

Dec. 22, 1959

F. R. KOPMAN
REPEATING CROSS BOW

2,918,050

Filed Aug. 16, 1957

3 Sheets-Sheet 1

FIG. 4.

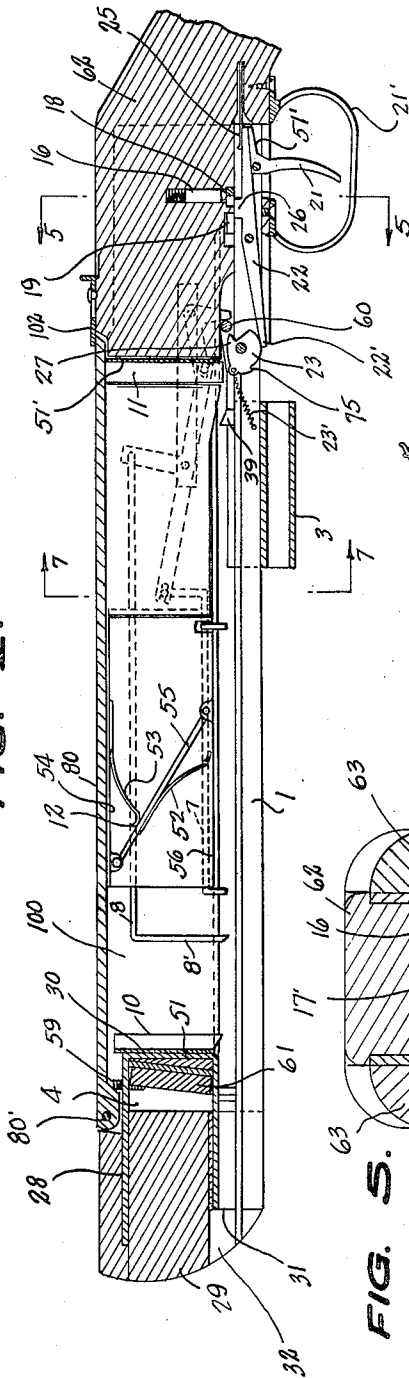


FIG. 1.

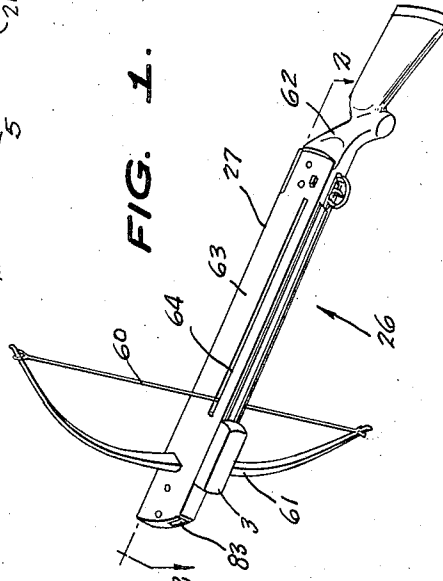
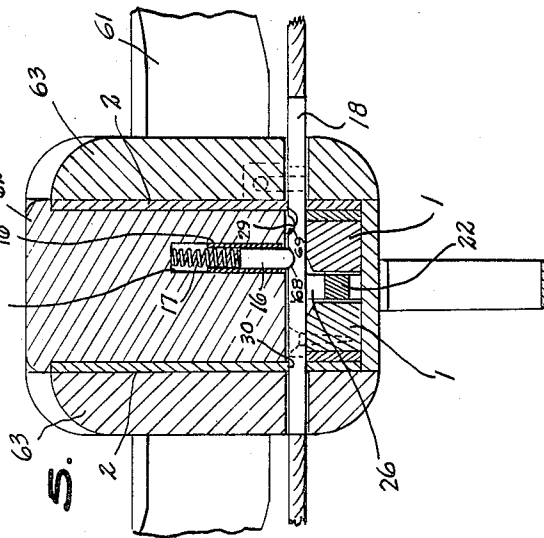


FIG. 5.



