

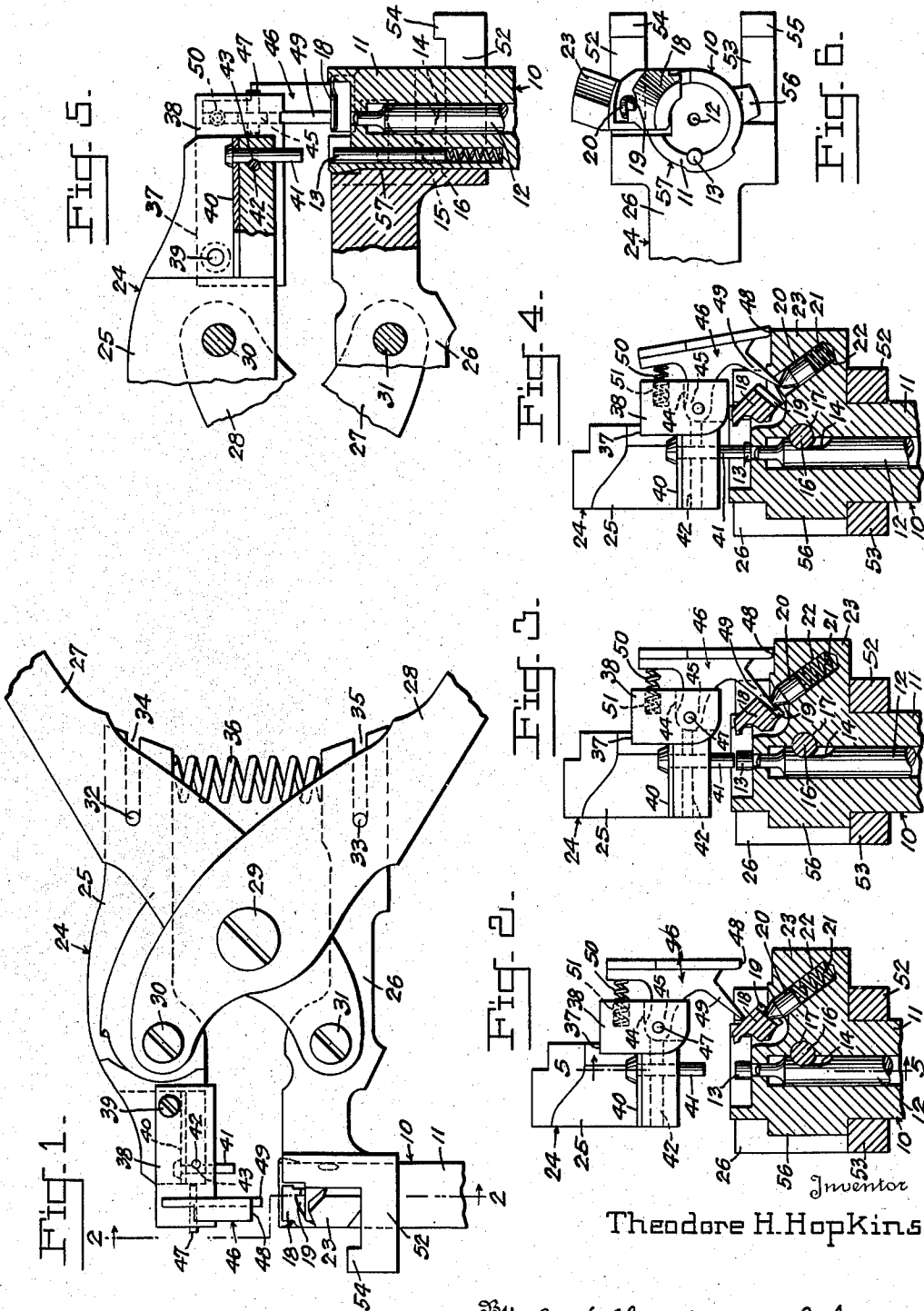
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T. H. HOPKINS

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TOOL FOR ASSEMBLING CARBINE BOLTS

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Theodore H. Hopkins

J. H. Church & H. E. Philodreau
Attorneys

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TOOL FOR ASSEMBLING CARBINE BOLTS

Theodore H. Hopkins, North Scituate, R. I.

