upper end of the shaft 76; and a right spur gear 114 is fixed to the lower end of the shaft 108 and is meshed with a bevel gear 116 fixed to the upper end of the shaft 78.

The pressure bar assembly 20 includes a cross bar 118 having two series of pressure fingers 120 extending therefrom. The difference in length between the longest and the shortest finger in each series is equal to the maximum diameter of the cartridge. The cross bar is releasably secured to and between a left traveling gear box 122 and a right traveling gear box 124 by four bayonet type pin fasteners 126. Each pressure finger travels in a respective channel 16 under the lips 48 thereof, while the cross-bar 118 travels over the front face of the main plate. A left spur gear 128 is fixed to the left shaft 130 which is journaled at the right end to a left web 132 of the cross-bar 118 and meshed with the left rack 50. The left end 134 of the shaft 130 has a triangular cross-section. The left traveling gear box 122 includes a housing 136, and a worm gear 138 splined to a shaft 140. The right end 142 of the shaft 140 has a triangular recess adapted to interlock with the shaft end 134, and the left end has an adjustable machine screw extension 144. The shaft right end 142 passes through an aperture in the housing 136 to interlock with the shaft left end 134. The shaft extension 144 passes through an aperture in the housing 136 and is captured by an arm 146 which is pivoted at its lower end 148 to the housing and which is biased at its upper end 150 by a spring 152 against the housing. The arm 146 serves to normally lock the shaft 140 to the shaft 130. Pivoting of the arm 146 longitudinally separates the shaft 140 from the shaft 130, without longitudinally disturbing

the worm gear 138. The worm 154 is free on the shaft but is secured to an adjustable spline 156 outside of the housing, so that rotation of the splined shaft 106 causes in-train rotation of the worm 154, the worm gear 138, the shafts 140 and 130 and the spur gear 128. Rotation of the spur gear 128 which is meshed with the rack 50 causes translation of the traveling gear box and the cross bar 118. The right traveling gear box 124 is provided with a symmetrical assembly including a housing 158, a worm 160, an adjustable spline 162, a worm gear 164, a shaft 166, and a spring biased arm 168; and the rack 52 meshes with a spur gear 170 which has a shaft 172 interlocking with the shaft 166.

The stripping conveyor assembly 12 includes and endless chain of links of substantially modified double-U-construction driven by the sprockets 72 and 74. In each wedge assembly or series, the sprocket 38 is carried by a link 174, the leading element 22 is carried by a link 176, the elements 24, 26, 28, 30 and 32 are carried by a respective link 178, and the element 34 is carried by a link 180. Each link has a central web portion 182 with a boss extending therefrom, an angled web extension portion 184, a lower side wall having a trailing extension 186 and a leading extension 188, and an upper side wall having a trailing extension 190 and a leading extension 192. A pin 194 having a sleeve 194a interconnects the extension of immediately adjacent links, and has a lower roller 196 and an upper roller 198. An intermediate pin 194b having a sleeve 194c is fixed within each link to provide a full complement of pins 194 and 194b to be driven by the sprockets 72 and 74. The rollers 196 and 198 are adapted to ride in the rear guide surfaces 64, 66, and the front guide surfaces 68, 70. The bosses 200 on the links 178 are cylindrical and respectively support the elements 24, 26, 28, 30 and 32 spaced from the respective web portions. The bosses 202 on the links 180 support the element 34 spaced from the respective web portion, and has a cut-out 202a to clear the adjacent sprocket. The element 34 also has a cut-out 34a to clear the adjacent sprocket. The bosses 204 on the links 174 have a respective shaft 206 upstanding therefrom on which the sprocket 38 is mounted for rotation between a lower thrust washer 208 and an upper washer 210 and is captured by a cotter pin 212. The sprocket 38 includes a central tube portion 214, an upper end plate 216 having five teeth 218 and five cut-outs 220, and a lower end plate 222 having five teeth 224 and five cut-out 226. The lower plate 222 has a peripheral groove 228 therein, and each tooth 224 has an arcuate groove 230 in its lower surface. The leading element 22 is substantially a hollow box, including a rear wall 232, a front wall 234, a top wall 236, a side wall 238 and a rear wall extension 240. The edges of the side wall are arcuately shaped to provide the leading edges 36. The front surface of the rear wall extension 240 is immediately behind the rear surface of the lower end plate 222 of the sprocket. An arcuate guide finger 242 is fixed on a pivot rod 244 which is journaled through and between the front and rear side plates 238, 232. A spring 146 biases the finger away from the sprocket. The leading edges 36 and the inner face of the guide finger are concentric with the sprocket. A plurality of regularly spaced apart disks or buttons 248 are fixed to the upper surface 250 and the front surface 252 of the horizontal beam 62. As each sprocket 38 is transported transversely across the main plate assembly by the train of links 178, the buttons se-

quentially engage the lower level of the cut-outs 226, like cogs, and cause the sprocket to rotate about its shaft 206.