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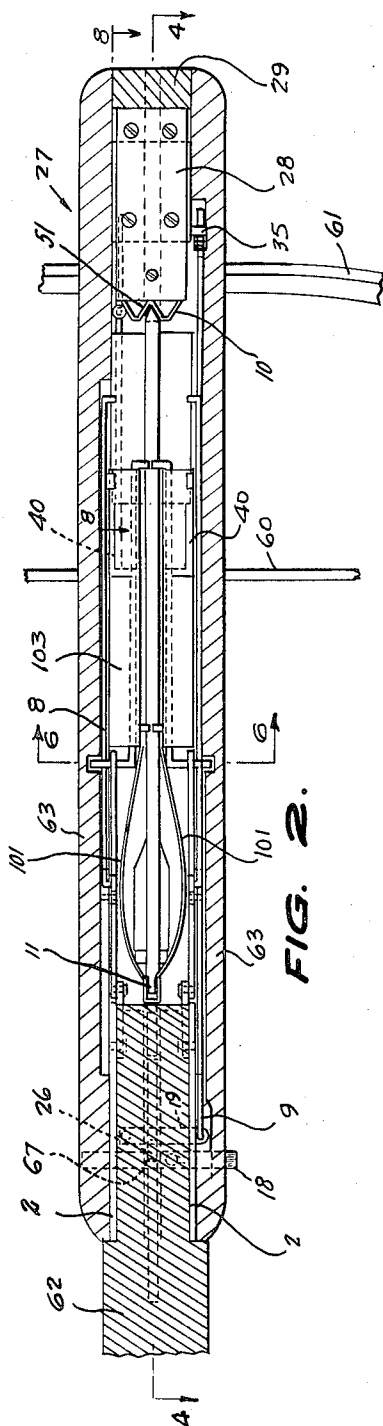


FIG. 3.

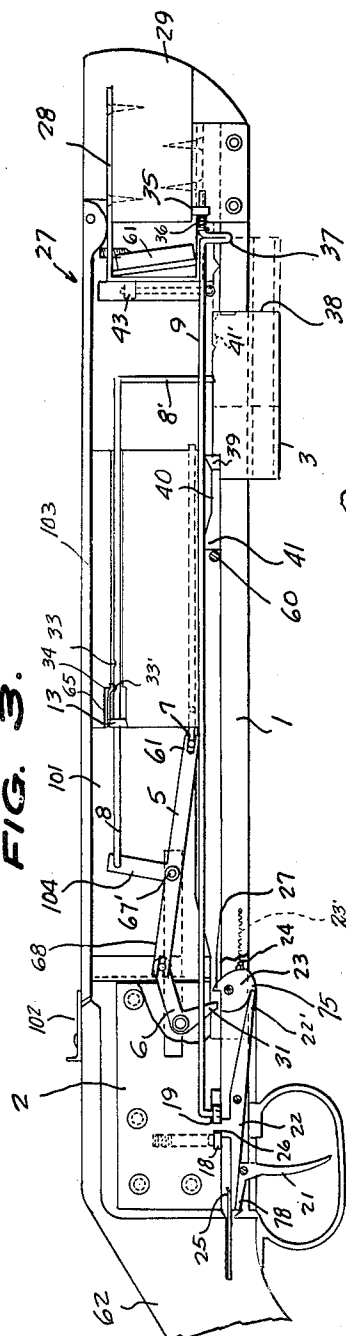
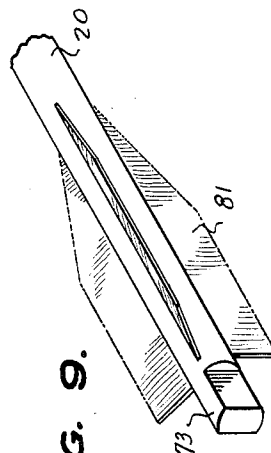


FIG. 9.



