Jan. 1, 1963 W. D. McTHOMAS 3,071,043

RECOIL-OPERATED MULTIPLE BARREL GUN

Filed Sept. 17, 1957 2 Sheets-Sheet 1

Fig. 1.

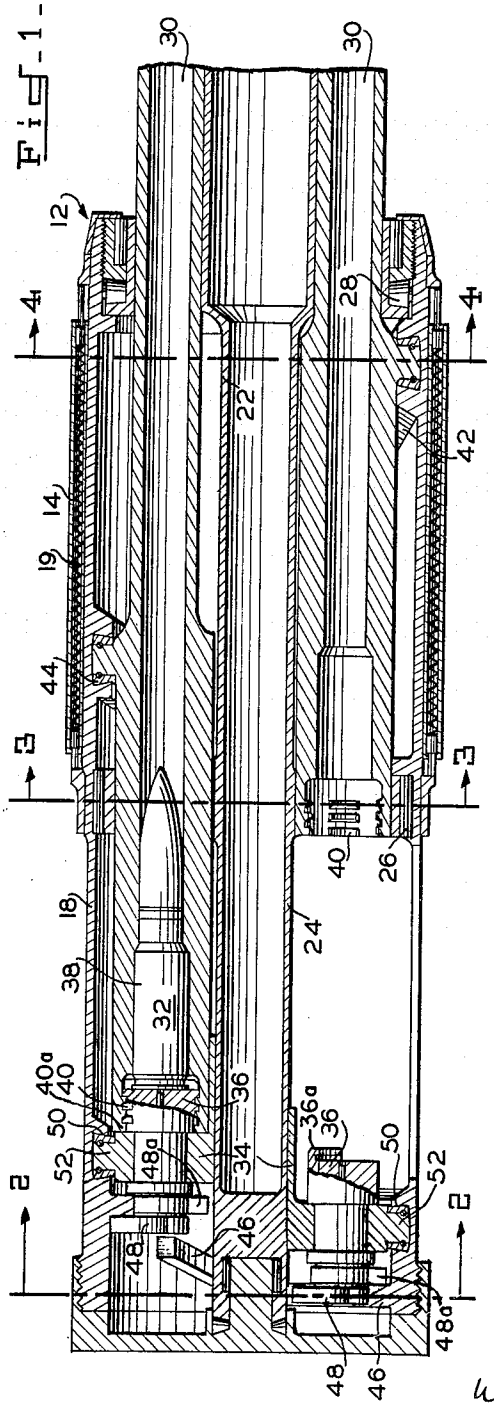


Fig. 4.

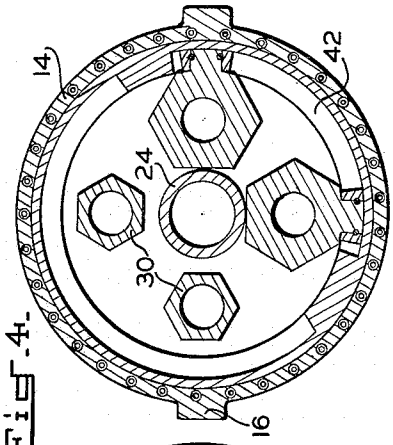


Fig. 3.

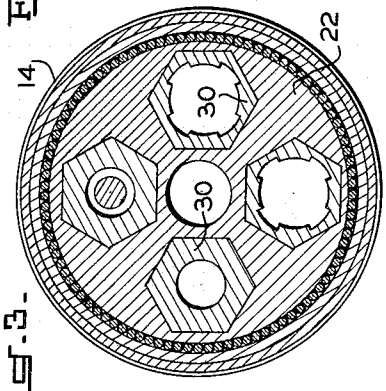
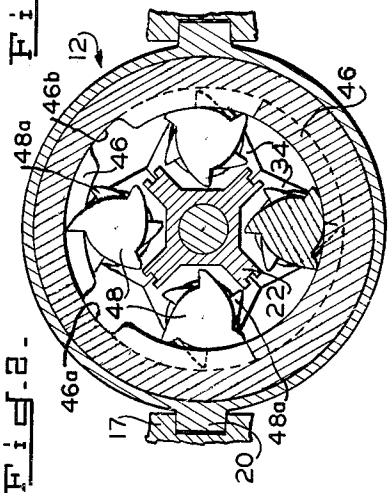


Fig. 2.



