(No Model.)

G. H. COATES.

FINGER NAIL CUTTER.

No. 413,225. Patented Oct. 22, 1889.

Fig. 1.

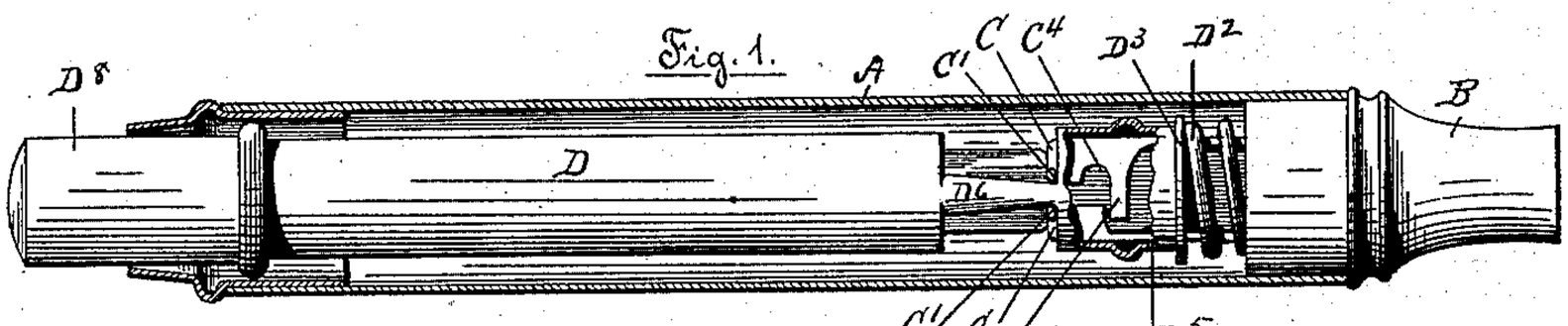


Fig. 2.

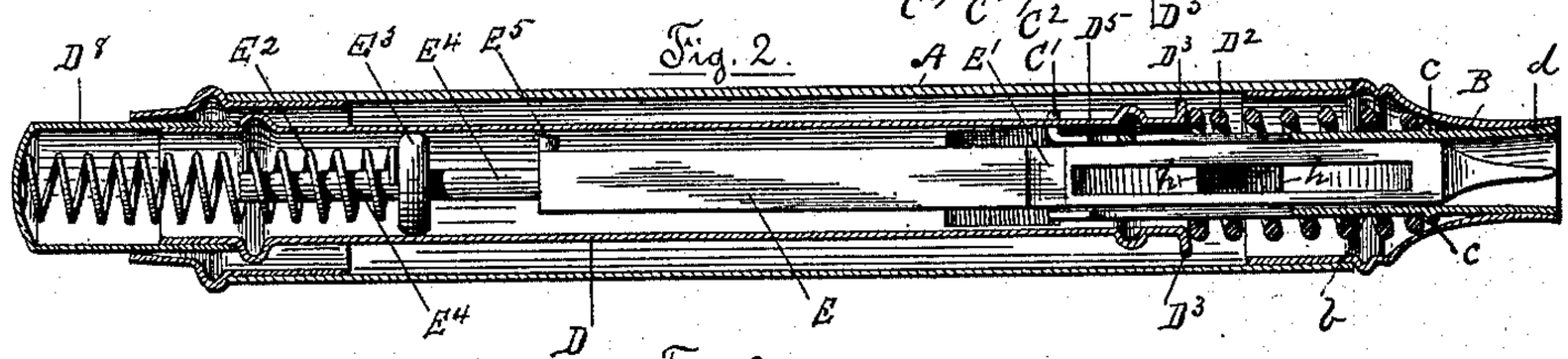


Fig. 3.