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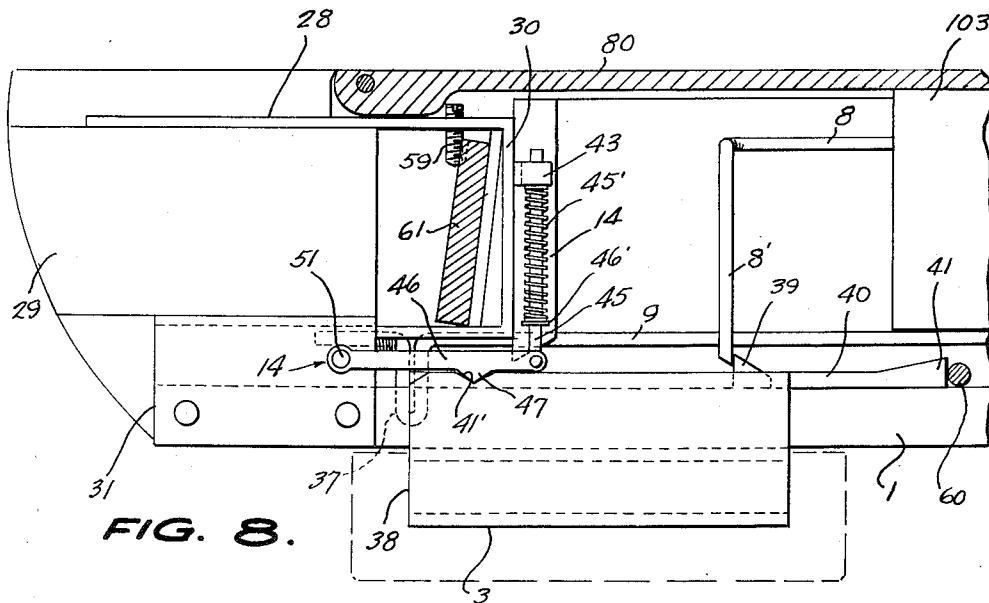
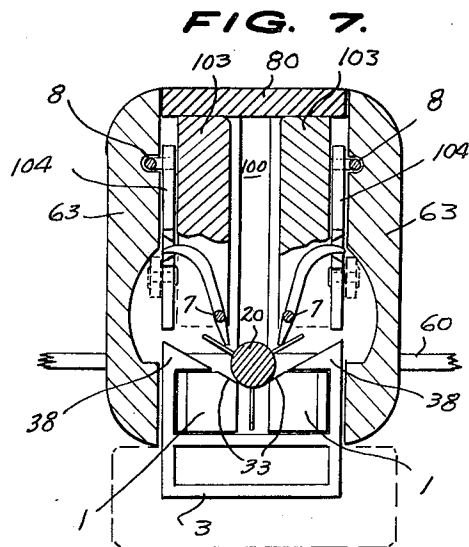
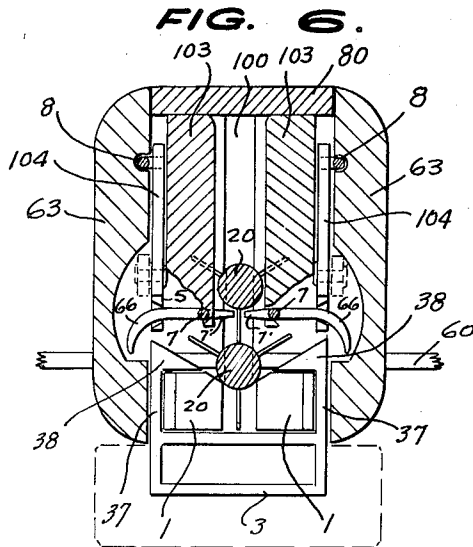
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3 Sheets-Sheet 3



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2,918,050

REPEATING CROSS BOW

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Application August 16, 1957, Serial No. 678,496

8 Claims. (Cl. 124—25)

This invention relates to projectile propelling devices, and more particularly to a magazine cross bow capable of projecting a series of darts or arrows in rapid sequence toward a target.

A main object of the invention is to provide a novel and improved repeating cross bow which is simple in construction, which is easy to load, and which will propel a plurality of standard arrows, one at a time, in rapid sequence.

A further object of the invention is to provide an improved repeating cross bow which is inexpensive to manufacture, which is light in weight, which is compact in size, and which will propel a plurality of standard arrows in sequence as fast as the slide action of the cross bow can be operated and the trigger thereof pulled.

A still further object of the invention is to provide an improved repeating cross bow of the type adapted to receive a plurality of standard arrows in its magazine and to sequentially project the arrows responsive to the reciprocation of a slide block and operation of a trigger, the cross bow being provided with an automatic safety device which locks the trigger until the slide block is returned to forward position ready for firing, the cross bow being further provided with a manually operated safety device which enables the cross bow to be carried fully loaded and cocked in the field without the danger of the weapon going off.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a perspective view of an improved repeating cross bow constructed in accordance with the present invention.

