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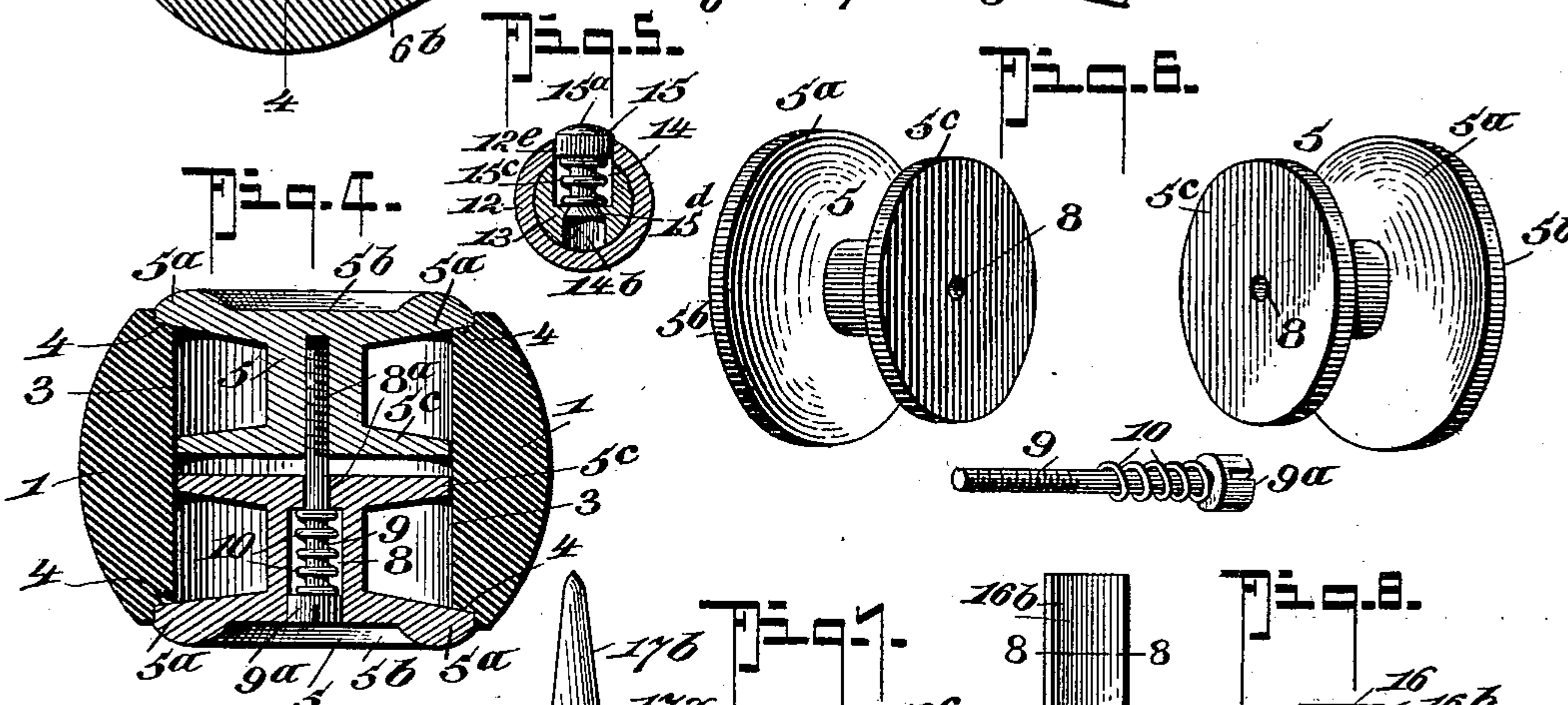
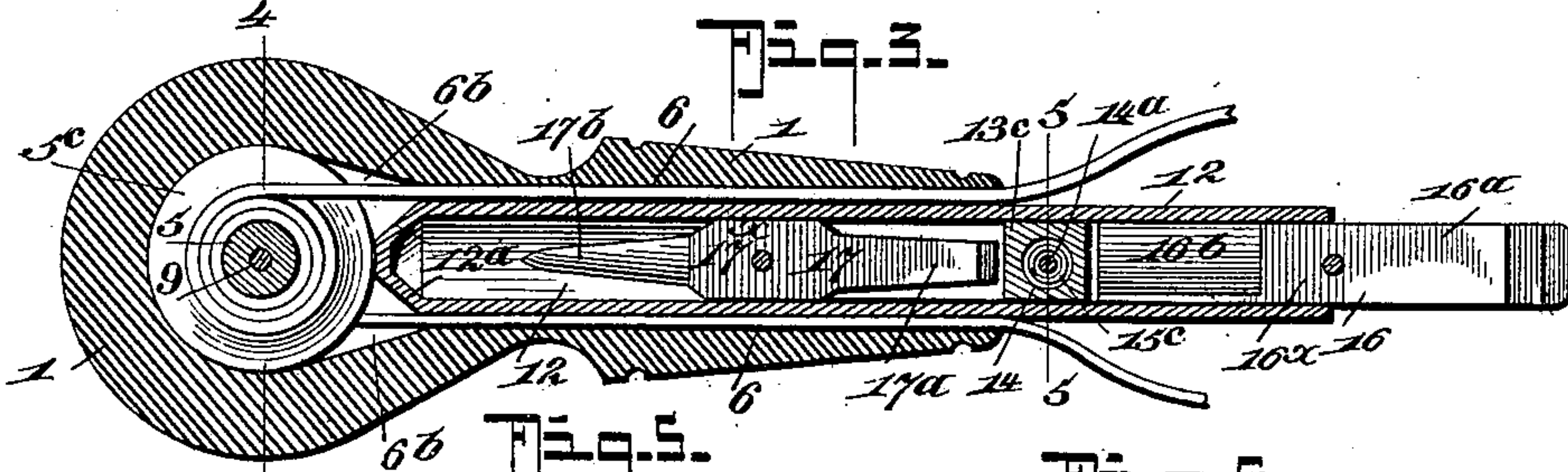
