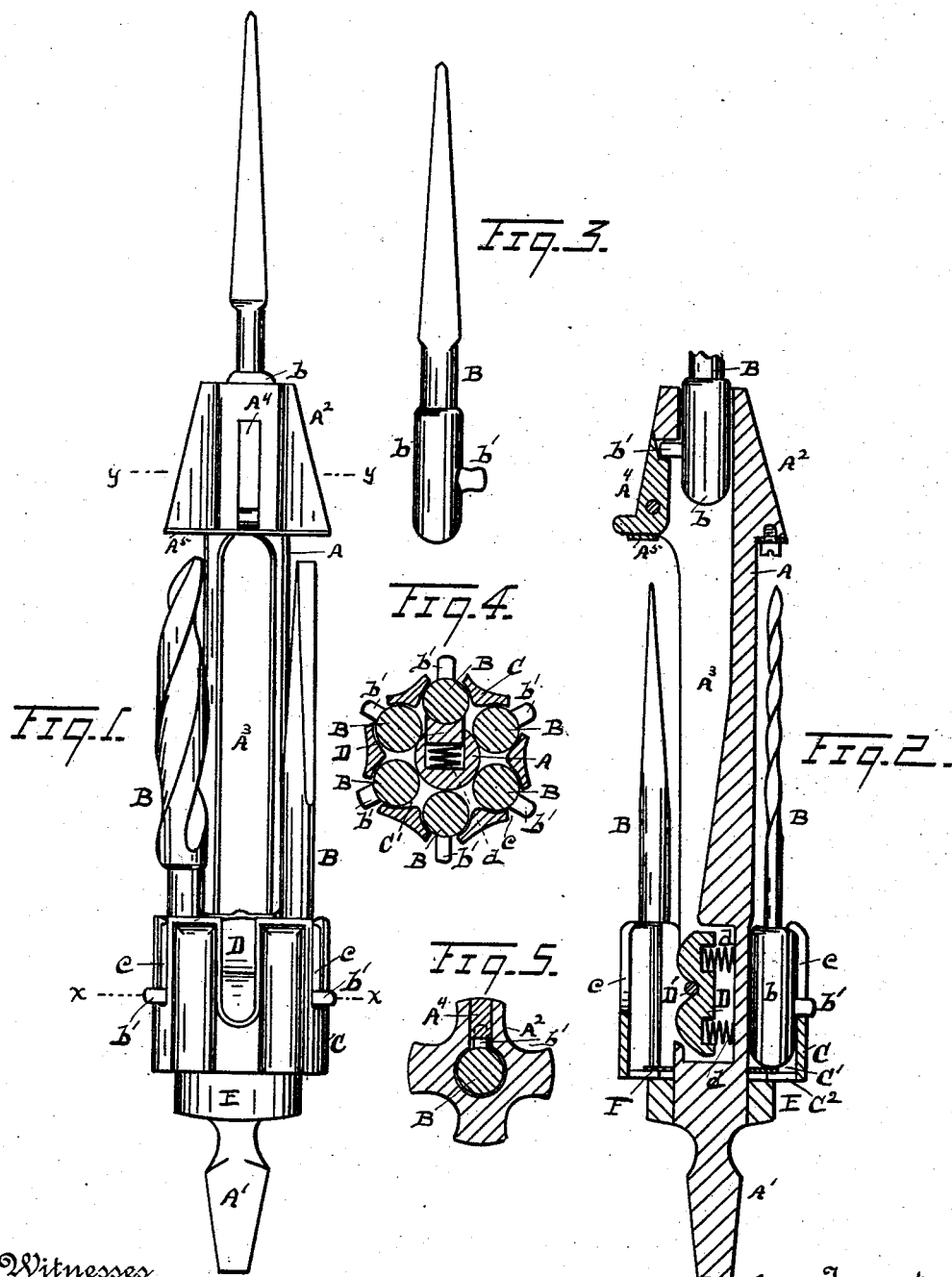


(No Model.)

A. & F. J. REINHOLD.  
COMBINATION TOOL.

No. 491,189.

Patented Feb. 7, 1893.



Witnesses  
John Schuman.  
John F. Miller.

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# UNITED STATES PATENT OFFICE.

ALEXANDER REINHOLD AND FRANK. J. REINHOLD, OF DETROIT, MICHIGAN,  
ASSIGNORS TO THE DETROIT COMBINATION TOOL COMPANY, OF SAME  
PLACE.

## COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 491,189, dated February 7, 1893.

Application filed November 5, 1891. Serial No. 410,901. (No model.)

*To all whom it may concern:*

Be it known that we, ALEXANDER REINHOLD and FRANK. J. REINHOLD, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in a Combination-Tool; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to certain new and useful improvements in a combination tool, and it consists of the devices and appliances their combinations, construction and arrangement hereinafter described and claimed and illustrated in the accompanying drawings in which

Figure 1 is a view in side elevation illustrating our invention. Fig. 2 is a longitudinal section. Fig. 3 is a separate view of one of the individual tools. Fig. 4 is a cross section on the line  $x-x$  Fig. 1. Fig. 5 is a cross section on the line  $y-y$  Fig. 1.

The object of our invention is to provide in a single implement a combination of various tools in common use, in a convenient and simple form, whereby any one of the various tools may readily be moved into position for use, and whereby any and all tools not in use may be moved quickly out of the way and held in place, the combined instrument being simple and strong, the individual tools being held in position for use, or out of the way, as may be desired, in a firm manner, yet in such a way, and by such devices, as to permit any desired change of tools being made, expeditiously.