Figure 2 is an enlarged horizontal cross sectional view showing the main portion of the cross bow assembly, said view being taken on the line 2—2 of Figure 1.

Figure 3 is an enlarged fragmentary side elevational view of the cross bow with a side panel removed to reveal the details of interior construction of the cross bow.

Figure 4 is a fragmentary longitudinal cross sectional view taken substantially on the line 4—4 of Figure 2.

Figure 5 is an enlarged transverse vertical cross sectional view taken on the line 5—5 of Figure 4.

Figure 6 is an enlarged transverse vertical cross sectional view taken on the line 6—6 of Figure 2.

Figure 7 is an enlarged transverse vertical cross sectional view taken on the line 7—7 of Figure 4 showing the manner in which an arrow is allowed to feed downwardly toward the lower portion of the barrel member of the cross bow when the slide block is moved rearwardly to cock the weapon.

Figure 8 is an enlarged cross sectional view taken on the line 8—8 of Figure 2.

Figure 9 is an enlarged fragmentary perspective view showing the rear portion of one of the arrows which may be employed in the cross bow of Figures 1 to 8.

Referring to the drawings, the improved repeating

cross bow is designated generally at 26 and comprises a barrel member 27 provided at its rear end with a stock 62 and having a bow limb 61 secured transversely in its forward end. A bow string 60 is secured to the ends of the bow limb 61 and extends through the barrel member, the barrel member being formed with longitudinal slots 64 in its side walls receiving said bow string.

The barrel member 27 comprises the vertical side panels 63, 63 which are secured at their rear end portions to the stock 62, a pair of barrel butt plates 2, 2 being interposed between the forward end portion of stock 62 and the rear portions of the side panels 63, 63, as is clearly shown in Figure 2. A generally U-shaped bracket member 28 is secured in the forward end portion of barrel member 27 behind a front closure block 29 fastened between the forward ends of the side panels 63, 63. The intermediate portion of the bow limb 61 passes through the inner portion of the U-shaped bracket member 28 and is positioned adjacent the bight portion 30 of said bracket member, as is clearly shown in Figure 4. A vertical retaining screw 59 is threaded through the top arm of the U-shaped member 28 and engages in a recess formed in the upper portion of the bow limb 61 to secure the bow limb in the bracket member 28.

A pair of longitudinally extending, opposing parallel barrel bars 1, 1 are secured to the lower marginal portions of the barrel butt plates 2, 2 at the rear portion of the barrel member 27, said barrel bars 1, 1 extending substantially for the entire length of the barrel member and being secured at their forward ends to the side arms of a generally U-shaped bracket member 31 secured between the lower arm of bracket member 28 and front closure block 29. The barrel bars 1, 1 are thus supported in parallel relationship and define a supporting guide for an arrow propelled forwardly from the barrel member 27 through the open forward portion 32 of said barrel member, shown in Figure 4.

As is clearly shown in Figures 6 and 7, the upper inner corners of the barrel bars 1, 1 are longitudinally beveled, as shown at 33, 33 to define a cradle for an arrow 20 slidably supported on the barrel bars.

A slide block 3 is slidably engaged on the barrel bars 1, said slide block being provided with vertical side arms 37, 37 which extend between the lower edges of the side panels 63, 63 and the barrel bars 1, 1, said vertical arms 37 being formed at their top portions with the inwardly extending block members 38, 38 slidably engaging the top surfaces of the bars 1, 1. The slide block 3 is formed on its opposite sides with the rearwardly extending arms 40, 40 engageable with the bow string 60 at their ends, as shown in Figure 8. The arms 40 are provided at their ends with generally triangular string-abutting portions 41 which rise substantially above the top surface of the string 60 and assure that the string 60 will be retained adjacent the barrel bars 1, 1 when the string is cocked by the action of the slide block 3, as will be presently described.

The side block 3 is formed at one side thereof with a notch 41' in the top forward portion of its side wall, said notch 41' facing upwardly, as shown in Figure 8, and being lockingly interengageable with a depending triangular lug 47 on a pivoted detent arm 46, said arm being pivoted at 51 to the adjacent vertical flange of the bracket member 31. A plunger rod 45 is pivoted to the forward end of the arm 46 and extends slidably through a guide lug 43 secured to the upper portion of bight member 30 of bracket 28, as shown in Figure 8, a coiled spring 45' being provided on the plunger member 45, said coiled spring bearing between the guide lug 43 and a washer 46' secured on the lower portion of plunger 45,

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thus biasing arm 46 clockwise, as viewed in Figure 8, and thus biasing the lug 47 into locking engagement in the notch 41'.