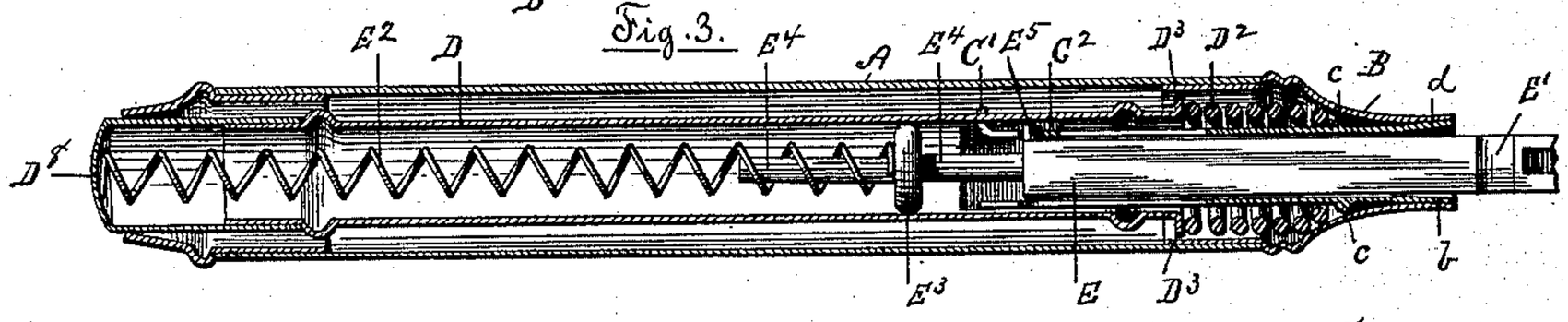


Fig. 6.

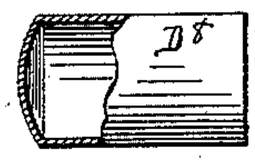


Fig. 4.

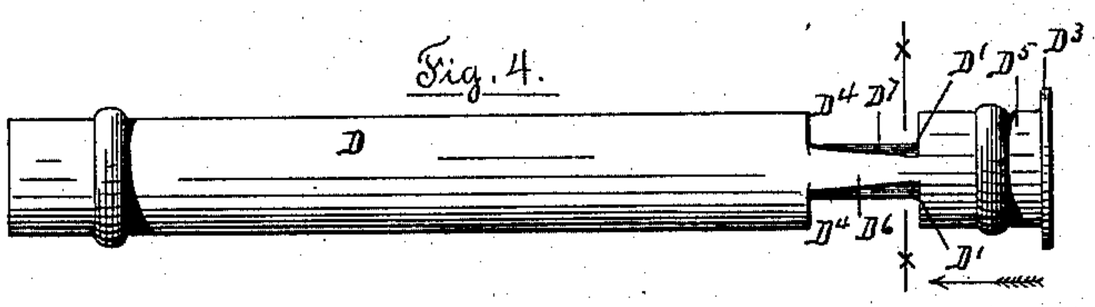


Fig. 5.

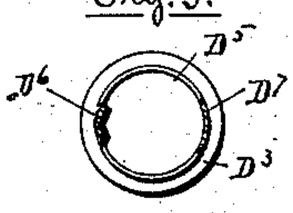


Fig. 9.

Fig. 8.

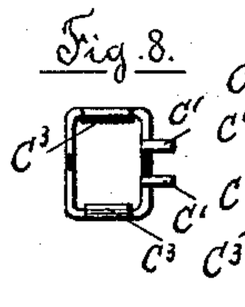


Fig. 7.

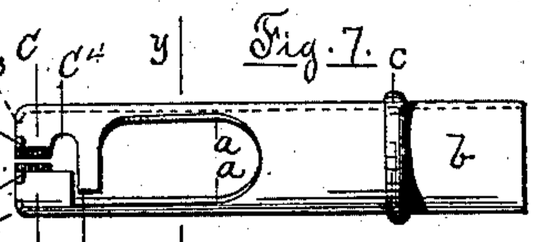


Fig. 10.

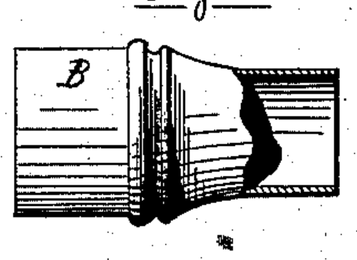


Fig. 11.

