April 6, 1926. 1,579,498

A. G. ANDERSON

COMBINATION TOOL

Filed Feb. 19, 1925

Fig. 1

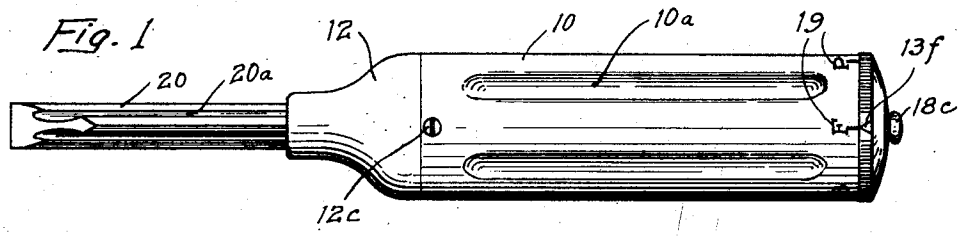


Fig. 2

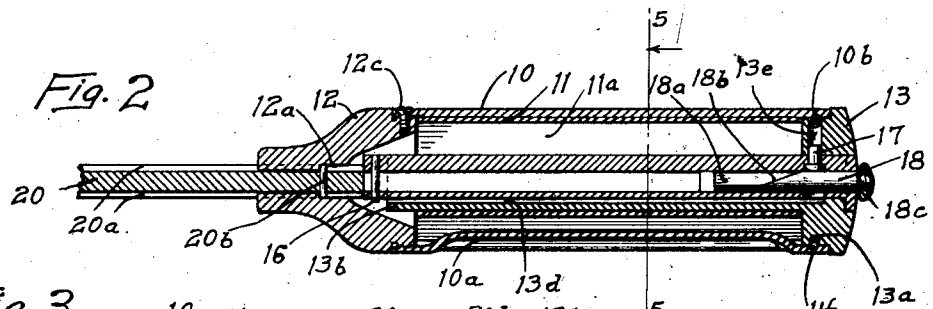
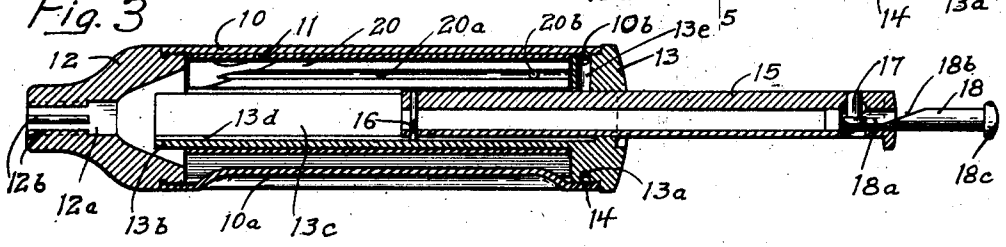


Fig. 3



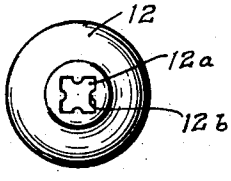


Fig. 4

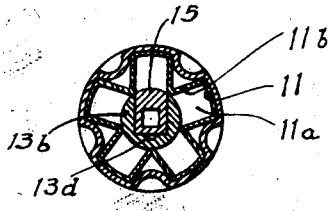


Fig. 5

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UNITED STATES PATENT OFFICE.

AXEL G. ANDERSON, OF MINNEAPOLIS, MINNESOTA.

COMBINATION TOOL.

Application filed February 19, 1925. Serial No. 10,250.

To all whom it may concern:

Be it known that I, AXEL G. ANDERSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Combination Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a combination tool and particularly to that type of device in which a plurality of separate tools are carried in a casing and adapted to be singly brought into operative position and used.

It is an object of this invention to provide a very simple and efficient tool comprising a casing adapted to form a convenient handle in which the various tools are carried, together with means for selecting and projecting the tools into operative position.

It is a further object of the invention to provide a combination tool comprising a casing having a magazine with a plurality of tool receiving chambers therein, together with a plunger for ejecting the selected tools into operative position and holding the same in such position.