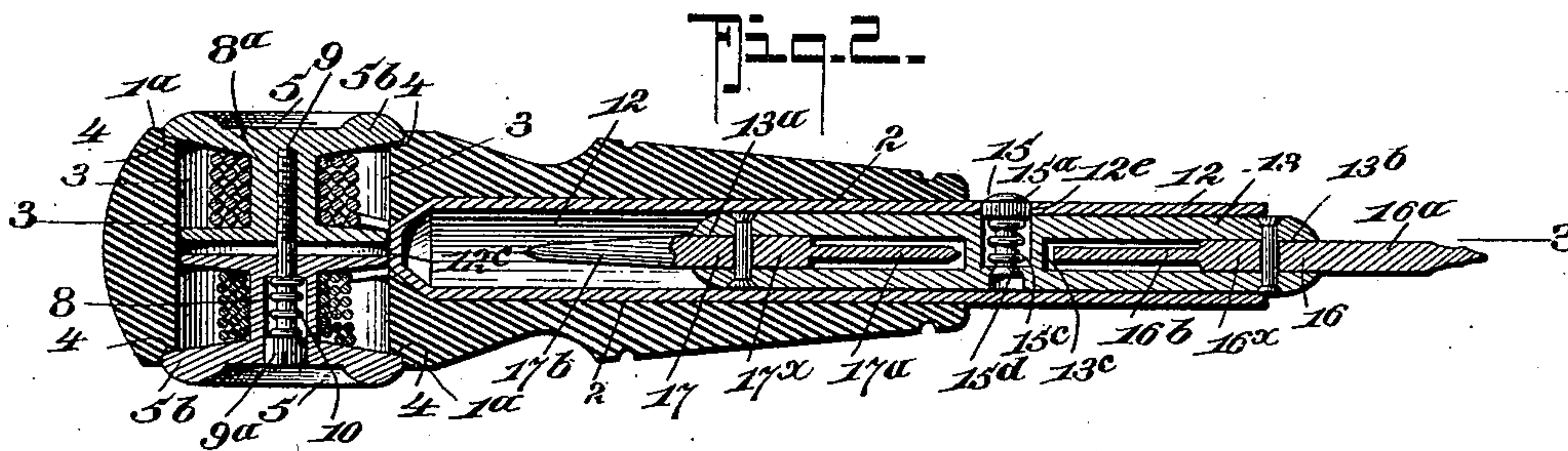
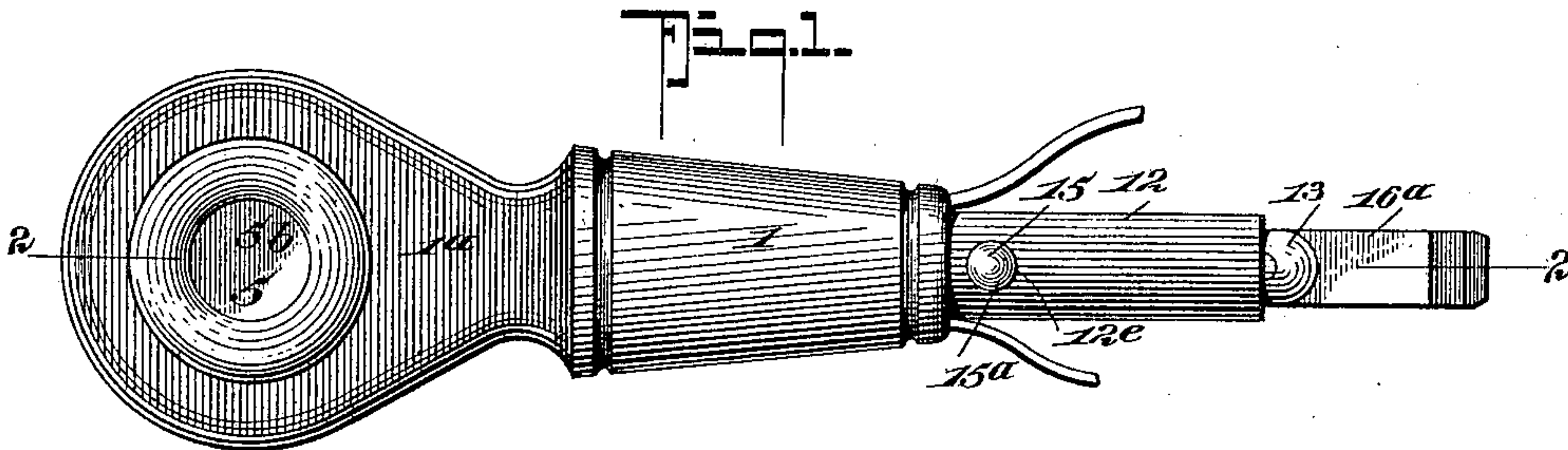
Patented Aug. 15, 1899.

