Sept. 2, 1958 J. F. O'BRIEN 2,849,925

RECOIL ADAPTER FOR A GUN

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FIG. 1

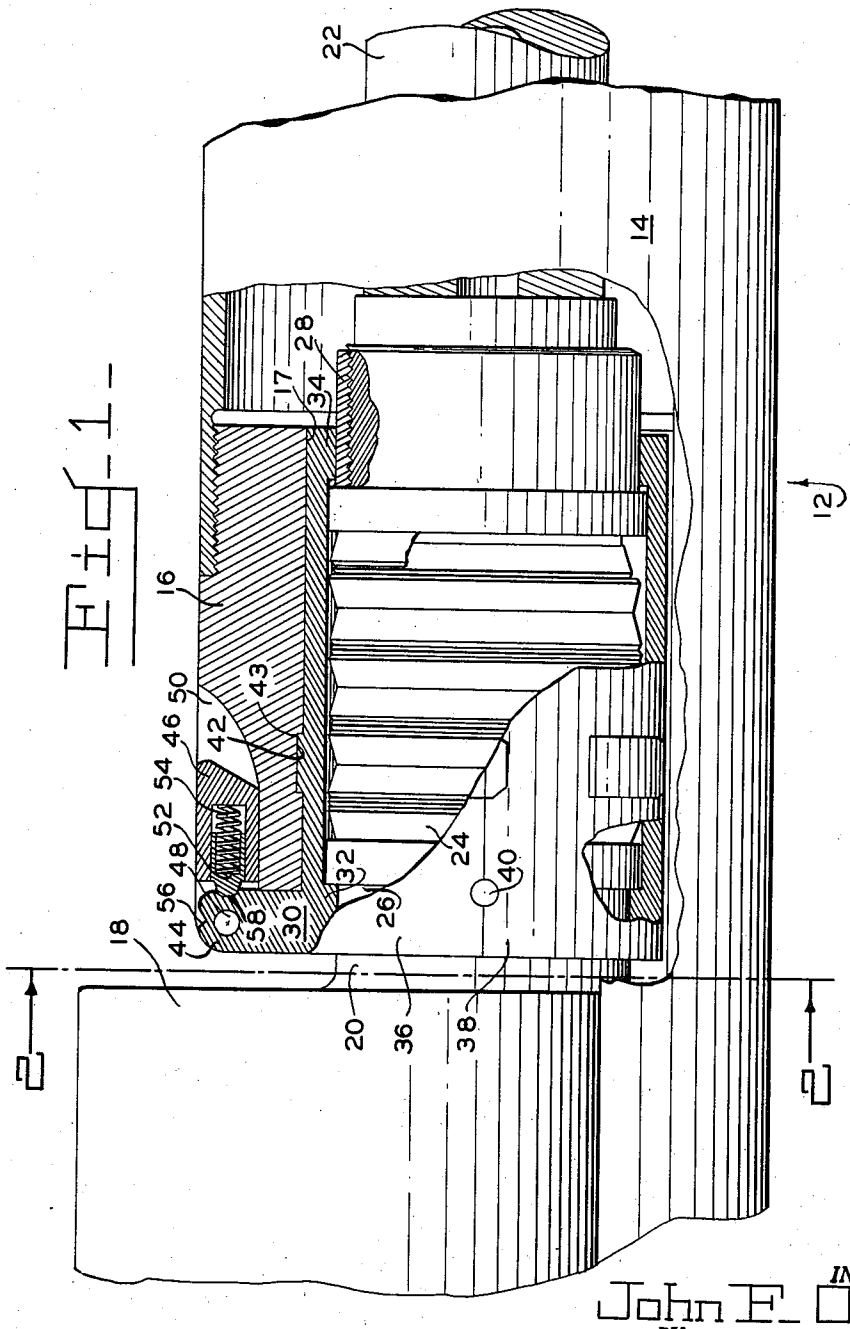

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Fig. 2

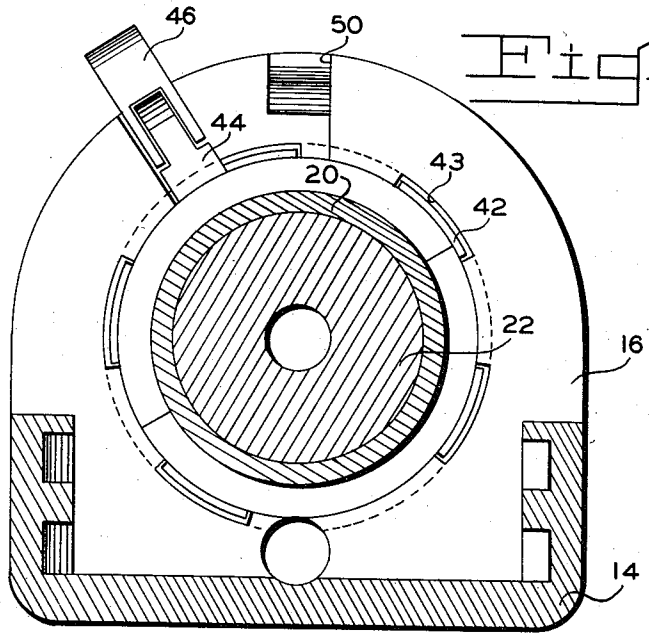
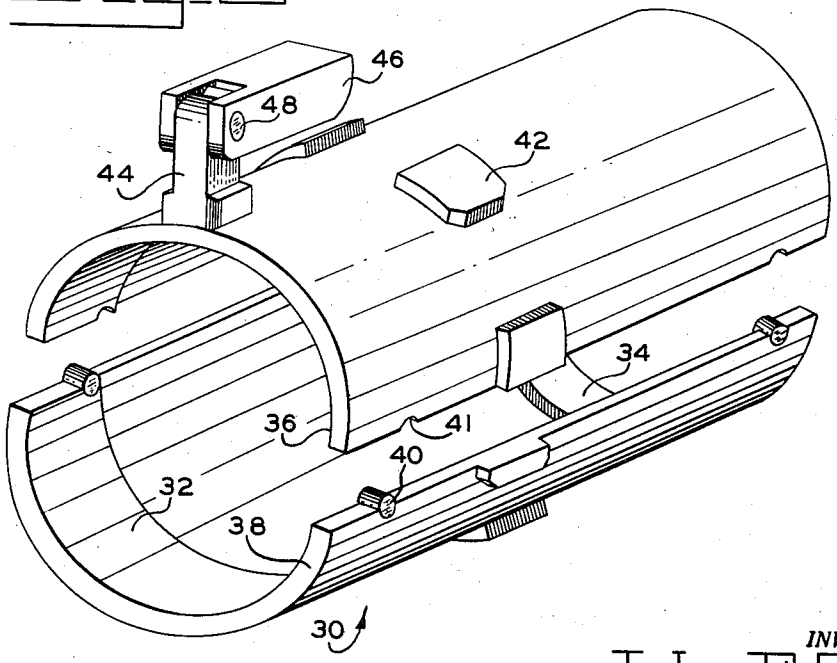


Fig. 3



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RECOIL ADAPTER FOR A GUN

John F. O'Brien, Springfield, Mass., assignor to the United States of America as represented by the Secretary of the Army

Application June 18, 1954, Serial No. 437,901

2 Claims. (Cl. 89—44)

(Granted under Title 35, U. S. Code (1952), sec. 266)

The invention described herein may be manufactured and used by or for the Government for governmental purposes without the payment to me of any royalty thereon.

My invention relates to a gun including a receiver and a barrel assembly having a drum support and more particularly to a device for cushioning the recoil energy transmitted between such drum support and receiver.

In existing guns, recoil energy is transmitted from the drum support to a pair of laterally-disposed adapters mounted to the receiver, and accuracy of the gun requires perfect balance between the adapters. However, because of the high value of the recoil force and the short allowable recoil stroke of the drum support even a close approximation of such balance is difficult to obtain. Such balancing would be obviated if a single adapter were employed to transmit recoil forces from the drum assembly to the receiver of the gun.

It is an object of my invention therefore to provide a single recoil adapter for a gun.

An additional object of my invention is to provide a simple, compact and effective adapter for cushioning the recoil energy transmitted between the drum support and the receiver of a gun.

A further object of my invention is to provide a readily mountable recoil adapter for a gun including a receiver having an integral cartridge drum bearing.