It will thus be seen that the lock plunger 45 and the pivoted locking arm 46 are urged downwardly by the spring 45' and act to yieldably lock the slide block 3 in a forwardly adjusted position, namely, in cocking position, as will be presently described.

Designated at 23 is a catch disc which is pivotally mounted for rotation on a transverse axis in the rear portion of the barrel member 27 between the barrel bars 1, 1. A lever 22 is pivoted between the barrel bars rearwardly adjacent the locking disc 23, the tip 22' of the forward arm of lever 22 engaging the periphery of the locking disc 23. A coiled spring 23' is connected between the locking disc 23 and one of the barrel bars 1, as shown in Figure 4, biasing the locking disc 23 in a counter-clockwise direction, as viewed in Figure 4. The periphery of the disc 23 is formed with a bottom shoulder 75 engageable with the tip 22' of lever 22 under the biasing action of spring 23', as shown in Figure 3. The catch plate 23 is further formed with a top shoulder 27 which faces rearwardly, as shown in Figure 3, and which is engageable by the bow string 60 when the weapon is cocked, as will be presently described. As is clearly shown in Figure 3, the shoulder 27 normally projects above the level of the top surfaces of the barrel bars 1, 1, so that the bow string 60 sliding on the barrel bars may easily pass rearwardly over the upper edge of the shoulder 27 and engage therebehind when the string is drawn backwardly into cocked position.

Designated at 21 is a trigger member which is pivoted between the barrel bars 1, 1 rearwardly of the pivot axis of lever 22, the trigger member having a rearwardly extending top arm 51' which underlies the rear arm portion of lever 22. A leaf spring 25 is secured in stock 62 and overlies the rear arm portion of lever 22, biasing said rear arm portion downwardly into engagement with the top arm portion 51' of trigger 21, and thus exerting a biasing action on lever 22, tending to rotate the lever clockwise, as viewed in Figure 4, whereby the tip 22' of the lever is held against the periphery of the catch plate 23. A suitable finger guard 21' is secured to the under side of stock 62 and to the under sides of the rear portions of barrel bars 1, 1, around the trigger 21.

As will be readily apparent, the bow string 60 may be cocked by moving the slide block 3 rearwardly to force the string 60 past the top shoulder 27 of catch plate 23, whereby the string bears against said top shoulder and is held in cocked position by the lever 22, whose tip 22' engages the shoulder 75 on the bottom portion of catch plate 23. The lever 22 is in turn supported between the leaf spring 25 and the top arm 51' of trigger 21. When the trigger 21 is rotated in a counter-clockwise direction, as viewed in Figure 4, the lever 22 is rotated sufficiently to move tip 22' below the shoulder 75 on the bottom portion of catch plate 23, releasing the catch plate and allowing the string to snap forwardly.

The rear arm portion of lever 22 is formed with an upwardly extending lug 26, and slidably mounted between the side panels 63, 63 and butt plates 2, 2 is a horizontal safety bar 18, said safety bar passing through horizontal slots formed in the butt plates 2 and the side panels 63 and overlying the rear portion of the generally rectangular upstanding lug 26. The manual safety bar 18 is formed in its top surface with a pair of indentations 68 and 69 which are selectively engageable by a yieldable detent plunger 16 slidably mounted in a sleeve member 16' secured in a recess 17' formed in the forward portion of stock 62 immediately above the safety bar 18, the plunger 16 being biased downwardly by a coiled spring 17 mounted in the recess 17' and bearing between the top end of plunger 16 and the top wall of the recess 17'. Thus, the bar 18 may be yieldably secured in either of two positions, namely, the "safe" or "ready" position.

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The safety bar 18 is formed with a rectangular notch 67 which may be moved over the lug 26 when the safety bar 18 is placed in the "ready" position, to release the lever 22 for rotation. Figure 2 illustrates the bar 18 in the "ready" position, wherein the rectangular notch 67 is located over the upstanding lug 26 so that the lever 22 is free to rotate responsive to rotation of the trigger 21.