We carry out our invention as follows:

A denotes the body of the combination tool provided with a shank  $A'$  to fit any desired brace or holder. This body is provided with a tool holder, such as, for example, a tubular socket  $A^2$ , at its outer end, and with a cut away channel or groove  $A^3$  leading to the tubular socket or holder  $A^2$ . The walls of said socket are provided with a detent or latch  $A^4$ , a spring washer  $A^5$  bearing against said latch. Said spring may be secured upon

the face of the socket walls, as shown. We do not, however, limit ourselves to any specific form of a spring latch.

B represents various individual tools, such, for example, as a screw driver, gimlet, reamer, drill or other desired tools suitable for such a combination device. These individual tools, whatever be their design or adaptation, may be constructed, preferably, with a rounded heel " $b$ " provided with a stop " $b'$ ."

C denotes a magazine cylinder rotatable on the rear end of the body A forward of the shank. Said cylinder is formed with a series of chambers  $C'$  corresponding in number to the number of tools B, and formed to receive the heels of the individual tools B, when not in use, said tools, in said position lying along side the body longitudinally therewith. Said chambers may be slotted as shown at " $c$ " to receive the stops " $b'$ " of the tools and permit of their reciprocation in said chambers.

In line longitudinally with the channel  $A^3$ , and at the rear extremity of said channel, the body is provided with a spring bed piece D preferably having a concaved outer face, the lateral edges of which, when the bed piece is free to move, project outward beyond the periphery of that portion of the body A underlying the chambered cylinder. By this construction the cylinder will be prevented from rotation when the bed piece is in normal position. The construction is such however that the heel of one of the individual tools may be inserted upon the outer end of the bed piece, depressing it, and allowing the tool to be moved back into the chamber of the cylinder. When this is done the springs of the bed piece, as the coiled springs " $d$ ," located therebeneath, force the heel of the individual tool into contact with the cylinder, pressing the stop through the slot thereof and firmly holding the tool in place when it is out of use. When the tool is in place the bed piece is yet depressed and consequently its lateral edges are out of the way so that the cylinder may be rotated, carrying the individual tools about the body therewith so that any desired tool may be brought into line with the groove of the body. When this has been done, it is evident that the forward end of the individual

tool may be pressed into the groove A<sup>3</sup> of the body, and run forward through the tubular socket until its heel is engaged therein in which position the individual tool is held 5 firmly by the spring latch. By operating the spring latch the tool may be withdrawn or run back out of the socket to its position in the chambered sleeve.

The body may be provided with any suitable tool holder at its outer end. The body 10 A may be rounded toward the shank thereof, and under the cylinder to form the under wall of the chambers, so that when the heels of the tools are in the chambers they are located 15 upon the body. The rotation of the cylinder will thus obviously turn the various individual tools successively one after another about upon the bed piece in place to be run forward into the tool holder. A ferrule E is secured 20 upon the body at the end adjacent to the shank and to the cylinder, as shown, preventing the rearward movement of the cylinder, while a washer F engaged upon the body forward of the rear flanged end C<sup>2</sup> of the cylinder 25 D' prevents its forward movement. A pin D' extended across the bed piece holds the latter in place.

We do not limit ourselves to constructing the tools B with a round heel, as shown, as 30 the heel may be of any desired form, the chambers and the holder A<sup>2</sup> in the cylinder being shaped to correspond. The forward end of the cylinder C is open and may be flanged inwardly toward the body as shown 35 to form a stop or shoulder to prevent the tools falling out of their sockets in the revolving cylinder when out of line with the groove A<sup>3</sup>. The body is recessed as shown to receive the spring bed piece D. The slots "c," it will be 40 observed are cut into the forward end of the cylinder to permit the ready insertion of the stop on the heel of the individual tool.

It is obviously a matter of great convenience to have the individual tools exposed 45 outside the engagement of their shanks in the magazine cylinder, as thereby any desired tool, when brought into position, can be readily grasped, directly, and pressed downward into the groove A<sup>3</sup> and run forward into 50 the tool holder.

What we claim is:

1. In a combination tool, the combination of

a longitudinally grooved body provided with a tool holder at one end, a magazine cylinder rotatable about the body at the opposite end, 55 a series of individual tools having their shanks engaged in said cylinder, said cylinder formed with a series of through slots "c," and each of said tools formed with a stop at its shank to engage in said slot, said cylinder and slots 60 open at the forward end thereof adjacent to the forward end of the shanks in place therein, substantially as described.

2. In a combination tool holder, the combination of a longitudinally grooved body provided with a tool holder at one end, a magazine cylinder rotatable about said body at the 65 opposite end, a series of tools having their shanks engaged in the cylinder, said cylinder formed with an inwardly turned flange at its forward end adjacent to the forward end of 70 said shanks and engaged therewith when the tools are in place, to hold the tools in position, substantially as described.

3. In a combination tool holder, the combination with a longitudinally grooved body 75 provided with a tool holder at one end, of a magazine cylinder rotatable about the body at the opposite end, a series of tools having their shanks engaged in the cylinder, the forward 80 end of said cylinder terminating at the forward end of the shanks of the tools and open to receive said shanks, and a device to control the admission and discharge of the tools into and from said cylinder, substan- 85 tially as described.

4. In a combination tool holder, the combination of a longitudinally grooved body provided with a tool holder at one end, a rotatable magazine cylinder at the opposite end, 90 a series of tools having their shanks engaged in said magazine cylinder and exposed forward of said cylinder, said cylinder open at its forward end to receive the shanks of the tools, and means to control the admission and 95 discharge of the shanks of the tools into and from said cylinder, substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

ALEXANDER REINHOLD.

FRANK. J. REINHOLD.

Witnesses:

N. S. WRIGHT,  
JOHN F. MILLER.