It will be noted that the train of links 178 passes between the rear guide surfaces 64, 66 and the front guide surfaces 68, 70, i.e., around the returns, without any guidance. This is accomplished by (1) making the distance between the centerlines of adjacent link pins 194 equal to the distance between centerlines of the rear guide surfaces 64, 66 and the front guide surfaces 68, 70; and (2) meshing the drive means, i.e., sprocket 72 and/or 74, with both lengths of the train. The dynamic characteristics of the linkage during turnaround are such that the center of gravity of the link decelerates at a uniform rate and then accelerates at a uniform rate. The path of the center of gravity forms a true semicircle. Also, the link rotates about its center of gravity. Thus the link is under control both geometrically and dynamically.

The buttons 248 adjacent the front and rear lengths of the train of links 178 serve to synchronize the rotation of sprockets thereon. However, the sprockets swing away from the horizontal beam when going around the returns. To maintain synchronization of the rotation of the sprockets between the front and rear lengths a left cam plate 254 and a right cam plate 256 are respectively mounted to the ends of the beam. In going around a return, as a sprocket lower plate cut-out 226 leaves the last button adjacent one length, one of the arcuate grooves 230 in the sprocket lower plate engages the edge of the cam plate 254 or 256 and remains engaged until a lower plate cut-out engages the first button adjacent the other length. While an even number of links 178 has been shown, an odd number may be utilized. Further, while a sprocket and rod drive combination has been shown, a rack may be formed on each link, and be driven by a gear.

The delivery conveyor assembly 14 is similar to that shown by R.G. Kirkpatrick in U.S. Pat. No. 3,429,221 issued Feb. 25, 1969. Briefly, the assembly includes a train of links 260, each link having a cradle 42, a left knuckle 264, two right knuckles 266, a front guide follower 268 and a rear guide follower 270. Adjacent knuckles are coupled by a pin 272. The train of links rides on and around a folded inner guide plate 274 which has a front guide groove 276 and a rear guide groove 278 formed therein to respectively receive the front follower 268 and the rear follower 270 of each link. A left sprocket 272 and a right sprocket 274 are respectively fixed to the shafts 88 and 90 and are disposed between and extend through the upper and lower folds of the guide plate. The teeth of the sprockets engage the train between adjacent cradles to drive the train. An outer guide plate extends from the right hand end of the main plate, around the right return and under the train of links to the left. Although not shown, the delivery conveyor continues on the left to the gun which is being fed.

For operation, each of the channels 16 is charged with the same number of rounds. Each round is held in the channel by the lips 48 siezing the extractor disk 49, as shown in FIG. 7. The lower, leading round of each row rests on the upper edge of a respective ramp element 22...34. A finger 120 of the cross-bar 118 rests on the highest, trailing round of each row. Rotation of the main power shaft 92 causes rotation of the stripping conveyor shafts 76, 78 and, thereby, the train of strip-

ping conveyor links 178, and also causes rotation of the splined shafts 106 and 108 and, thereby, the cross-bar spur gears 128 and 170. Shaft 92 also causes rotation of the delivery conveyor shafts 88 and 90 and, thereby, the train of delivery conveyor links 260. The centerline spacing between adjacent channels 16 is equal to the centerline spacing between adjacent cradles 42. The delivery conveyor has twice the velocity of the stripping conveyor. As each combination of scoop 36 and sprocket 38 passes under a channel 16 it scoops off the lowermost, leading round and passes it around and down to a cradle 42 in the delivery conveyor. In effect, each combination of scoop and sprocket fills up the length of delivery conveyor between it and the next preceding scoop and sprocket. The pressure bar assembly 20 maintains a constant pressure on the columns of rounds, so that the respective leading rounds are presented to the stripping conveyor irrespective of the effect of gravity. The delivery conveyor delivers the rounds from the scoop and sprocket combinations, around, down and back to the gun.

Rounds of ammunition may be loaded into the main plate assembly by either of two alternative modes.

In the first, direct loading mode, the four fasteners 126 are withdrawn and the arms 146, 168 are swung outwardly to release the cross bar 118 from the traveling gear boxes 122, 124, whereupon the cross bar may be slid up the front face of the main plate until the fingers 120 clear the channels 16. Rounds may then be inserted from the top into the channels by sliding the extractor disc 49 of each round 18 under the lips 48 of the respective channel. The rounds will slide down until the leading round in each channel rests on the upper edge of the respective ramp element. An equal number of rounds must be inserted in each channel. The cross bar 118 is then returned to the top of the plate with its fingers 120 entering the channels 16 and slid down until each finger rests on the last round in each respective column. The traveling gear boxes are run up manually into alignment with the cross bar until the shafts 140 and 130, and 166 and 172 re-engage. The four fasteners 126 are replaced.

In the second, reverse feed mode, the rounds of ammunition are initially fed into the delivery conveyor. The drive shaft 92 is rotated in reverse, to run the entire system in reverse, including the scoop-sprocket combinations from right to left, and the pressure bar assembly 20 upwardly. The delivery conveyor delivers the rounds to the stripping conveyor. Each round passes under and into a sprocket, is guided by the finger 242 upwardly out of the cradle 42 and along the scoop leading edges 36, into a channel 16 and a top of the ramp element 34. As the rounds are spun off onto the ramp elements, the pressure bar 118 with its fingers 120 rises to accommodate the rounds.