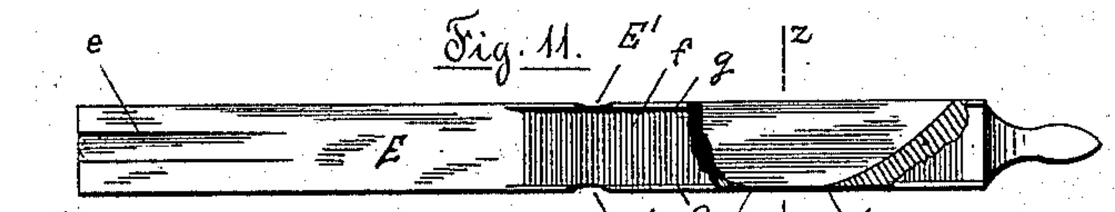


Fig. 12.

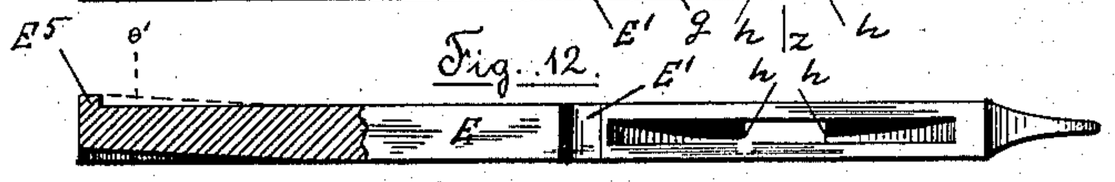
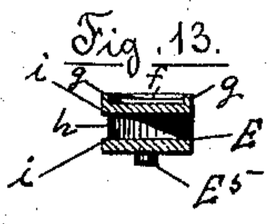


Fig. 13.



Witnesses
Chas. F. Schmelz
H. M. Fowler.

Inventor
George H. Coates,
By his Attorney
Rufus Bennett Fowler.

UNITED STATES PATENT OFFICE.

GEORGE H. COATES, OF WORCESTER, MASSACHUSETTS.

FINGER-NAIL CUTTER.

SPECIFICATION forming part of Letters Patent No. 413,225, dated October 22, 1889.

Application filed December 15, 1887. Serial No. 258,028. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. COATES, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Finger-Nail Cutters, of which the following is a specification, reference being had to the accompanying drawings, illustrating in sectional and detailed views a finger-nail cutter embodying the features of my invention, and in which—

Figure 1 is a view with the inclosing shell or case shown in section in order to disclose the operating parts. Fig. 2 is a central longitudinal sectional view on a plane at right angles with the plane of the section shown in Fig. 1. Fig. 3 is a sectional view on the same plane as that shown in Fig. 2, but with the blade ejected from the case. Fig. 4 is a view of the sliding tube by which the clamping-jaws are operated. Fig. 5 is a sectional view on line X X, Fig. 4. Fig. 6 is a view of the cap detached from the tube shown in Fig. 4 and shown partly in section. Fig. 7 represents the clamping-jaws. Fig. 8 is an end view of the same. Fig. 9 is a sectional view on line Y Y, Fig. 7. Fig. 10 is a view of the metallic ferrule at the tip of the case. Fig. 11 is a side view of the blade, shown partly in section. Fig. 12 is an edge view of the same; and Fig. 13, a sectional view on line Z Z, Fig 11.

Similar letters refer to similar parts in the several views.

My invention relates to a nail-cutter consisting in its main features of a shell or case forming a handle, and inclosing operating mechanism by which the blade is held in the shell and locked in the position required for use; and it consists in the construction and arrangement of the operating parts and in certain improvements in the blade itself, as herein described, and set forth in the claims.

A is the shell or case forming the handle, and having a tip B formed of a metallic ferrule, to which the clamping-jaws C are attached. The jaws C are shown in detached view in Fig. 7, and are provided with an elastic section at *a a* and a tubular stem *b*, which is inserted in the metallic tip ferrule, with the bead *c* resting against the inner and inclined portion of the ferrule. The tubular stem is retained in the metallic ferrule by expanding the ends, as shown at *d*, Figs. 2 and 3. The jaws C are provided with two lugs C′ C′, which project radially from the outer surface of the jaws, for the purpose hereinafter set forth, a lug C^2, which acts as a stop for the blade-pin, and a notch C^4, which partially incloses the blade-pin when the blade is ejected for use. The ends of the jaws are turned inwardly at C^3, Fig. 8, to engage notches in the blade when it is pushed into the shell and retain it against the tension of the ejecting-spring.