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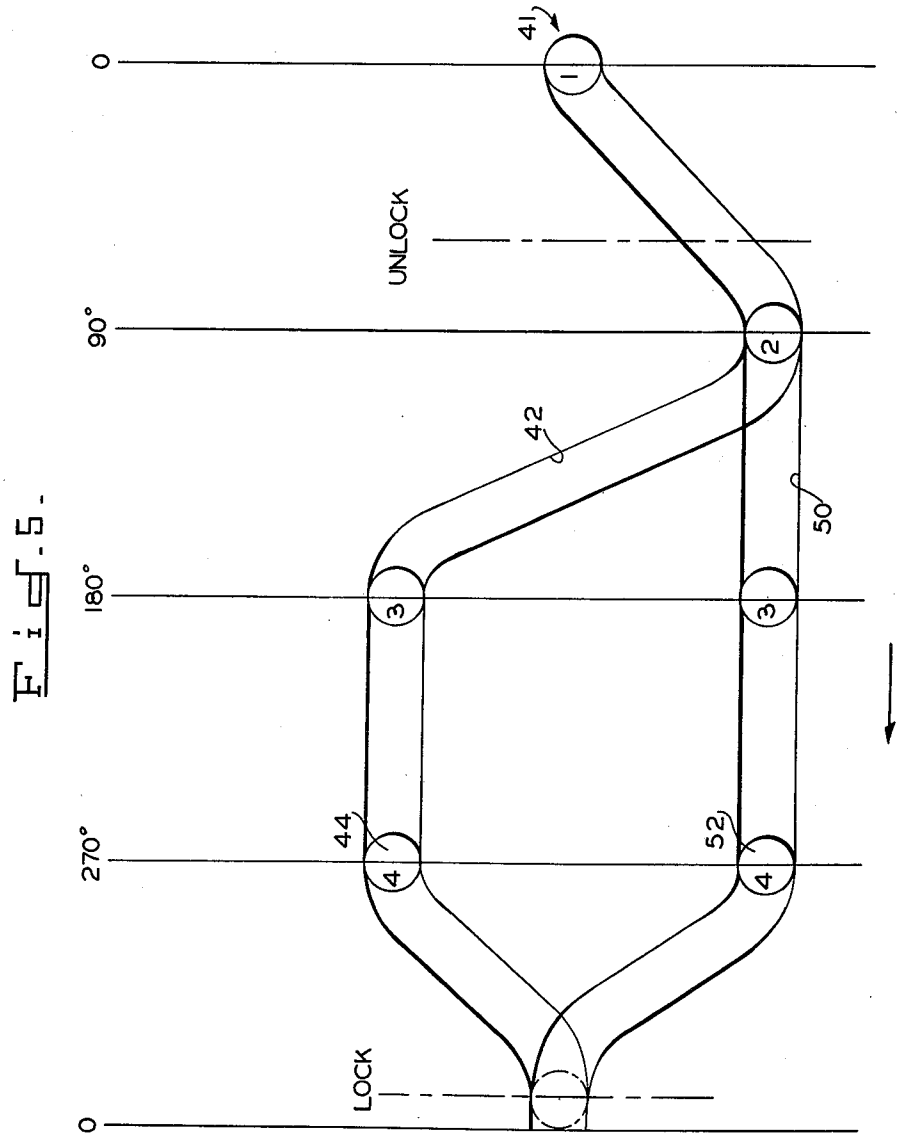


Fig. 5.