It is also an object of the invention to provide such a tool comprising a single cheap, economical casing and magazine cooperating therewith.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to the same parts throughout the different views, and in which,

Fig. 1 is a view in side elevation of the device with a tool in operative position;

Fig. 2 is a central vertical section through Fig. 1;

Fig. 3 is a similar section showing the parts in different position;

Fig. 4 is a view in end elevation of the tool, as seen from the left of Fig. 1; and

Fig. 5 is a view in vertical section taken on the line 5—5 of Fig. 2.

Referring to the drawings, the device comprises a shell or casing 10 of generally cylindrical shape and this casing has circumferentially spaced inwardly projecting portions 10^a. While these projections could be formed in various ways, in the embodiment of the invention illustrated, they are shown as formed by depressed portions of the casing of curved shape in cross section. A magazine 11 is provided and while this magazine could be formed in various ways, in the embodiment of the invention illustrated, the same is shown as formed from a single piece of comparatively thin sheet material, preferably metal, bent to form a plurality of tool-receiving chambers 11^a having substantially parallel radially extending sides 11^b, the outer walls of the chambers 11^a being formed on a curve and fitting in the pockets of casing 10 formed between projections 10^a. The magazine 11 is thus held in fixed relation to the casing 10. The casing 10 is interiorly threaded in one end to receive the reduced and threaded end of an end member 12, the exterior of members 10 and 12 preferably being flush. The member 12 is reduced at its other end and provided with an angularly shaped opening 12^a shown as substantially square, which opening has small projections 12^b extending inwardly from the walls thereof at points substantially at the middle point of said walls. The other end of casing 10 is provided adjacent its end edge with a small circumferentially extending groove 10^b, said groove being substantially semi-cylindrical in cross section. Casing 10 preferably is also connected to the end member 12 by a small screw 12^c. A revoluble member 13 is disposed in said latter end of the casing 10 and has a reduced portion fitting into casing 10, which portion is also provided with a circumferentially extending small groove 13^a substantially semi-circular in cross section. A divided or open ring 14 of spring wire is inserted between the members 10 and 13 in the grooves 10^b and 13^a and prevents endwise removal of member 13 but permits rotation thereof in casing 10. The member 13 has its exterior substantially flush with the exterior of casing 10 and preferably is knurled on its periphery. The member 13 also has projecting centrally and inwardly therefrom a cylindrical stem 13^b which extends through casing 10 and magazine 11 and into the end portion 12. The member 13 and stem 13^b have formed therein an angular passage 13^c of rectangular shape, this passage opening at one side of stem 13^b. A plunger 15 of rectangular shape in cross section fits in the passage 13^c and is slidable therein and through the end of member 13. The plunger 15 has a small

pin 16 adjacent its inner end which moves in a groove 13^d in stem 13^b and prevents withdrawal of plunger 15 relative to member 13. The member 13 is provided with a radial hole in passage 13^e adjacent its outer end into which one end of a headed pin 17 is adapted to be projected. The pin 17 is operated by a plunger pin 18 of angular or square shape in cross section and slidable in the end of plunger 15. The member 18 has a cutaway portion 18^a forming an inclined cam surface 18^b. The plunger pin is also provided with a handle knob 18^c shown as threaded on the reduced portion thereof.

The chambers 11^a are each adapted to receive a tool or implement such as the tool 20 shown in Figs. 1 and 2, having an angular or square shape in cross section and being provided with longitudinally extending grooves 20^a centrally disposed in each side thereof and having therein cross pins 20^b. Said tools are of a size to fit in the magazine 11 and to be received in the passage 13^c formed in the stem 13^b. The casing 10 is provided adjacent the member 13 with characters 19 indicating the tool which is carried in the chamber 11^a alined with said characters and the member 13 carries on its periphery a point 13^f alined with the open end of passage 13^c adapted to co-operate with the characters 19.