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1 Claim. (Cl. 29—268)

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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 refers to a tool for use in the assembly and disassembly of the bolt of an automatic hand weapon, particularly U. S. carbine, cal. .30, M1.

The body assembly of a carbine bolt consists of a cylindrical member within which is housed the firing pin and a spring urged ejector, both held secured therein by means of a transverse pivot pin formed on an extractor member. These are illustrated in the accompanying drawings. All of the members are of small size.

In order to disassemble the bolt it is necessary to force the ejector back into the bolt against the pressure of a powerful spring and hold it there while the spring plunger of the extractor is depressed and the extractor removed from the bolt. Removal of the extractor releases the other members and permits their removal. Because of the small size of the members and their close relation to each other within the bolt, this is a difficult job when the bolt is held in the hand, frequently resulting in the loss or damage to small parts or injuries to the fingers. Assembly of the bolt is a still more difficult job.

An important object of my invention is to provide a tool in which the bolt may be held securely while being disassembled and assembled.

Another object of my invention is to provide a tool which will depress the ejector plunger and hold it while the ejector pivot is out of engagement with the other members.

A further object of my invention is to provide a tool which will retain the ejector within the bolt after the said ejector has been freed from the restraint of the extractor.

A still further object of my invention is to provide a tool which is simple to operate, economical to manufacture, and efficient in operation.

Other objects and features of my invention will become apparent during the course of the following specification, and accompanying drawings, forming part of the specification, wherein like numerals are used to designate like parts in the specification and drawings.

In the drawings:

Figure 1 is an elevation of a tool embodying my invention, showing a bolt in position for assembly or disassembly,

Figures 2, 3 and 4 are fragmentary sections, partly in elevation, taken on the line 2—2 of Fig-

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ure 1, and illustrate the operation of my invention:

Figure 2 shows the pawl lever in engagement with the extractor,

5 Figure 3 shows the pawl lever entering the cut-out portion of the extractor, while the pawl cam engages the slide cam of the bolt and a pressure pin engages the ejector,

Figure 4 shows the pawl lever holding the extractor plunger depressed, the ejector depressed and secure, and the extractor free to be withdrawn from the bolt,

Figure 5 is a sectional view taken along the line 5—5 of Figure 2, and,

15 Figure 6 is a fragmentary plan view of the lower jaw of my tool showing the top of a bolt in place.

Referring now in detail to the drawings, the numeral 10 designates generally a standard bolt used in U. S. carbine, cal. .30, M1, and is shown here merely for illustration since it is well known in the art, and is not part of my invention.

Bolt 10 comprises a cylindrical body 11 in which is housed in suitable bores provided therein a firing pin 12 and a spring-urged ejector 13 which are provided with notched out portions 14 and 15, respectively, for engagement with a pivot pin 16 positioned in a transverse bore 17 and forming a portion of an extractor 18. The extractor 18 is provided with a cut-out portion 19 adapted to engage a portion of an extractor plunger 20 and prevent ejection of the extractor from the gun during automatic fire.

The plunger 20, pressed by a plunger spring 21, is housed in a bore 22 adjacent the extractor 18, the said bore being formed in the body 11 and an extension lug thereon which forms a slide cam 23. The plunger 20 presses against the extractor 18, thus holding the said extractor positioned in the body 11 with the pivot pin 16 engaging the firing pin 12 and the ejector 13.

The present invention presents a tool, generally designated in the drawings by the numeral 24. It comprises a plier-like structure in which opposed jaw members 25 and 26 are held in spaced relation by handle members 27 and 28, the said handle members being pivotally connected to each other near their respective forward ends at 29. The forward end of handle 28 is pivotally connected to jaw 25 at 30, and the forward end of handle 27 is pivotally connected to jaw 26 at 31. A pin 32 is provided transversely of handle 27 rearwardly of pivotal connection 30, and a similar and oppositely opposed pin 33 is provided transversely of handle 28, the said pins 32 and 33 being translatable longitudinally through the slots 34

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and 35 provided in the rearward ends of jaws 25 and 26, respectively, when the said jaws 25 and 26 are moved toward each other during operation of the tool by pressing the said handles 27 and 28 toward each other. A collapsible coil spring 36 is positioned between the jaws 25 and 26 adjacent the slots 34 and 35, the said spring 36 being compressed by the action of the said handles 27 and 28 in moving the said jaws 25 and 26 toward each other, to aid in separating the said jaws by its released energy when the pressure applied to the said handles is removed.