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3,071,043

Patented Jan. 1, 1963

3,071,043

RECOIL-OPERATED MULTIPLE BARREL GUN

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Filed Sept. 17, 1957, Ser. No. 684,623
1 Claim. (Cl. 89—12)

My invention relates to an automatic gun with a cage provided with a plurality of symmetrically-disposed barrels and disposed for continuous rotation while firing and more particularly to such a gun in which the barrels are recoilable for operation of the gun.

It is an object of my invention to provide a multiple barrel gun powered by recoil operation of the barrels.

Another object of my invention is to provide a firing device for such a gun.

A further object of my invention is to provide the gun with a firing device provided with a cam mechanism for rotation of the cage.

A still further object of my invention is to provide such a firing device with a cam mechanism for slidable operation of the barrels responsive to the rotation.

An additional object of my invention is to provide such a firing device with carriages including bolts in axial alignment with the barrels rotatably disposed for locked engagement therewith disposed for axial slidable operation responsive to the rotation.

An added object of my invention is to provide the firing device with a cam mechanism for rotation of the bolts responsive to the rotation.

Other aims and objects of my invention will appear from the following description.

In carrying out my invention, a gun having a plurality of barrels symmetrically disposed in a rotatable cage for axially slidable operation is provided with a firing device including axially slidable carriages with bolts in axial alignment with the barrels for retaining cartridges therein in an axial firing position thereof.

The firing device includes a cam mechanism with a cam in the receiver of the gun and rollers respectively disposed on the barrels for rotation of the cage responsive to recoil of the barrels.

A cam in continuous relation with the rotation cam is provided for engagement with the rollers for axial operation of the barrels responsive to the rotation.

The bolts are provided with interrupted threads for engagement with corresponding threads in the respective barrels of the bolts and the barrels for the discharge and the firing device includes a cam in the receiver and sprockets for engagement therewith disposed on the respective bolts for rotating the bolts to and from the position for the engagement responsive to the rotation.

For a more complete understanding of my invention, reference is directed to the following description and the accompanying drawings in which:

FIG. 1 is an elevational view in section of a gun incorporating my invention and showing one barrel at its firing station with the bolt and barrel locked;

FIG. 2 is a view along line 2—2 of FIG. 1;

FIG. 3 is a view along line 3—3 of FIG. 1;

FIG. 4 is a view along line 4—4 of FIG. 1; and

FIG. 5 is an enlarged developed view of the receiver with the barrel and carriage cam including an arrow showing direction of rotation of the barrels.

Accordingly, a gun **12** includes a housing **14** with trunnions **16** for pivotal engagement in a mount **17**. A receiver **18** is biased to a normal position in housing **14** by recoil springs **19** and the receiver includes trunnions **20** axially slidable in mount **17**.

A cage **22** includes a shaft **24** journaled in receiver **18** and radial bearings **26** and thrust bearings **28** are disposed between the cage and the receiver.

Barrels **30** for chambering cartridges **32** and carriages **34** in respective axial alignment with the barrels are axially slidable in cage **22** in symmetrical relation with shaft **24**.

Bolts **36** having a cartridge gripping face **36***a* for gripping cases **38** of cartridges **32** are disposed for rotation in carriages **34** and the bolts and barrels **30** are provided with interrupted internal threads **40** for locked engagement with external interrupted threads **40***a* on bolts **36** to retain the cartridges in the barrels for discharge. Cage **22** is provided with stations for the barrels corresponding thereto including a firing station for the discharge and the barrels are respectively provided with axially-intermediate firing positions **41** for the discharge (see FIGURE 5).

A cam **42** is disposed in receiver **18** and radial rollers **44** are respectively disposed on barrels **30** for engagement with cam **42**. Barrels **30** are disposed for recoil responsive to the discharge. Carriages **34** are disposed for engagement therewith for displacement to respective rearward positions, and cam **42** is disposed for successive displacement of barrels **30** to the corresponding stations, responsive to the recoil.