The sliding sleeve or tube D has a sliding motion within the shell or case, and is provided with a shoulder D′, which, in the normal position of the sliding tube, is held against the lugs C′ C′ by means of the spiral spring D^3, placed between the flanged end D^3 of the sliding tube and the inner and contracted side of the metallic ferrule or tip B, as shown in Figs. 2 and 3, thereby inclosing the jaws C and compressing the inwardly-turned edges C^3 into the notches E′ in the edges of the blade E when the blade is pushed into the handle, as shown in Fig. 2. The shoulder D′ is formed by cutting away a portion of the sliding tube at D^4, leaving the portion D^5 connected with the rest of the tube by the strips D^6 and D^7, the strip D^6 being tapering and placed between the lugs C′ C′, Fig. 1, so as to cause the tapering sides of the strip D^6 to open the jaws C′ C′ as the sliding tube D is forced down against the tension of the spiral spring D^2, the portion D^5 being by the sliding motion of the tube carried down over the elastic portion *a a* of the jaws C C, allowing the jaws to be opened by the action of the wedge-shaped strip D^6. The blade E is forced out of the handle by means of a spiral spring E^2, inclosed within the shell or case D. One end of the spring E^2 rests against the inside of the cap D^8, which closes the end of the tube D, and the other end of the spring presses against a disk E^3, which is attached to a rod E^4, midway its length, one end of the rod E^4 entering the spiral spring E^2 and the opposite end resting against the end of the blade E. When the blade E has been pushed into the shell or case A and retained by means of the inwardly-projecting portion C^3 of the elastic jaws C entering the notches E′ in the blade E, it may be ejected

from the shell or case by pressing upon the cap D^8, and thereby forcing the tube D downward into the shell or case, compressing the spiral spring D^2, forcing the wedge-shaped strip D^6 between the lugs C′ C′ on the jaws C, carrying the ring portion D^5 over the elastic portion *a a* of the jaws, causing the jaws C to be opened and the inwardly-projecting portion C^3 of the jaws to be removed from the notches E^2 in the blade, and allowing the blade to be forced out by the action of the spiral spring E^2. The blade E has a projecting pin E^5, which, as the blade E is forced out of the shell or case, is carried between the jaws C and against the lug C^2, by which the blade is stopped. If the pressure is then removed from the cap D^8, the spiral spring D^2 will force the sliding tube D back, withdrawing the wedge-shaped strip from between the jaws C, and bringing the ring-shaped portion D^5 of the tube over the jaws C, again compressing them and inclosing the pin E^5 in the notch C^4, and bringing the inwardly-turned edges C^3 C^3 over the end of the blade E, thereby securely holding the blade from being moved in either direction. When the blade E is to be returned to the shell or case A, the sliding tube is again forced down by pressing upon the cap D^8 and opening the jaws C, in the manner already described, allowing the blade E to be forced into the handle by pressing against the outer end of the blade, forcing it into the handle and compressing the spiral spring E^2. When the end of the blade has been brought even with the end of the tip B, the notches E′ are brought opposite the portion C^3 of the jaws C, which engage the notches and retain the blade in position as soon as the pressure is removed from the cap D^8. The blade E is constructed substantially as the nail-cutting blade shown and described in Letters Patent No. 350,720, granted to me on the 12th day of December, 1886, cutting-edges being formed in the blade by sawing through the blade from edge to edge with a circular saw and having file-teeth formed on one or both of the flat sides of the blade. In my present form of blade, however, I form the file-teeth *f* in the bottom of a recessed panel, (best shown in the sectional view in Fig. 13,) each edge *g* of the panel forming a shoulder to retain the edge of the nail and preventing it from slipping off the file. I also likewise recess the edge of the blade upon which the cutting-edges *h h* are formed, the projecting side walls *i i* of the panel constituting a guard to prevent the cutting-edges from cutting too far or into the "quick." The pin E^5 is formed in a peculiar manner from the metal, forming a part of the blade itself, as follows: The central section *e* at the end of the blade is forced to one side, as shown partly by the broken line *e′* in Fig. 12, until it projects above the side of the blade, and the pin E^5 is then milled from the metal so raised.