D. S. GEISER.
ELECTRICIAN'S TOOL.

(Application filed Apr. 8, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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INVENTOR

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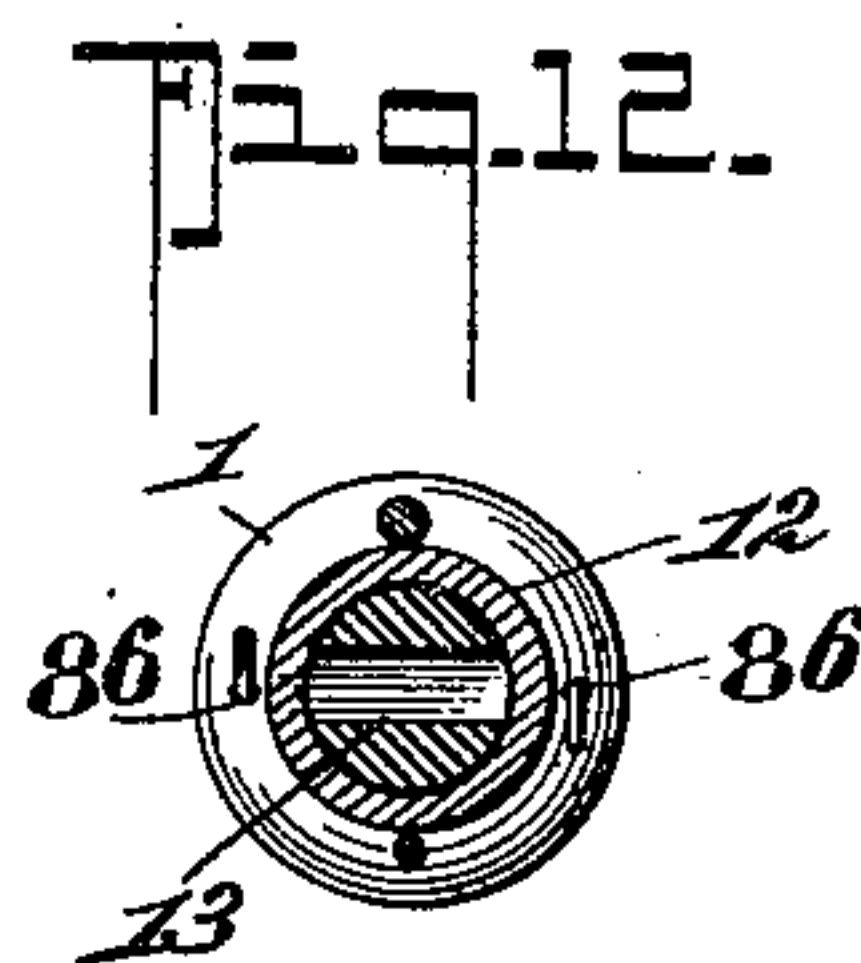
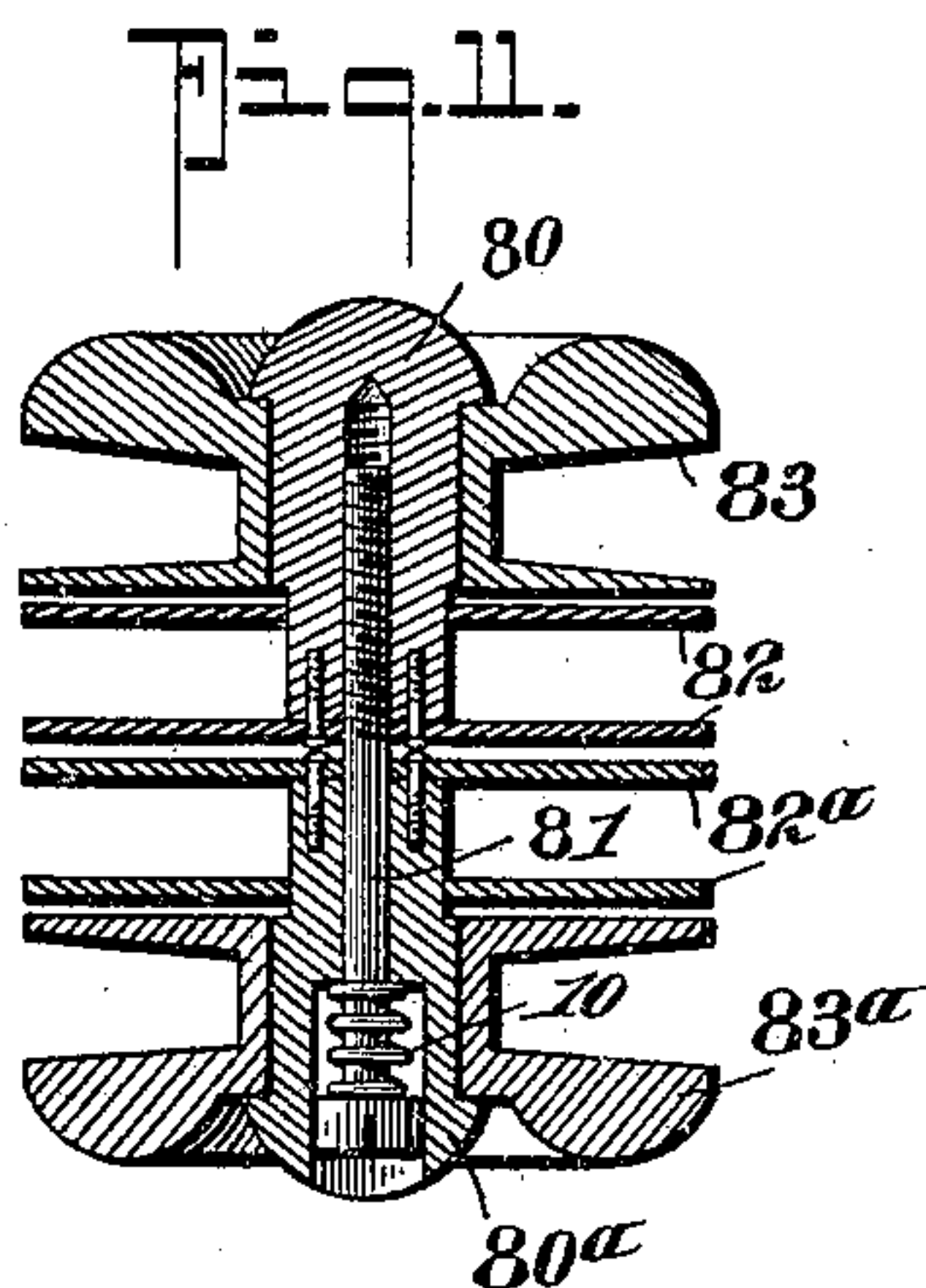
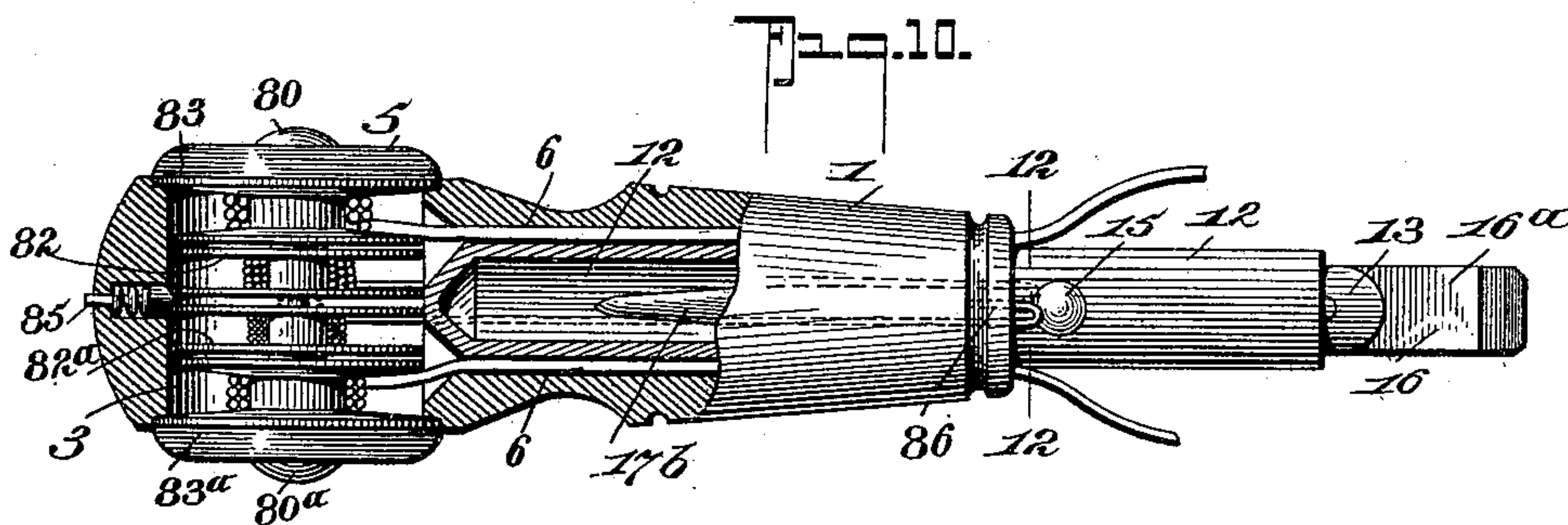
