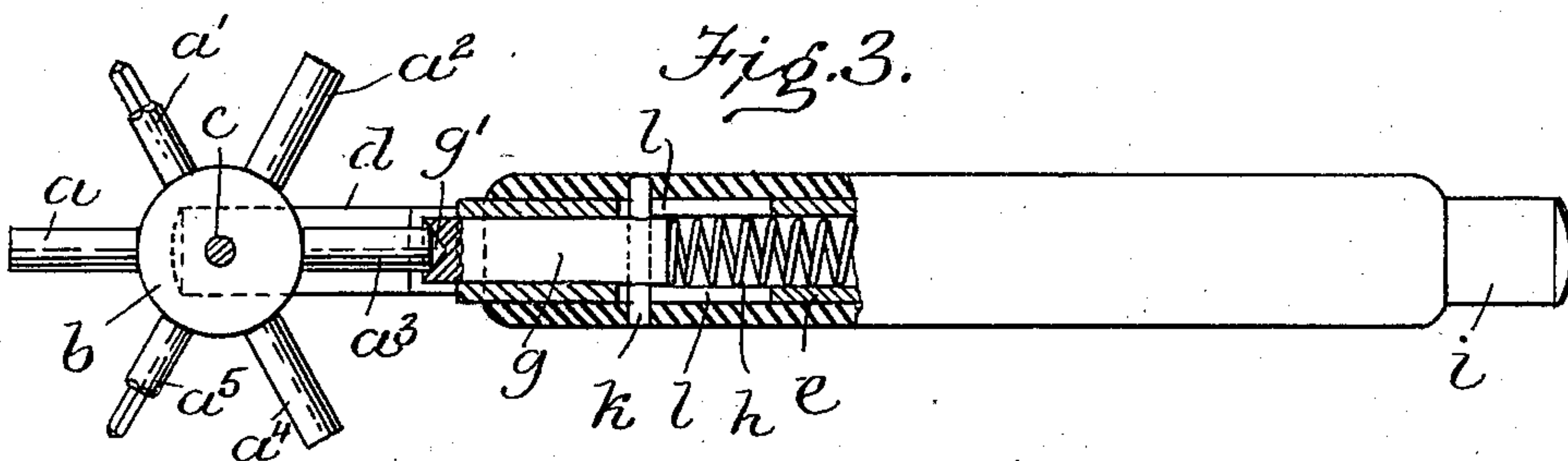
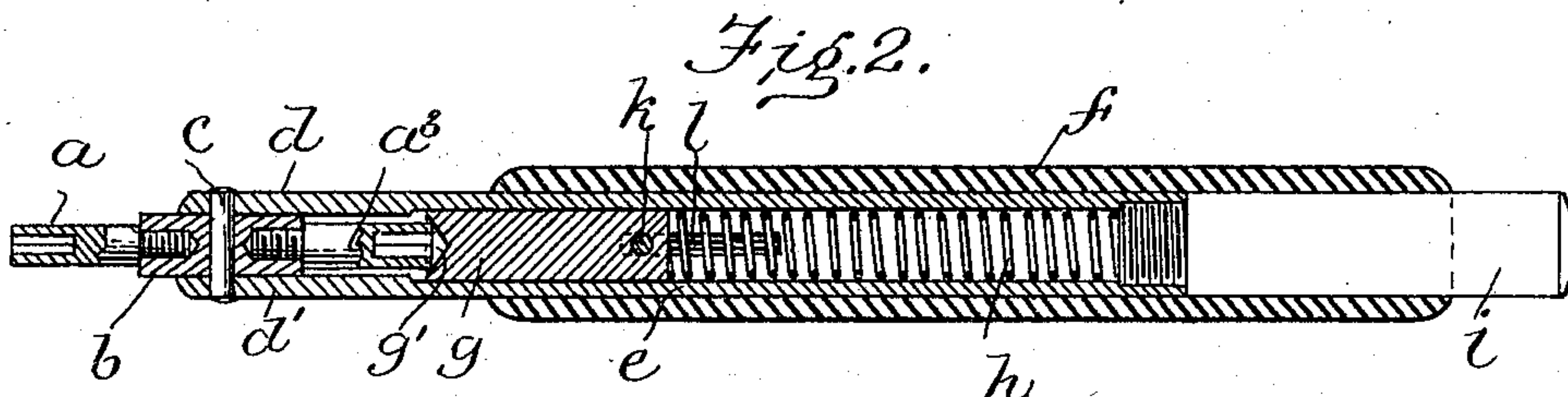
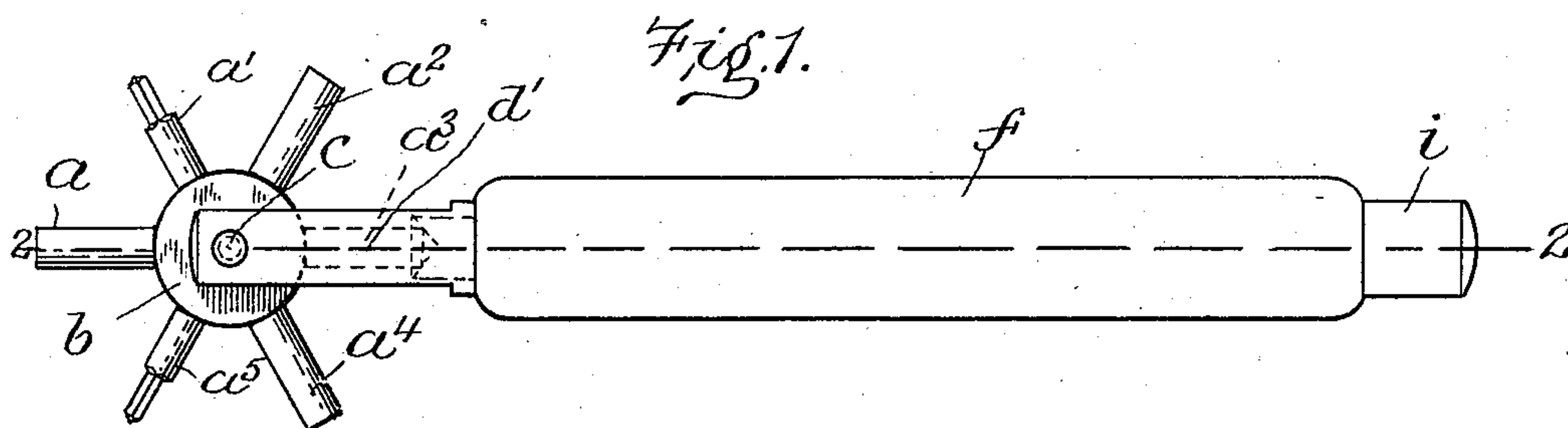