By the construction and operation of the blade-holding jaws C the blade is rigidly attached to the shell or case forming the handle by means of the rigid attachment of the clamping-jaws C with the metallic ferrule B, which is itself attached to the shell or case A. The clamping-jaws C are also moved positively in both directions by means of the wedge-shaped strip D^6 in opening the jaws and the ring-shaped portion D^5 in closing the jaws. The blade is also held from motion in either direction when extended by means of the pin E^5 being inclosed in the notch C^4 in the jaws C, and also additionally held by the inwardly-turned edges C^3 C^3. The blade is thus locked in position, as any tendency to press the jaws apart is resisted by the ring D^5, which can only be moved against the spring D^2 at right angles to the line of pressure against the jaws C. The blade is also held in the shell or case in the same manner by the inwardly-projecting portion C^3 C^3 of the jaws C engaging the notches E′ in the edges of the blade.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination, with a shell or case forming a handle, of elastic clamping-jaws rigidly attached to said handle, a sliding ring sliding over said jaws, and a spring whose tension is applied to said ring to hold said jaws in a state of compression, substantially as described.

2. In combination, the shell or case forming the handle, clamping-jaws rigidly attached to said handle and inclosing a sliding blade, said jaws having inwardly-projecting edges arranged to engage notches in the sliding blade, a sliding blade inclosed within said jaws and having notches, a sliding ring sliding over said clamping-jaws, by which they are compressed, and a spring actuating said sliding ring to compress said jaws, substantially as described.

3. The combination, with a shell or case forming a handle and a sliding blade inclosed in said handle and provided with a pin, of a pair of clamping-jaws rigidly attached to said handle, said jaws being provided with a lug to limit the outward movement of said sliding blade, and a notch arranged to inclose the pin on said blade, a sliding ring sliding over said clamping-jaws, and a spring actuating said sliding ring, substantially as described.

4. The combination, with a shell or case forming a handle and a sliding blade inclosed in said handle, of clamping-jaws C C, provided with a tubular stem *b*, attached to the shell or case, a sliding ring D^5, and a spiral spring D^2, by which said jaws are compressed upon said sliding blade, substantially as described.

5. The combination, with a shell or case forming the handle, of clamping-jaws attached to said handle and provided with projecting lugs, and a sliding wedge placed between said lugs, whereby the clamping-jaws are opened, substantially as described.

6. The combination, with a shell or case forming the handle and a sliding blade sliding in said handle, of a pair of clamping-jaws attached to said handle, a sliding sleeve sliding in said handle and having a ring-shaped section inclosing said clamping-jaws, and a wedge-shaped section passing between lugs on said clamping-jaws, whereby they are opened, and a spring applied to said sliding sleeve for the purpose of holding the ring-shaped section over said clamping-jaws and maintaining said jaws compressed against the sliding blade, substantially as described.

7. In combination, a shell or case forming a handle, a blade inclosed by and capable of sliding in said handle, clamping devices by which said blade is held in position in said handle, a sliding rod with one end resting against the inner end of said blade and having an attached disk, and a spring inclosed in said handle, with its tension applied to said sliding rod, whereby it is moved and said blade forced out of the handle, substantially as described.

8. The combination, with a shell or case forming the handle and a blade sliding within said handle, of the clamping-jaws C C, sleeve D, operatively connected with said jaws, rod E^4, provided with an attached disk E^3, said rod resting against the inner end of the blade, and a spring E^2, with its tension applied to said blade through said rod and disk to force the blade out of the handle when released by the clamping-jaws, substantially as described.

9. The combination of a shell or case forming the handle, a blade sliding within said handle, clamping-jaws attached to said handle, a sliding tube or sleeve sliding over said jaws, by which they are compressed upon said blade, said tube or sleeve extending through the handle and terminating in a cap to receive pressure, and a spring with its tension applied to said tube or sleeve to compress said clamping-jaws, substantially as described.

10. The combination, with a metallic blade having a mortise or slit whose end walls form cutting-edges with one side of said blade, of projecting ribs running lengthwise said blade upon each side of said cutting-edges for the purpose of guards to said cutting-edges, substantially as described.

GEO. H. COATES.

Witnesses:
RUFUS B. FOWLER,
H. M. FOWLER.