Designated at 19 is an automatic safety arm which is pivoted to the under side of the forward position of stock 62 forwardly of the safety bar 18 and in overlying relationship with the lever 22, the arm 19 being located so that it overlies the forward portion of the upstanding safety lug 26 when the lever 19 is in its transverse position, shown in dotted view in Figure 2. Pivotally connected to the end of the safety arm 19 is a safety control rod 9 which is slidably supported in the barrel member 27, extending longitudinally therein and being slidably supported at its forward end in an apertured lug 35 secured to one of the vertical flanges of the member 31. The rod 9 is formed with a U-shaped loop 37 at its forward end, and a coiled spring 36 is mounted on the forward end portion of the rod 9 between the loop 37 and the lug 35, biasing the rod 9 to the left, as viewed in Figure 3, namely, toward a position wherein the pivoted safety bar 19 overlies the safety lug 26 on lever 22. The depending loop 37 is engageable by the forward edge 38 of the slide block 3 when the slide block is moved forwardly to the dotted view position thereof shown in Figure 3, and to the position shown in Figure 8, namely, wherein the lug 47 engages in the V-shaped notch 41'. Thus, with the slide block 3 locked in the position of Figure 8, the automatic safety control rod 9 is held in a position wherein the automatic safety bar 19 is rotated counter-clockwise from the position thereof shown in Figure 2, namely, to a position wherein it clears the safety lug 26 and frees the trigger lever 22 for rotation.

Defined between the closure block 29 at the forward end of barrel member 27 and the forward end portion of the stock 62 is a magazine chamber 100 provided at its forward end with a vertical arrow tip guide 10 and at its rear end with a vertical arrow butt guide 11. The vertical tip guide 10 is provided with a V-shaped groove 51 adapted to guide the forward ends of conventional arrows for vertical downward movement in the magazine 100. The rear arrow guide member 11 is formed with a rectangular groove 51' adapted to guide the butt end portions 73 of conventional arrows 20 downwardly in the magazine 100. The rear guide member 11 is integrally formed with the outwardly bowed wall members 101, 101 defining clearance space for the feathers 81 on the rear portions of the arrows.

The magazine 100 thus provides space for a plurality of vertically stacked arrows and is provided with the guide means 10 and 11 for guiding the lowermost arrow into the lower portion of the magazine, namely, onto the cradle defined between the inner top corners of the barrel bars 1, 1. The arrows are urged downwardly by a follower plate 56 which is connected to the hinged magazine top cover 80 by a link bar 55. A first leaf spring 53 is secured at one end portion thereof to the under side of the top cover 80 and bears downwardly on the link bar 55. A second leaf spring 52 is secured at one end portion thereof to the link bar 55 and bears downwardly on the follower plate 56, as is clearly shown in Figure 4, whereby the springs 53 and 52 transmit downward force from the top cover plate 80 to the follower plate 56, thus urging the arrows in the magazine downwardly.

As shown in Figure 4, the top cover plate 80 is transversely hinged at 80' to the top forward portion of the barrel member 27, overlying the magazine 100, and is releasably secured in covering relationship to the magazine by a slidable latch 102 provided on the top surface at the forward end portion of the stock 62, said latch 102 comprising a sliding plate adapted to overlie

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the rear margin of the hinged magazine cover 80 to secure same in covered position, but being slidable rearwardly to release the cover, to allow access to the magazine whenever necessary.

Respective longitudinally extending magazine ejector pivot rods 7, 7 are pivotally mounted in the lower portion of magazine 100, said rods 7, 7 being pivoted in the bottom portions of a pair of vertical, longitudinally extending guide blocks 103, 103 secured in the opposite side portions of the intermediate section of the magazine to define a vertical guideway for vertically supporting the stacked arrows in the magazine. The rods 7, 7 are provided with the inwardly projecting arm portions 7' normally overlying the lowermost arrow in the stack, and serving to support the remainder of the arrows out of contact with the lowermost arrow, as illustrated in Figure 6. The rods 7 have outwardly projecting, arcuately curved arm portions 66, 66, which engage slidably through notches in the respective end portions 61 of levers 5 pivoted respectively at 67' to the inside surfaces of the side panels 63, 63. The levers 5 have rearwardly extending portions 68 which are slidably and pivotally connected to the ends of respective bell crank levers 6 pivoted to the butt plates 2, said bell crank levers 6 having depending arm portions 31 extending rearwardly adjacent to the transverse vertical plane containing the vertical edge of the top shoulder member 27 of catch plate 23 in the position shown in Figure 3. Thus, the depending arm portions 31 are engageable by the bow string 60 and are movable rearwardly thereby when the bow string is moved toward cocked position by the slide block 3, as previously described. When the bow string 60 engages the depending arm portions 31, the levers 6 are rotated clockwise, as viewed in Figure 3, causing the levers 5 to be rotated counterclockwise, and causing the magazine ejector pivot rods 7, 7 to be rotated in directions to move the inwardly projecting arm portions 7', 7' downwardly, allowing an arrow 20 to descend into the space between the beveled top corner portions of the barrel bars 1, 1.