In carrying out my invention a set of ring springs is secured against a shoulder of the drum support of a gun and held in place by a nut for applying an initial load to the ring springs. A split sleeve having inwardly disposed flanges for respectively engaging the end rings of the set of springs is disposed around the rings and the sleeve is inserted in the continuous bearing of the receiver of the gun. The bearing is provided with lugs and the sleeve is provided with grooves for bayonet connection therebetween and a locating lever pivoted and spring-biased on the sleeve is rotatable to fit in an indent of the bearing to lock the bayonet connection.

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

Fig. 1 is a partially cutaway, elevational view of a gun incorporating my invention;

Fig. 2 is a view along the line 2—2 of Fig. 1 with the sleeve unlocked; and

Fig. 3 is a perspective view of the split sleeve of the recoil adapter.

According to the drawings, a gun **12** includes a two-piece receiver **14** having an integral bearing **16** with a bore **17**. A barrel assembly includes a drum support **18** having a portion **20** secured to a barrel **22**. A plurality of ring springs **24** are secured against a shoulder **26** of portion **20** by an adjusting nut **28** threaded on portion

20 to preload springs **24**. Springs **24** extend longitudinally between shoulder **26** and nut **28** for enclosure within a cylindrical sleeve **30** and between flanges **32** and **34** respectively projecting inwardly at the ends of such sleeve.

Sleeve **30** is diametrically parted into sections **36** and **38** for assembly around springs **24** and pins **40** are secured to section **38** for projection into mating indentations **41** in section **36** to prevent relative longitudinal movement of the sections.

Sleeve **30** engages bore **17** and includes lugs **42** for engagement with grooves **43** corresponding thereto in bearing **16** for bayonet connection therewith. Sleeve **30** is provided with a projecting tongue **44** and a bifurcated lever **46** is pivoted thereon at **48** for turning sleeve **30** between the unlocked and locked positions of the bayonet connection and for projection into a locking notch **50** of bearing **16** to retain the bayonet connection in the locked position. Lever **46** includes a plunger **52** biased by a spring **54** to selectively project into indents **56** or **58** respectively to retain lever **46** in the turning or projection position thereof.

When the barrel assembly is secured in receiver **14**, recoil and counterrecoil forces respectively are transmitted by nut **28** and shoulder **26** to flanges **32** and **34** and eventually to receiver **14** through springs **24** which absorb a part of such forces.

Thus it is seen that the structure of the device is simple and the assembly thereof in the gun in uncomplicated.

It has been found that the efficiency of such spring devices in cushioning a force increases with the diameter thereof and therefore it is more advantageous to use one than two such devices of smaller diameter. Also, where but one is used, there is no question of balancing off-center loads.

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 claims are intended to include such variations.

I claim:

1. An adapter for a gun including a receiver having an integral bearing with a locking notch and a barrel assembly slidable in a recoil cycle therein, comprising a plurality of ring springs secured around the barrel assembly and preloaded, a sleeve for enclosing said ring springs provided with a projecting tongue including a pair of indents and disposed for bayonet connection with the bearing to transmit recoil and counterrecoil forces between the barrel assembly and the receiver, and a bifurcated lever pivoted on said tongue and spring-biased for selective engagement with said indents for rotation of said sleeve to complete said connection, and for engagement with the locking notch to secure said connection.

2. A recoil adapter for a gun including a receiver having a bearing portion provided with internal grooves and a locking notch and a barrel assembly slidably mounted in the bearing portion and including a drum support and a barrel mounted thereto, said recoil adapter comprising a portion of the drum support disposed between an annular shoulder and a nut threadably mounted to the drum support, a plurality of ring springs coaxially disposed on said portion between said shoulder and nut whereby said ring springs are preloaded by adjustment of said nut, a sleeve for inclosing said ring springs. flange means on said sleeve engaged with said ring

springs and lug portions on said sleeve cooperating with the internal grooves for joining said sleeve to the bearing by a bayonet connection so that relative movement between the receiver and barrel assembly is transmitted through said ring springs, a tongue portion including a pair of indents extending from said sleeve, a bifurcated lever pivotally mounted on said tongue portion and spring-biased for releasable engagement with said indents to selectively position said lever for rotation of said sleeve to effect said bayonet connection and for reception by the locking notch to secure said bayonet connection.

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