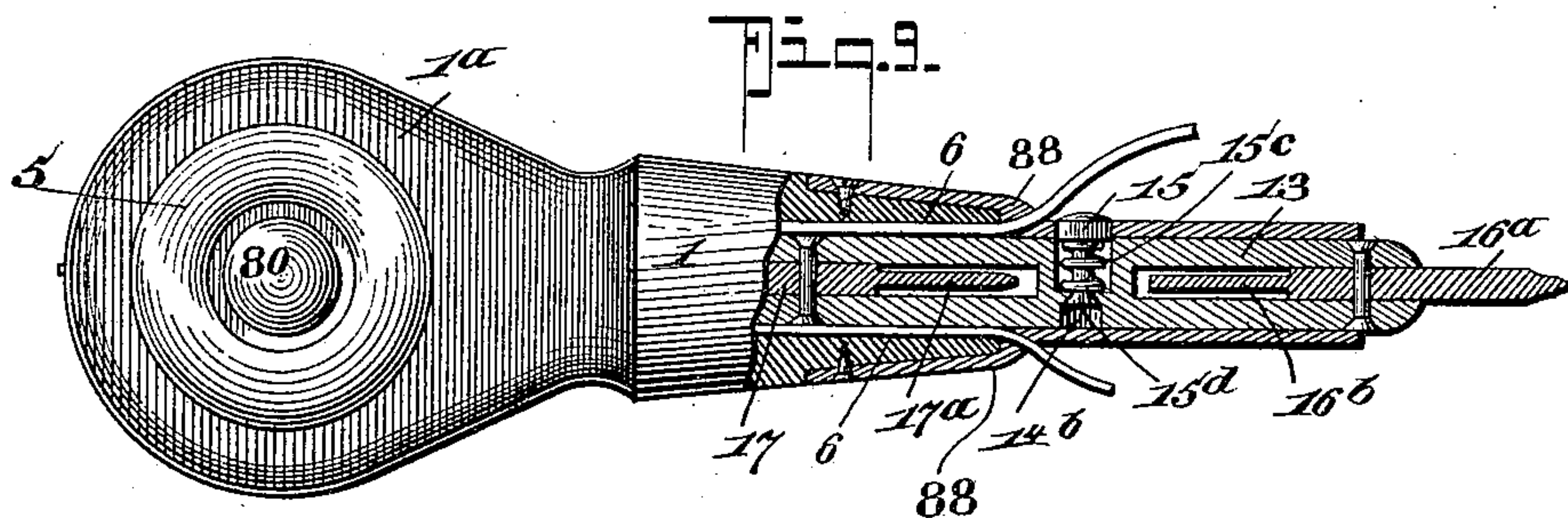
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2 Sheets—Sheet 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ELECTRICIAN'S TOOL.

