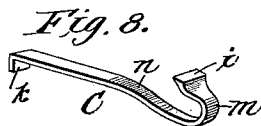
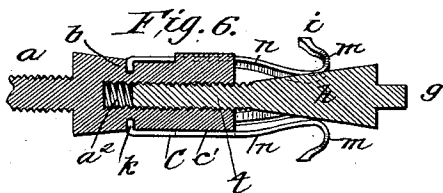
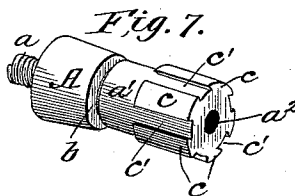
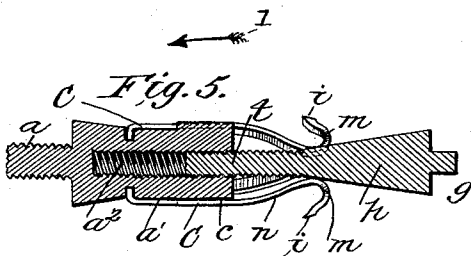
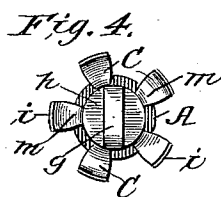
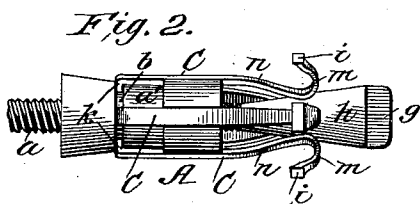
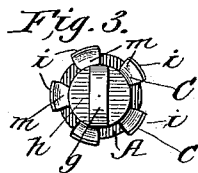
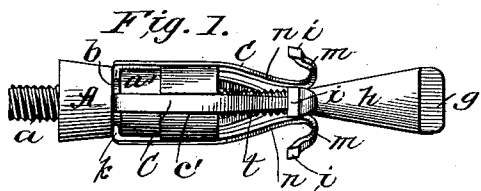


(No Model.)

C. W. WUNDERLICH.
GUN CLEANER.

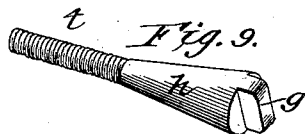
No. 484,487.

Patented Oct. 18, 1892.



WITNESSES:

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INVENTOR:
C. W. Wunderlich.
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ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES W. WUNDERLICH, OF WASHINGTON, MISSOURI.

GUN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 484,487, dated October 18, 1892.

Application filed April 6, 1891. Serial No. 387,901. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. WUNDERLICH, residing at Washington, in the county of Franklin and State of Missouri, have invented certain new and useful Improvements in Gun-Cleaners, of which the following is a specification.

My invention has for its object to provide a gun-cleaning device; and it consists in the peculiar combination and novel arrangement of parts, all of which will be hereinafter fully described in the specification, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of my improved gun-cleaner in its normal condition. Fig. 2 is a similar view with the scraper-springs expanded. Fig. 3 is a front end view, the parts being in the position shown in Fig. 1. Fig. 4 is a similar view, the parts being as shown in Fig. 2. Fig. 5 is a vertical longitudinal section of the same. Fig. 6 is a similar view with the springs expanded. Fig. 7 is a detail view of the stock. Fig. 8 is a similar view of one of the cleaner-springs. Fig. 9 is a detail view of the expander.

Referring to the accompanying drawings, A indicates the stock, which is formed with a screw-shank *a*, whereby it can be readily attached to the ramrod of a gun. This stock is formed with an annular depression *b* for receiving and holding the rear bent ends *k* of the springs, the flat portion of which seat on the reduced portions *a'* of the stock, such portions being guided and held between radially-disposed lugs *c c*, the adjacent faces of which are beveled inward, whereby dovetail guideways are provided which securely hold the springs firmly on the stock and prevent them from becoming detached, they being capable of removal only by drawing them longitudinally from their guideways. The front side of the stock has an internally-threaded socket *a*², in which is fitted the screw-shank *t* of the expander *h*, which consists of a conical plug formed at its outer end with a suitable thumb-piece *g*. Each of the springs *C* has its end projected beyond the stock bent downward, as at *n*, and then upward and back upon itself, as at *m*, such portion *m* forming the scraper-

finger, it being enlarged laterally to give it additional scraping-surface.

It will be noticed by reference to Fig. 5 that when the expander is in its outermost position the bases of the scraper-fingers *m* will rest upon the inner or reduced end of the expander, their scraper ends *i* being thereby brought in a parallel line with the circumferential face of the stock to facilitate the insertion of the cleaner in the bore of the gun. It should be stated that by bending the springs down, as at *n n*, such bends will serve to hold the springs close against the expander.