The levers 5 are provided with upstanding arms 104 at their intermediate portions, the top ends of the arms being pivotally connected to longitudinally extending control rods 8 which extend slidably through supporting brackets 13 secured to the respective side panels 63, 63. Leaf springs 65 are secured to the brackets 13, said leaf springs being provided with depending detent lug elements 34 at their ends which are lockingly engageable in spaced transverse recesses 33, 33' formed in the rods 8 to yieldably hold the rods in either of two longitudinally adjusted positions relative to the supporting brackets 13. Figure 3 illustrates the rod 8 shown therein as releasably held in its forward position. When levers 5 are rotated counterclockwise, as above described, the rod 8 is retracted and the lug 34 enters the notch 33 to yieldably hold the rod 8 in its rearward position. Thus, the rod 8 serves as a yieldable locking means for its lever 5, whereby rearward movement of the slide member 3 to cock the bow string rotates the levers 5 counterclockwise, as viewed in Figure 3, the levers 5 being yieldably held by the engagement of each lug element 34 in a recess 33 so that the magazine ejector pivot rods 7, 7 are held in the positions thereof shown in Figure 7, wherein the inwardly directed members 7', 7' are in downwardly extending positions.

The rod members 8 are provided at their forward ends with depending vertical arms 8' which are engageable by upstanding lug 39 on the slide block 3 when the slide block is returned to its forward position. Thus, after the bow string is cocked by moving the slide block 3 rearwardly, as above described, the slide block 3 is returned to its forward position, whereby the lug 39 engages the depending arm portions 8', moving the rods 8 forwardly and rotating the levers 5 clockwise to positions such as that shown in Figure 3, whereby the magazine ejector pivot rods 7 are returned to the positions

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thereof shown in Figure 6, and whereby the arms 7', 7' resume their inwardly extending horizontal positions preventing arrows from the stack from moving downwardly in the magazine.

In operation, with the magazine 100 containing a stack of arrows, and with the manual safety bar 18 in its "ready" position, the slide block 3 is moved rearwardly to cause the bow string 60 to move into cocked position, namely, to move rearwardly past the top shoulder 27 on the catch plate 23. This also rotates the levers 6, as above described, to cause the arm portions 7', 7' on the magazine ejector pivot rods 7, 7 to rotate downwardly to the positions thereof shown in Figure 7, and to allow an arrow to feed into the lower portion of the magazine, namely, to engage on the beveled top inner corners of the barrel bars 1, 1. After the bow string has been thus cocked, the slide block 3 is moved forwardly until the forward edge portion 38 thereof engages the depending loop member 37, to rotate the automatic safety catch bar 19 away from the forward portion of the safety lug 26 on lever 22. When the slide block 3 is returned to its forward position, shown in dotted view in Figure 3, the lugs 39 engage the depending arm portions 8' and return the pivot rods 7, 7 to their positions as shown in Figure 6, wherein the arm portions 7', 7' prevent any further arrows from being moved downwardly into the lower portion of the magazine. The cross bow is now ready for firing. When the trigger 21 is rotated clockwise, as viewed in Figure 3, lever 22 is also rotated clockwise, releasing the catch plate 23 and allowing the bow string to be snapped forwardly against the butt end portion of the arrow, causing the arrow to be ejected from the open forward space 32 of barrel member 27. A subsequent arrow may be propelled by the cross bow by repeating the above described procedure. The action may be continued until all the arrows in the magazine are expended.