A bolt cam **46** is disposed in receiver **18** and the sprockets **48** and **48***a* are respectively disposed on the rearward ends of bolts **36** for rotation thereof from the locked firing position responsive to the displacement. Carriage cam **50** is disposed in receiver **18** for engagement with radial rollers **52** respectively disposed on carriages **34** to retain each of the carriages in the rearward positions during discharge in the following barrels and return the carriages to barrel engagement responsive to discharge in the second following barrels.

As seen in FIGURES 1 and 2, sprockets **48** and **48***a* are engaged by cam **46** to lock and unlock bolts **36** in barrels **30**.

Cam **46** is further provided with interrupted portions **46***a* and **46***b* to provide a "dwell" in the rotation of bolts **36** when a bolt **36** is in its locked, or firing, position or when a barrel **30** is in its full forward position for chambering.

Barrel cam **42** is disposed to displace the barrels to forward positions responsive to discharge in the next succeeding barrels and to return the barrels to the firing positions responsive to discharge in the second succeeding barrels for chambering the cartridges.

Cases **38** are ejected from bolts **36** by faces **36***a* and cartridges **32** are loaded therein by loading mechanisms (not shown) substantially at the time of discharge in the second succeeding barrels.

Bolt cam **46** is disposed to rotate the bolts to the locked positions responsive to discharge of the cartridges in the third succeeding barrels.

In FIGURE 5, the rotation of the barrel rollers **44** in cam **42**, and the rotation of the carriage rollers **52** in cam **50** is diagrammatically shown. The firing station is indicated by **41**.

Although a particular embodiment of the invention has been described in detail herein, it is evident that many variations may be devised within the spirit and scope thereof and the following claim is intended to include such variations.

I claim:

A recoil powered gun comprising, in combination, a cylindrical housing, a cylindrical receiver slidably mounted in said housing, recoil springs in said housing biasing said receiver towards a normal position in said housing, trunnions on said housing, a mount for said gun, said mount receiving said trunnions for pivotally supporting said gun, an axial shaft in said receiver, a cage

rotatably mounted on said shaft in said receiver, a plurality of gun barrels symmetrically arranged about said shaft and axially slidable in said cage, there being a series of interrupted internal threads in the breech end of each barrel, a radially disposed roller mounted on each barrel, a plurality of carriages, corresponding in number to said barrels, slidably mounted on said shaft and arranged in axial alignment with said barrels, a radially disposed roller mounted on each barrel, a bolt rotatably mounted in each carriage, each bolt including a forward portion having a cartridge gripping portion on its forward face and external interrupted threads for mating with said internal interrupted threads in each barrel, a pair of axially aligned sprockets on the rearward end of each bolt, a first cam mechanism in the internal peripheral surface of said receiver and rearward of said barrels, said first cam mechanism including a carriage portion for receiving said radial rollers on said carriages and a barrel cam portion for receiving said radial rollers on said barrels, said carriage cam portion having a portion for the dwell of said carriages in the forward position and said barrel cam portion including a portion for successive operation of said barrels to a forward position and a dwell portion for

chambering of cartridges into said barrel and extraction of cartridges therefrom responsive to rotation of said cage, said carriage cam portion and said barrel cam portion merging at both ends into a single portion wherein said barrels are in a firing station in said cage and wherein said bolts in said carriages are locked by said interrupted threads on said bolts and said carriages, and a second cam mechanism separate from said first cam mechanism disposed rearwardly of said bolts in said receiver adapted to engage said pair of sprockets on the end of each bolt and to rotate said sprockets and said bolts to lock and unlock said bolts in said barrels when said barrels have reached their full rearward position upon recoil thereof, there being a pair of interrupted portions in said second cam for preventing rotation of said bolts when in said locked position and in full forward position.

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