The forward end of upper jaw 25 is recessed on one side, as at 37, to provide a bearing surface for a block 38 removably attached to the said jaw by a screw 39. The forward end of said jaw 25 is also cut away at the side opposite the said block 38 to provide a seat 40 for a rivet-headed pin 41, the free end of the said pin 41 projecting downwardly and being arranged to align with the ejector 13 of the bolt 10 when the said bolt is placed in the tool 24, for a purpose which will be later pointed out. The said pin 41 is held fixed in the said jaw 25 by means of a pin 42 positioned in a slot 43 in the said pin 41, the said pin 42 passing transversely through the jaw 25 and the block 38 and cooperating with the screw 39 to secure block 38 in the recess 37.

The block 38 is provided with a slot 44 adjacent its forward end to receive therein the pivoted ear 45 of a pawl lever 46, the said pawl lever being adapted to pivot on a pin 47 fixed in the block 38. The pawl lever 46 is provided with a cam 48 and a downwardly directed and angularly disposed finger 49, the said cam 48 and finger 49 being provided for a purpose which will be later pointed out. A collapsible pawl spring 50 is positioned between the pawl lever 46 and the block 38, a bored recess 51 being provided in the block 38 to provide a seat for the said spring 50.

The forward end of the lower jaw 26 is bifurcated to form extending arms 52 and 53, said arms being provided with upstanding fingers 54 and 55, respectively, the arms 52 and 53 cooperating with the fingers 54 and 55 to form a recessed support 57 for the bolt 10, slide cam 23 and slide guide lug 56 formed on the said bolt preventing rotation of the said bolt 10 while the said bolt is positioned therein.

In operation, the bolt 10 is placed within the recessed slot 57 between the arms 52 and 53, the slide cam 23 and the lug 56 resting upon the said arms. When so positioned, the pin 41 will be directly above the ejector 13, while the finger 49 of the pawl lever 46 rests lightly on the top surface of the extractor 18. As pressure is applied to the handles 27 and 28, the pivoted jaws

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25 and 26 are drawn together. The pawl lever 46 slides along the extractor 18 until the finger 49 enters slot 19 and engages the extractor plunger 20. As the pawl lever enters the extractor 18, the cam 48 strikes the slide cam 23 causing a toggle action of the said pawl lever 46 which in turn causes the finger 49 to press upon the extractor plunger, forcing it into its socket 22 against the resistance of the spring 21 until it is clear of the said extractor 18. In the meantime the pin 41 has engaged the spring urged ejector 13, forcing it downward into the bolt 10. The extractor 18 may now be removed from the bolt 10, thus withdrawing a pivot pin 16 from its engagement with the ejector 13 and the firing pin 12, and the bolt may be completely disassembled. The above operation is shown in detail in Figures 2, 3 and 4.

I have disclosed the invention in the best construction known to me, but it will nevertheless be understood that this is purely exemplary, and that changes and modifications in the construction, arrangement, and combination of parts otherwise than as specifically claimed, and substitution of materials and equipment, mechanical or otherwise, may be made without departing from the spirit of the invention as set forth in the appended claim.

Having thus described the invention, I claim:

A tool for disassembling a firearm bolt comprising a pair of pivotally connected jaws, the forward end of one of said jaws bifurcated to form arms, each of said arms provided with an upstanding finger; the other of said jaws having a recess formed therein adjacent its forward end, a block supported in said recess, a pawl pivotally mounted in said block, said pawl provided with a cam and a downwardly and inwardly projecting finger, said other jaw also provided with a releasably fixed pin parallel to but spaced from said pawl.

THEODORE H. HOPKINS.

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