The edges of each of the scraper-fingers *m* are formed with chisel-edges *i i*, which edges when the springs are expanded lie flat against the inner surface of the gun-barrel, so that as the cleaner is moved in the gun-barrel in the direction indicated by the arrow *l* the chisel-like edge of each spring is in position for planing off lead or other substances which foul the gun, while its base rests flat against the gun-barrel, and the cleaner when moved in the opposite direction in the gun-barrel will the more readily slip over lead, burned powder, or other substances fouling the gun.

By constructing and arranging the parts as described and shown it will be seen that as the pressure of the expander is applied to each spring at the base of the scraper-finger *m* and at a point forward of its scraping end, the chisel-like edge and base of each cleaning-face of each spring only coming in contact with the gun-barrel at a point between the stock and the base *m*, any undue pressure of the expander upon the springs will, by causing the springs to yield in their bent bases *m*, turn the sharp chisel-edge of each spring inward from the inner face of the gun-barrel and thus automatically protect the gun-barrel from being injured by a too great expansion of the cleaner-springs. Furthermore, owing to the peculiar manner in which the scraper-fingers engage the barrel and are bent at *m* and are pressed against the barrel the wear on such cleaner-springs by use in the gun automatically sharpens the cutting-edge of each scraper-finger. In making the cleaner I preferably make five of the grooves *c' c'* in the stock and a corresponding number of springs; but a greater or less number

may be used; also, if desired, separate depressions large enough to answer the depressions $b\ b'$ may be made in the stock in line with the grooves c' , in lieu of the continuous depressions b and b' , which, as herein described, extend entirely around the stock, or, if preferred, a hole in the shank of each spring fitting over a projection on the stock, or any other mechanical equivalent answering the same purpose of automatically locking the shanks of the springs on the stock, may be used.

To use the cleaner, it is to be attached to the ramrod of a gun, inserted into the chamber of the gun, and moved back and forth therein. In use in the gun the screw of the expander should be turned into or out from the stock of the cleaner, as occasion may require, to give such a pressure on the springs as will force the base of the chisel-like cutting-edge of the scraper-fingers to lie flat and close against the inner surface of the bore of the gun. This may be done with a breech-loading gun either before or after inserting the cleaner in the gun. With a muzzle-loading gun the end m of the springs of the cleaner permits the cleaner to be forced into the bore of the gun after the springs are set, as desired, by the expander.

If in using the cleaner it be pushed through the bore of the gun, it cannot be readily pulled back. For this reason it is convenient to use with the cleaner a collar fitting around the ramrod, which can be adjusted thereon by means of a set-screw or otherwise to limit the thrust of the cleaner into the bore.

The usefulness and convenience of constructing the cleaner of separate parts, as described, consists in the fact that thereby in case any of the parts be broken or injured the same may be repaired or its place supplied by a new corresponding part more conveniently and more economically.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A gun-cleaner comprising a stock portion formed with an internally-threaded socket, a series of forwardly-extending spring-arms

connected to the peripheral face of the stock, their forward ends contracted and bent up to form radial scraper-fingers, and a conical expander having a threaded shank operating in the threaded socket of the stock, said expander having its conical portion disposed between the contracted ends of the spring-arms, all substantially as shown and described.

2. The combination, with the stock A, having a threaded socket a' and forwardly-extending spring-arms C, said arms bent inwardly, as at n , and back upon themselves, forming scraper-fingers m , of the expander h , formed with a shank fitting the screw-socket, and a conical portion operating between and bearing in the ends m , substantially as and for the purposes described.

3. The combination, with the stock A, formed with a shank a and an internal screw-socket and the conical expander h , of the spring-arms C, detachably secured at their inner ends on the stock, the front portion bent inward, as at n , the outer ends thereof bent back upon themselves forming scraper-fingers m , such fingers extended rearward of their bearing-point on the expander and provided with chisel-points on such rear ends, substantially as and for the purpose described.

4. The combination, with the stock A, formed with an annular depression b and a reduced portion a' , having a series of radial projections having their adjacent faces undercut, whereby dovetail ways $c' c'$ are formed and with a central threaded socket a' , of the expander h , formed with a screw-shank t and a conical head, said shank operating in the socket a' , and the spring-arms C, formed of dovetail shank portions fitting the ways $c' c'$, their rear ends bent inward at k to fit the depression b , their forward portions bent inward at n and outward at m , forming scraper-fingers, said finger held to bear on the conical portion of the expander, substantially as and the purposes described.

CHARLES W. WUNDERLICH.

Witnesses:

J. T. BRINKMANN,
JOS. H. SCHMIDT.