SPECIFICATION forming part of Letters Patent No. 631,112, dated August 15, 1899.

Application filed April 8, 1898. Serial No. 676,943. (No model.)

To all whom it may concern:

Be it known that I, DANIEL SINGER GEISER, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented a new and Improved Electrician's Tool, of which the following is a specification.

This invention, which relates generally to combination-tools, is more especially adapted for electricians' uses; and it has primarily for its object to provide an implement of this character of a very compact form, the external contour and size of which is that of the ordinary screw-driver, and which carries at one end a detachable tool-carrier and at the other end a novel form of fuse-wire holders or spools held inclosed within the handle or stock member, and in which the tool-carrier is adapted to be held within a sheath secured to the stock or handle, which sheath is so arranged as to serve both as a guide and separator for a plurality of different sizes of fuse or patch wire, the ends of which are adapted to be fed out from the front or tool end of the implement.

Again, this invention has for its purpose to provide a tool of the character stated having a novel form of wire-holder in the nature of a plurality of spools rotatably held transversely of the butt-end of the handle, having automatic tension means for holding them from a too-free rotation, so disposed relatively to the handle or stock that they can be freely manipulated from without the handle, and having connections, so that all may be rotated together or independent of the other, the non-rotatable one of the spools forming a part of the tension means for preventing a too-free rotation of the other spool or spools, attaching means being also provided, arranged to be quickly adjusted, whereby to admit of the ready removal of the spools from the handle or stock when it is desired to rewind them.

In its subordinate features this invention comprehends certain organized details of construction and combination of parts, all of which will be first described and then pointed out in the appended claims.

In the accompanying drawings, in which like numerals indicate like parts in all the views, Figure 1 is a side elevation of an elec-

trician's tool embodying my invention. Fig. 2 is a horizontal section of the same, taken on the line 2 2 of Fig. 1. Fig. 3 is a longitudinal section taken on the line 3 3 of Fig. 2. Fig. 4 is a transverse section taken on the line 4 4 of Fig. 3. Fig. 5 is a similar view on the line 5 5 of Fig. 3. Fig. 6 is a detail view of the two fuse-wire spools and their connecting means separated. Fig. 7 is a view of the reciprocary carrier detached from the incasing sheath, and Fig. 8 is a cross-section on the line 8 8 of Fig. 7. Figs. 9, 10, and 11 are views of modifications hereinafter referred to, and Fig. 12 is a cross-section on the line 12 12 of Fig. 10.

In its general construction my invention embodies a stock or handle of a non-conducting material, preferably hard rubber, it having a circular bore extending from its front end rearward to a transverse bore of much larger diameter in the butt-end, a steel inclosing barrel or sheath fitting within the handle-bore, a detachable carrier reciprocally held within the barrel and having a number of pivotally-held tool members, and wire-holding spools detachably and rotatably fitted within the transverse bore of the handle, all of which coact and combine to produce a complete implement for the purposes which hereinafter will fully be set out.

Referring now to the details of construction, 1 indicates the handle or stock, which has the usual screw-driver-handle contour, including the flattened opposite sides 1^a 1^a, which in the present construction serve a function explained farther on. The handle 1 has a longitudinal bore 2, which communicates at its inner end with a transverse bore 3 of a much larger diameter, the outer ends of which have enlarged annular recesses 4, which form bearings for the inner peripheral bearing edges 5^a of the outer rims 5^b of the spools 5 of which two are used.

The object in using two spools is to admit of carrying two different sizes of fuse or patch wire, and to provide for a convenient and simple way of feeding out the ends of the wire the spools are so arranged transversely of the handle that the wire ends can be extended through the oppositely-disposed grooves 6, extending lengthwise of the bore 2, the inner

ends of which are flared at an angle, as indicated by 6^b, to admit of a free movement of the wire as it is drawn off the spools.

Each spool 5 comprises the hub or body, an outer rim 5^b, and an inner rim 5^c of a slightly less diameter than the rim 5^b, whereby it can snugly fit in and bear against the wall of the bore 3.

The outer rims 5^b, it will be noticed, have their faces made flat to lie parallel with the flat sides 1^a of the handle 1, but are projected slightly beyond such sides, so as to provide for rotating the same externally of the handle 1, whereby to wind up slack wire when necessary.

In the full embodiment of my improvement so far as it relates to the wire-holders three distinct results are obtained—first, a simple form of wire-carrier is provided; second, means for quickly and easily detaching the holder from the handle when necessary to refill, and, third, means for simultaneously holding the spools locked to the rotative position and also under suitable tension to prevent a too-free rotation thereof and the rotation of one spool as the other is held from rotation.

As a simple means for providing for the several aforesaid results one of the spools 5 has a longitudinal bore of two diameters, the larger portion 8 forming a recess for the major portion of a connecting-screw 9 and the retractile spring 10, interposed between the head 9^a of the screw and the base of bore 8, while the reduced part 8^a of the said bore snugly receives the threaded end of the screw, which also enters the other spool, as shown.