While a specific embodiment of an improved repeating cross bow has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member engageable with said bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, and means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine.

2. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a

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bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member engageable with said bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, a safety catch member movably mounted in said barrel member and normally overlying a portion of said lever to prevent rotation thereof, and means automatically moving said safety catch member away from said lever portion responsive to return of said slide block forwardly from cocking position.

3. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member and engageable with said bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, a safety catch member movably mounted in said barrel member and normally overlying a portion of said lever to prevent rotation thereof, means automatically moving said safety catch member away from said lever portion responsive to return of said slide block forwardly from cocking position, and a safety bar slidably mounted in said barrel member over said lever portion and normally preventing rotation of said lever, said safety bar being formed with a release notch and being manually movable at times to a position wherein said release notch overlies said lever portion, whereby to allow rotation of said lever.

4. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots re-

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ceiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member and engageable with said bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, a safety catch member movably mounted in said barrel member and normally overlying a portion of said lever to prevent rotation thereof, means automatically moving said safety catch member away from said lever portion responsive to return of said slide block forwardly from cocking position, and means to return said inwardly projecting means to a position obstructing descent of arrows toward said lower magazine portion responsive to said return of the slide block forwardly from cocking position.

5. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch plate pivotally mounted in the rear portion of said barrel member for rotation on a transverse axis, a detent lug on the top portion of said catch plate lockingly engageable with said bow string to retain same in cocked position, a further detent lug on the bottom portion of said catch plate, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch plate, one end portion of said lever being located to lockingly engage with said further detent lug, means to rotate said lever in a direction to disengage said one end portion thereof from said further detent lug responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, and means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine.

6. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member and engageable with said

bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing the descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, an upstanding lug on said lever opposite said catch member, a safety catch member pivoted in said barrel member for horizontal rotation and being arranged to normally overlie said upstanding lug to prevent rotation of the lever, and means rotating said safety catch member away from said upstanding lug responsive to return of said slide block forwardly from cocking position.

7. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch member pivotally mounted in the rear portion of said barrel member and engageable with said bow string to retain same in cocked position, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch member, and being lockingly engageable with said catch member, means to disengage said lever from the catch member responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, an upstanding lug on said lever opposite said catch member, a safety catch member pivoted in said barrel member for horizontal rotation and being arranged to normally overlie said upstanding lug to prevent rotation of the lever, means rotating said safety catch member away from said upstanding lug responsive to return of said slide block forwardly from cocking position, and a safety bar slidably mount-

ed in said barrel member over said upstanding lug and normally preventing rotation of said lever, said safety bar being formed with a release notch and being manually movable at times to a position wherein said release notch overlies said upstanding lug, whereby to allow rotation of said lever.

8. A repeating cross bow comprising a barrel member, a bow limb secured transversely in said barrel member, a bow string secured to the ends of said bow limb and extending through said barrel member, said barrel member being formed with longitudinal slots receiving said bow string, a slide block slidably secured to said barrel member, means on said slide block engageable with said bow string to move same rearwardly toward a cocked position, a catch plate pivotally mounted in the rear portion of said barrel member for rotation on a transverse axis, a detent lug on the top portion of said catch plate lockingly engageable with said bow string to retain same in cocked position, a further detent lug on the bottom portion of said catch plate, a trigger member pivoted to said barrel member, a lever pivoted in said barrel member between said trigger member and said catch plate, one end portion of said lever being located to lockingly engage with said further detent lug, means to rotate said lever in a direction to disengage said one end portion thereof from said further detent lug responsive to rotation of said trigger member, means defining a magazine to receive vertically stacked arrows in said barrel member and having a lower portion aligned with said bow string when the string is in cocked position, opposing inwardly projecting means pivoted in opposite side portions of the magazine and normally obstructing descent of arrows toward said lower portion, means rotating said inwardly projecting means to non-obstructing positions responsive to movement of said slide block rearwardly toward a position to cock the bow string, whereby to allow an arrow to descend into said lower portion of the magazine, an upstanding lug on said lever opposite said catch plate, a safety catch member pivoted in said barrel member for horizontal rotation and being arranged to normally overlie said upstanding lug to prevent rotation of the lever, and means rotating said safety catch member away from said upstanding lug responsive to return of said slide block forwardly from cocking position.

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