F. R. CUNNINGHAM.
 MULTIPLE BENCH KEY.
 APPLICATION FILED FEB. 17, 1910.

966,529.

Patented Aug. 9, 1910.



Witnesses:
 J. R. Rinkstone
 H. L. Allen

Inventor:
 Frank R. Cunningham
 by *Wm. L. Smith*
 Attys

UNITED STATES PATENT OFFICE.

FRANK R. CUNNINGHAM, OF MEDFORD, MASSACHUSETTS, ASSIGNOR TO KENDRICK AND DAVIS COMPANY, OF LEBANON, NEW HAMPSHIRE, A CORPORATION OF NEW HAMPSHIRE.

MULTIPLE BENCH-KEY.

966,529.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed February 17, 1910. Serial No. 544,404.

To all whom it may concern:

Be it known that I, FRANK R. CUNNINGHAM, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Multiple Bench-Keys, of which the following is a specification.

This invention relates to watchmakers' tools, and particularly to that class of tools known as bench keys, or, in other words, keys which may be used for winding key-wound watches in the course of the examination or repair of such watches.

The present invention is a turret key having a handle and a number of key elements attached to said handle, and any one of them adapted to be put into position for use, and held in such position. I desire it to be understood, however, that the invention is not limited to tools of this particular character, but is of broader application, and may embrace in its scope all kinds of multiple tools in which several tools of different sizes or characters are mounted upon a holder in such manner that any one may be brought into the operative position and so held.

The main object of the invention broadly stated is to provide a multiple tool, such as a turret bench key as above noted, or any other multiple tool, so that the same may be conveniently held and operated and any one of the tool elements brought and locked in operating position very readily, and by employing only the hand holding the tool, if desired.

In the accompanying drawings, I have illustrated a multiple tool having the special character of a turret bench key in which the principles of my invention are embodied.

Figure 1 is an elevation of the tool. Fig. 2 is a longitudinal sectional view of the tool on the line 2—2 of Fig. 1. Fig. 3 is a detail elevation partly broken away of the lock by which any tool element is held in operative position.

The operative members of the tool or tool elements are shown at a , a' , a^2 , a^3 , a^4 , and a^5 , being secured upon a holder b , from which they project preferably radially. The holder b is pivoted upon a stud c held between two arms d and d' . These arms project from a tube e , which constitutes a tubular shank or handle member, and are preferably integral therewith. On the outside of the tube e is

mounted a hand-grip or barrel f of sufficient diameter to give a comfortable grip and preferably made of noncorroding material such as hard rubber, the other parts of the tool being of metal such as steel.