By providing means for connecting the spools as described the heads or rims 5^a will be held in a tight frictional contact, with their bearing-seats and the inner-spool flanges abutting, so that as one is being turned its frictional contact with the other will create a spring tension sufficient to hold it from turning too freely. Furthermore, to remove the spools it is only necessary to withdraw the screw 9, when the separated spool members can be easily drawn out of the bore 3.

As before stated, the ends of the fuse or patch wires are carried through grooves 6 and projected at the front of the handle. The two different wire strands are held separated and within the grooves 6 by a steel barrel or tube 12 of a diameter to snugly fit the bore 2. This barrel is closed at its inner end and has such end beveled, as at 12^a, such end coacting with the beveled ends 6^b of the grooves to provide ample freedom of play of the wire strands at their unwinding-point.

To provide a solid bearing for the rear end of the barrel, such end is flattened at 12^c and in practice rests against the two inner rims of the two spool members.

It will be seen by reference to Figs. 1 to 3 the barrel, which forms a sheath for the tool-carrier presently referred to, is of such a length that it will project sufficiently to act as a means

for holding the free ends of the wire strands separated and also to admit of a free automatic locking of the tool-carrier to the barrel or sheath when slipped thereon after the proper tool has been set. The shape of the barrel is such that the pressure incident to the use of the tools creates sufficient friction to hold the barrel firmly in place.

The carrier, which is shown clearly in Fig. 7, consists of a cylindrical shank 13, preferably of a diameter to snugly fit the barrel or sheath 12, which is bifurcated at the ends, as at 13^a 13^b, such bifurcations being in the same plane and separated by the central solid portion 13^c of the shank. This portion 13^c has a transverse bore (at right angles to the bifurcations 13^a 13^b) of two diameters, the larger portion 14 forming a recess for the locking-head 15^a and the operating-spring 15^c of the lock-bolt 15, while the smaller part 14^b receives the end of the bolt, which has another or stop head 15^d working in this portion 14^b of the bore. The head 15^a is beveled and projects above the shank, whereby it will be readily automatically sprung into a locked engagement with a lock-aperture 12^c in the extended portion of the barrel, as shown.

It will be manifestly clear that by arranging the carrier-locking means as described the shank when pushed into the barrel will be automatically locked in place, and by having the lock-bolt disposed at a point without the handle 1 it is only necessary to depress the bolt 15 slightly and pull out the carrier to separate it from the barrel.

It is obvious that the carrier may be provided with any kind of tool members, provided, however, that they are so pivotally hung in the bifurcated ends of the shank that they can be moved into the same longitudinal plane with such shank. I prefer to provide the carrier at each end with a single pivotal member, the opposite ends of which are formed into different tools. For example, one of such pivotal members 16 has one end terminating in a large screw-driver 16^a, the other end terminating in a knife or stripper 16^b, the back edges of which are sharpened (see Fig. 8) to form scrapers, it being understood the stripper edge may be used to prepare the ends or any part of the insulated wire for splicing or other connections and the back edge for scraping the wire after the insulation has been removed. The opposite pivotal member 17 has one end terminating in a small screw-driver 17^a and its other end in an awl or feeler 17^b to punch for starting screws and to feel through plaster for laths or studding.

In order that the two members 16 and 17 may be properly held in position and from lateral movement within the barrel or sheath 12, they each have hub portions 16^x 17^x at their pivot-points of a width equal to the diameter of the shank, so that when they are turned in a plane with the length of the carrier such portions will engage the barrel or

sheath and be thereby fixedly held to their longitudinal positions.

From the foregoing description, in connection with the accompanying drawings, it will be seen my improved implement forms a simple and effective tool for the purposes specified and one in which a maximum number of tools may be compactly held within a minimum amount of space and in which any one of the tool portions may be positively held locked in position without affecting the remaining tools. It will also be noticed that while the correlation of the barrel-shell with the spool devices is such as to provide for a proper lead and separation of the different-sized wires it in turn is held from backward movement by its engagement with the said spools. Furthermore, by extending the barrel beyond the handle such barrel serves the double function of a wire-end separator and receiver for the tool-carrier. Again, providing a tool-carrier of the character stated admits of the use of a very simple means for automatically locking the carrier in place and also for securely holding the different tool members positively in direct lateral engagement with the barrel, thereby fixedly from lateral movement, when adjusted to the operative position.

The spools are of a non-conducting material, and there is no metallic connection between the barrel and the handle when the insulated handle is employed for electricians' uses.