We claim:

1. A cartridge storage and feed system comprising:
 - a magazine assembly having a plurality of side by side channels in a planar array, each channel for storing a column of cartridges;
 - an endless stripping conveyor assembly for serially withdrawing the leading cartridge from the respective leading end of each of said plurality of channels for providing a train of cartridges; and
 - an endless delivery conveyor assembly for receiving cartridges from said stripping conveyor for delivery to a weapon;

said endless stripping conveyor assembly including a plurality of series of stripping units, and each series including seriatim:

- a sprocket means,
- a scoop and leading ramp unit,
- a plurality of intermediate ramp units,
- a trailing ramp unit;

each ramp unit having a ramp surface for cooperation with said leading ends of said channels whereby to support the leading cartridges at different instantaneous predetermined heights within their respective channels, the difference between the maximum height of said scoop and leading ramp unit and the minimum height of said trailing ramp unit being equal to the maximum diameter of a cartridge.

2. A system according to claim 1 wherein:

said endless delivery conveyor assembly includes: a train of cradles, each for receiving a cartridge.

3. A system according to claim 2 wherein:

N_m = the number of said plurality of channels:

P_m = the distance between the centerlines of immediately adjacent ones of said plurality of channels;

P_c = the distance between centerlines of immediately adjacent cradles of said delivery conveyor assembly;

X_s = the distance between the centerlines of immediately adjacent sprockets of said stripping conveyor assembly;

V_c = the velocity of the delivery conveyor assembly;

V_s = the velocity of the stripping conveyor assembly;

$X_s = N_m [(P_c P_m)/P_m + P_c]$; and $V_c/V_s = (P_c + P_m)/P_m$.

4. A system according to claim 3 further including a pressure bar assembly including a plurality of fingers, each finger riding in a respective one of said plurality of channels for positively engaging the respective trailing cartridge in said channel.

5. A system according to claim 4 further including a drive system for positively and synchronously driving said stripping conveyor assembly, said delivery conveyor assembly, and said pressure bar assembly.

6. A system according to claim 5 wherein:

said stripping conveyor assembly includes an endless first train of interconnected links;

said delivery conveyor assembly includes a second train of interconnected links; and

said drive system includes

- a first driven sprocket engaging said first train of links,
- the second driven sprocket engaging said second train of links,
- third driven means engaging said pressure bar assembly, and
- driving means coupled to said first driven sprocket, said second driven sprocket, and said third driven means.

7. A system according to claim 1 wherein:

said channels are formed in a rectangular plate having a front face onto which said channels open and a trailing edge and a leading edge which said channels also open;

said stripping conveyor assembly being disposed adjacent said leading edge and encircling said plate, said series of stripping units passing closely adja-

cent said front face of said front plate, whereby to engage cartridges disposed in said channels and extending therefrom.

8. A system according to claim 1 wherein each scoop unit has an arcuate hook shaped leading edge and 5
and in each said series,
said sprocket means is supported between the trailing ramp unit of the preceding series and the hook-shaped leading edge of the scoop unit of the instant series, whereby the leading cartridge 10
in a column advances in said column as the preceding series passes thereunder until it leaves said trailing ramp unit of said preceding series and is caught between said hook-shaped leading edge and said sprocket, and is carried around and 15
down by said sprocket to said delivery conveyor assembly.
9. An article storage and feed system, comprising:
a magazine assembly having a plurality of channels, each channel storing a plurality of articles in a column; and 20
a stripping conveyor assembly including an endless, articulated, train of links carrying means for individually engaging, accelerating and withdrawing the leading article from the discharge end of a first one of said plurality of channels; and next, individually engaging, accelerating and withdrawing the leading article from the discharge end of a second one of said plurality of channels; and next, individually engaging, accelerating and withdrawing the leading article from the discharge end of a third one of said plurality of channels; and so on in sequence to individually engaging, accelerating and 25
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- withdrawing the leading article from the last one of said plurality of channels, and thereby providing a train of articles, one from each channel, seriatim.
10. An article storage and feed system, comprising:
a magazine assembly having a plurality of channels, each channel for storing a column of articles; and
a stripping conveyor assembly including an endless, articulated, train of links carrying means for individually engaging, accelerating and withdrawing the leading article from the discharge end of a first one of said plurality of channels; and next, individually engaging, accelerating and withdrawing the leading article from the discharge end of a second one of said plurality of channels; and next, individually engaging, accelerating and withdrawing the leading article from the discharge end of a third one of said plurality of channels; and so on in sequence to individually engaging, accelerating and withdrawing the leading article from the last one of said plurality of channels, and thereby providing a train of articles consisting of a group of one from each channel, seriatim; and then commencing another cycle of individually engaging, accelerating and withdrawing the leading article from said discharge end of said first one of said plurality of channels, and so on as before, thereby providing a succeeding train of articles consisting of a group of one from each channel, seriatim; and so on, cyclically.
11. An article storage and feed system according to claim 10 wherein the articles are cartridges of ammunition, and said channels are in a planar array.

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