In operation, the tools will be disposed in the various chambers 11^a and said tools may comprise screw drivers, belt punches, a file and other small tools or implements. The plunger 15 will be in the position shown in Fig. 2 and the plunger pin 18 will be in position shown in Fig. 2. It will be seen that when this plunger pin is pushed to its inward position, the pin 17 will be projected into the hole or passage 13^e. The plunger is thus held in position and cannot be withdrawn endwise of member 13. When it is desired to select and project one of the tools for use the member 13 will be turned to bring point 13^f into alinement with the character 19 of the desired tool and the plunger pin 18 will now be withdrawn. The pin 17 then slides down on the inclined surface 18^b into the recess formed by the cutaway portion 18^a and the inner end of plunger pin 18 engages pin 17 and plunger 15 is then withdrawn, as illustrated in Fig. 3. When the plunger 15 is withdrawn sufficiently so that its end passes the end of the magazine 11, the selected tool will drop into the passage 13^c and this passage is in alinement with the opening 12^a in the end member 12 of the casing 10. Plunger 15 is now pushed inwardly and it pushes the selected tool through the opening in the end of member 12 into operative position, as illustrated in Fig. 1. The tools cannot be projected entirely out of the member 12, owing to the fact that the grooves 20^a in their sides carry the pins 20^b adjacent their inner ends. The projections 12^b engage in the grooves 20^a and abut against the pins 20^b in the grooves when the tool is fully projected. When the tool is fully projected, as shown in Fig. 2, plunger 15 is in its innermost position. Plunger pin 18 is then again pushed inwardly and the pin 17 is moved by the inclined cam surface 18^b into passage or hole 13^e. The plunger is now locked against outward movement and forms an abutment preventing inward movement of the projected tool. The tool can now be used as desired, the casing 10 forming a convenient and comfortable handle. If it is desired to again dispose the tool in the casing, the plunger pin 18 will again be withdrawn as will plunger 15. The tool 20 will now drop by gravity back into the casing when the latter is disposed with member 12 upwardly. By then holding the casing horizontally in the proper position the tool will again drop into its chamber 11^a. Plunger 15 can now be again pushed into the casing and locked by pushing in plunger pin 18. Any of the tools carried in the casing can thus be quickly and easily projected into operative position and can quickly and easily be again disposed in the casing. When the tools are disposed in the casing and members 15 and 18 are in their inward position, the device is in very compact shape and can conveniently be carried in a small kit or in the pocket.

From the above description it is seen that applicant has provided a very simple and efficient combination tool comprising a plurality of different tools or implements, any one of which can be readily used. The parts are comparatively few and of simple construction and the tool can be easily and economically made. The device has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood, that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects set forth and in the novel parts and combination of parts disclosed and defined in the appended claims.

What is claimed is:

1. A combination tool having in combination, a casing having an opening at one end and having in its exterior a plurality of chambers each open at one side and adapted to receive a tool, a tool disposed in each of said chambers, a member in said casing having a passage therein longitudinally alined with said opening and having an open side adapted to aline substantially throughout its length successively with the open sides

of said chambers, and a plunger normally disposed in said passage but reciprocable to permit entry of a selected tool laterally into said passage, said plunger also being movable to push said selected tool out through said opening into operative position.

2. The structure set forth in claim 1, said member passage and plunger being arranged centrally of said casing and said chambers being disposed circumferentially about said passage.

3. The structure set forth in claim 1, and a locking means carried by said plunger for holding said plunger in its normal position and for holding the same against said projected tool.

4. A combination tool having in combination, a casing having an opening through one end, a magazine in said casing having a plurality of circumferentially disposed tool receiving chambers open at one side, a revoluble member in said casing having a passage therethrough open at one side and adapted to be brought into alinement with the open side of any one of said tool receiving chambers, a plunger normally disposed in said passage but reciprocable to permit entry of a tool into said passage and to project said tool out through said opening, and means for holding said plunger in its inward position.

5. A combination tool having in combination, a casing having an opening through one end thereof, a magazine disposed in said casing having a plurality of circumferentially disposed tool receiving chambers therein opening radially inward, a plurality of tools disposed respectively in said chambers, a revoluble member disposed centrally in said casing and magazine and co-axial with said opening, and having a passage therein open at one side adapted to aline with any one of said tool receiving chambers, a plunger normally disposed in said passage but reciprocable through one end of said casing to permit the entry of a tool into said passage and to project said tool out through said opening.

6. A combination tool having in combination, a substantially cylindrical shell having circumferentially spaced inwardly directed projections on its interior, a magazine formed of a piece of sheet material bent to form a plurality of radially extending chambers having inner open sides, the said projections being disposed between said chambers to prevent relative rotation of said casing and magazine.

7. A combination tool comprising a casing having therein a magazine formed of sheet material folded into a plurality of chambers having substantially radially extending parallel sides, said chambers being closed at their outer sides and having their inner sides open and each adapted to receive a tool therein.

In testimony whereof I affix my signature.

AXEL G. ANDERSON.