Instead of using but two spools, as shown in Figs. 2 and 4, the wire-holder device may consist of four spools, each interdependently connected with each other, but each rotatably held independent of the others and preferably arranged as shown clearly in Figs. 10 and 11, by reference to which it will be seen the wire-holder consists of a pair of spindles 80 80^a, arranged in alinement and detachably connected by the screw-bolt 81, one spindle, 80, being held to turn with the bolt 81, while the other is held to turn on the bolt, the two sections being held drawn together by the spring 10, arranged the same as in the other spool arrangement described. Each spindle 80 80^a carries a pair of fixedly-held disks and with them forms an inner spool portion 82 82^a and has loosely mounted thereon a larger spool 83 83^a. It will thus be seen that by arranging a spool as described four spools are provided for carrying different sizes of wire, it being manifest that as the several spools are held from a free rotation that either can be rotated independently of the other, the spools 83 83^a being freely rotatable in the spindle portions, while spool 82, with the bolt and spindle-section 80, would revolve within the spool 83 and the spindle-section 80^a, while such spindle-section 80^a and its spool 82^a would revolve on the bolt 81 and on the spool 83^a. To assist in holding the inner spools 82 82^a from a free rotation, a spring-button 85 is held to bear against them, as shown in

Fig. 10, such tension also holding the inner spools from turning as either of the other spools is unwound.

When four spools are used, it is obvious that the same number of grooves 6 are formed in the handle for the passage of the free wire ends, and to provide for keeping the free ends of the wires from tearing or scratching the hands the outer end of the barrel or handle may be provided with sockets 86 of short depth, into which the said free ends can be turned, as shown in Figs. 10 and 12, such ends being thereby also held to be conveniently caught by the finger-nails.

The barrel may be formed with a ferrule or cap 88 and secured to a wooden handle, as shown in Fig. 9.

It will be observed that the arrangement of the four spools is such that all are fully independent of each other and yet adapted to be kept at a uniform tension by the one spring and screw, which makes them detachable in pairs from the handle.

While I have described and illustrated the tool-carrier in detail in this application, I have made no claim to the said carrier, *per se*, and of its combination with the holder in this application, as the same forms the subject-matter of another application filed by me December 30, 1898, Serial No. 700,760¹.

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

1. A tool of the character described, having fuse-wire spools or carriers detachably connected therewith and feed-grooves for the wires, relatively so arranged that the wire can be fed at right angles from the spools, lengthwise from the front end of the tool as specified.

2. A tool of the character described, having longitudinally-extending wire guides or grooves; independently-rotatable wire-carrying spools held within the handle transversely of the guide-grooves, as described.

3. A tool for the purpose described, comprising a handle having a longitudinal bore, and a transverse bore communicating with the longitudinal bore; a barrel fitting the longitudinal bore, said handle having longitudinal grooves in the barrel-bore, a tool-carrier detachably held in such barrel and extending into the longitudinal bore of the handle, and wire-holding spools rotatably held in the transverse bore, and arranged to have the free ends of the windings extend forward through the longitudinal grooves, as set forth.

4. In a tool as described, a handle having a longitudinally-held tool-holding barrel; a number of wire-guide grooves extending longitudinally through the front or tool end; and a number of spools transversely held in the tool-handle, means for locking them in place and for holding them under tension, of the character described, whereby one spool can be rotated as the others are held from rotation, as set forth.

5. In a tool as described, a handle having

a longitudinal bore provided with separated wire-grooves, a barrel held in the bore and forming a separating-closure for the grooves, said barrel being adapted to hold tools; a number of spools journaled transversely within the end of the handle and adapted to be rotated by external manipulation, substantially as shown and described.

6. A tool, comprising a handle having a longitudinally-disposed tool-holding barrel, and wire-guide grooves between the barrel and the barrel-bore of the handle; said handle having a transverse bore, a number of spools, projected in the bore; two from each side, said spools having bearing portions, and having their inner ends held to abut, and spring tension means for holding the spools in frictional contact, adjustable exteriorly of the handle, as set forth.

7. A combination-tool, comprising a tubular handle, having a transverse bore, a barrel fitting in the end of the handle and projected beyond the same; a tool-carrier detachably and reciprocally held in the barrel, of independently-rotatable spools held in the transverse bore, rotatable in the direction of the length of the handle; said handle having lon-

gitudinal guide-slots, of which the barrel-periphery forms the bottom for the straight passage of the wire ends, and means for holding the spools from a too-free rotation; said barrel having its rear end resting against the spools and forming a wire-separating guide, as described.

8. In a tool as described; a handle having at one end a wire-holding device comprising a plurality of spools, interdependently fitted in the handle, but having each an independent rotary action, said tool having guide-grooves for holding the free ends of the strands of the several spools separated, as specified.

9. In a tool as described; a handle having a wire-holding device detachably and transversely held therein, said device comprising four spools, interdependently and detachably connected, but each having an independent rotary action, whereby one or more of such spools is adapted to be unwound as the others remain inert, as set forth.

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Witnesses:

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