Inside of the tube is a lock g for preventing rotation of the tool holder when any of the tool elements is in operative position. This lock is a bar having a socket g' in its end adapted to take over the end of any one of the tool elements which may be in line with it, the element diametrically opposite to or in line with this particular element being the operative one. Thus, as represented in the drawings, the tool element a^3 is engaged with the lock, and the element a , being opposite to a^3 and in line therewith, is the operative tool element. The lock is pressed outward by a spring h contained within the tube or sleeve e and arranged to press on the locking bar. Reaction of the spring is borne by a plug i , screwed into the opposite end of the tube e from the lock. The tube and plug have a sliding fit in the handle or barrel f , and are freely movable endwise therein. The only connection between the tube e and handle is a pin k which is passed through the locking bolt g and the ends of which are embedded in the shell f . In passing from the bolt g to the shell this pin extends through longitudinal slots l in opposite sides of the tube e . The lock is thus securely anchored to the outer shell, but has an endwise movement relatively to the inner tube and tool elements, or, in other words, the tube and tool elements are movable in unison relatively to the surrounding shell and the lock.

In setting the tool so that any one of the elements will be operative, pressure is applied on the end of the projecting plug i , and the latter is moved endwise relatively to the surrounding shell or handle. This movement may be effected by one hand only, the shell being held by the thumb and fingers of the user's hand and the plug pressed upon by the palm. This releases the tool holder and the latter may be turned until the desired tool element is in operative position, whereupon, the plug being released, the tube or sleeve e is drawn inward within the shell until the tool element contained between the arms d and d' enters the notch or socket g' in the end of the locking bolt g . In this

manner the tool-holder may be unlocked and again locked after the desired tool element is brought into operative position.

This particular tool is, as previously stated, designed as a watchmaker's bench key, and the tool elements a , a^2 , a^3 and a^4 are the female watch keys designed to fit more or less closely the winding arbors of key-wound watches of different sizes, while other of the tool elements such as a' and a^5 are male keys of different sizes for use with socketed winding arbors. These various key members are so graded in size that the tool is capable of use with practically all sizes of watches in a manner suitable for the purpose of a watchmaker in repairing or examining the watches.

By suitably altering the character of the tool elements, or substituting others, this tool may be used for a variety of other purposes as well, and consequently I do not restrict the scope of my invention to a bench key only.

I claim,—

1. A multiple tool comprising a plurality of tool elements, a handle to which said tool elements are connected, a lock adapted to engage any one of said tool elements to hold another of such elements in operative position, and means projecting from the opposite end of said handle from the tool elements and movable relatively to the handle for releasing said lock.

2. A tool of the character described comprising a tubular hand grip, a shank projecting from both ends of said hand grip, a plurality of tool elements revolubly mounted on one end of said shank, and a lock associated with said hand grip and adapted to engage one of said elements to hold all the elements against rotation, said lock being disengageable by pressing on the protruding end of the shank and moving the shank and hand grip longitudinally relatively to one another.

3. A multiple tool comprising a tubular shank having parallel arms at one end thereof, a holder pivotally mounted between said arms, tool elements projecting in different directions from said holder, a locking bar contained in said tubular shank with capability of longitudinal movement therein, said locking bar having a recess in its end adapted to receive the end of any of said tool elements, means external to said shank for releasing said locking bar, and means tending to press said locking bar toward the holder.

4. A tool of the character described comprising a tubular shank, a plug secured at one end of said shank, a tool-holder pivoted to the other end of said shank, tool elements projecting in different directions from said

holder, a bar contained in said tubular shank, a spring contained in said shank between said bar and plug, whereby the former is moved toward said holder to engage any of the tool elements which may be in line therewith, and a shell of less length than the combined length of the tubular shank and plug surrounding the latter and movable thereon, and a connection between said bar and shell for disengaging the former from the adjacent tool element when the shell is moved.

5. A tool of the character described, comprising a tube, a shell surrounding said tube, a plug secured to one end of said tube and projecting beyond the end of said shell, parallel arms forming part of said tube projecting from the opposite end of said shell, a holder pivoted between said arms, a number of tool elements mounted upon said holder and projecting in different directions therefrom, a locking bar contained in said tube and having a recess at its end nearest to said holder arranged to receive the end of any of said tool elements, a spring contained in said tube between said plug and locking bar tending to press the latter outwardly, and a pin connected to said bar and shell and passing through a slot in the tube whereby the shell when moved relatively to the tube is enabled to disengage said locking bar from the tool element.

6. A multiple watch key comprising a block, a plurality of key elements carried by said block and projecting radially therefrom, a tubular member to which said block is pivoted, a bar contained in said tubular member and having provisions for engaging the end of any of said key elements to hold the latter and said block against movement, a shell surrounding said tube forming a hand grip and adapted to slide longitudinally thereon, and a connection between said shell and locking bar whereby the latter may be moved to effect disengagement from the key element.

7. A bench watch key comprising a plurality of key elements, a shank to which said elements are pivotally connected so that any one may be brought into operative position, a hand grip surrounding said shank and movable lengthwise thereof, and a lock within said shank connected with said hand grip and movable with the latter into and out of engagement with any of said key elements to prevent revoluble movement thereof.

In testimony whereof I have affixed my signature, in presence of two witnesses.

FRANK R. CUNNINGHAM.

Witnesses:

J. H. BROCKWAY,
C. ELBERT DOLE.