

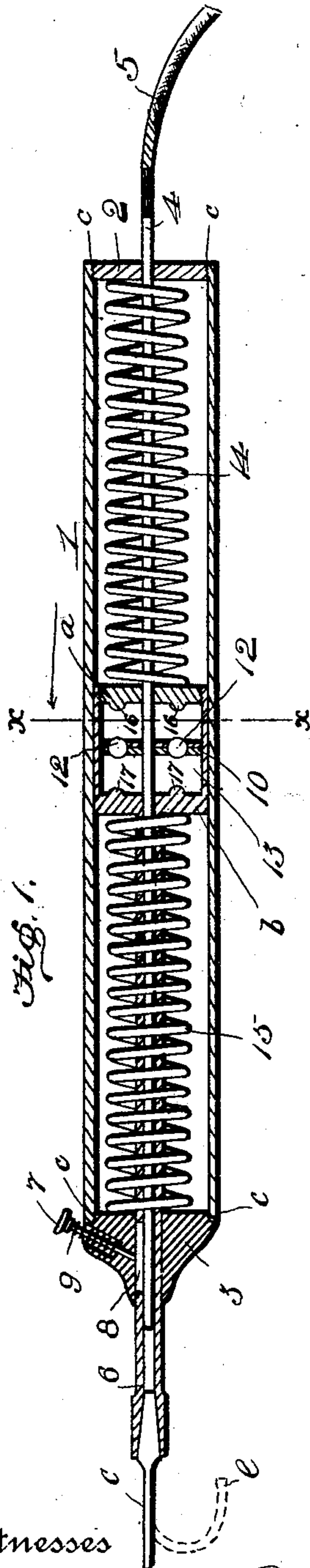
No. 672,920.

Patented Apr. 30, 1901.

H. SHOEMAKER.
DENTAL PLUGGER.

(Application filed Oct. 22, 1900.)

(No Model.)



Witnesses
Bernard M. Offutt.
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Fig. 3.

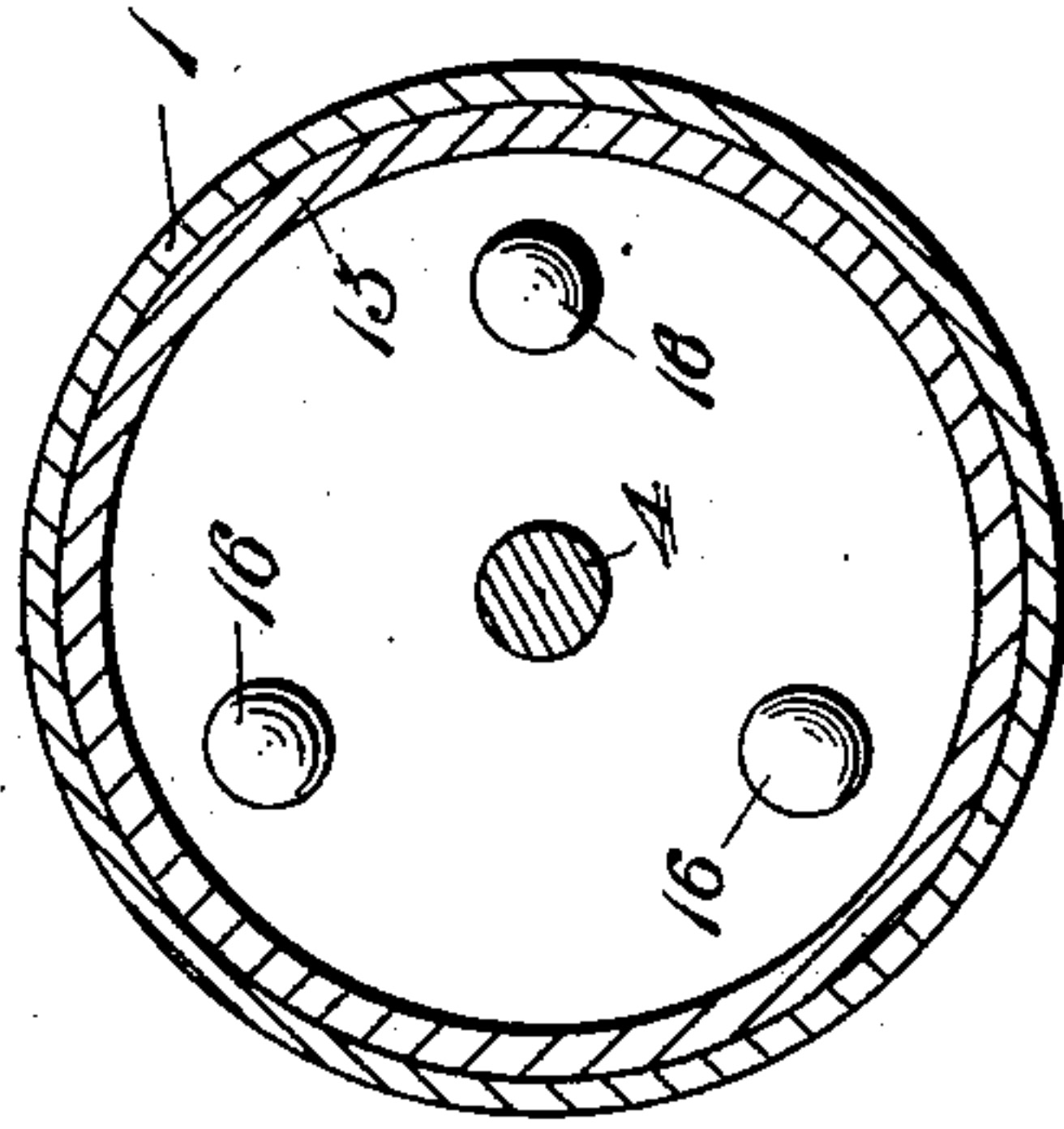
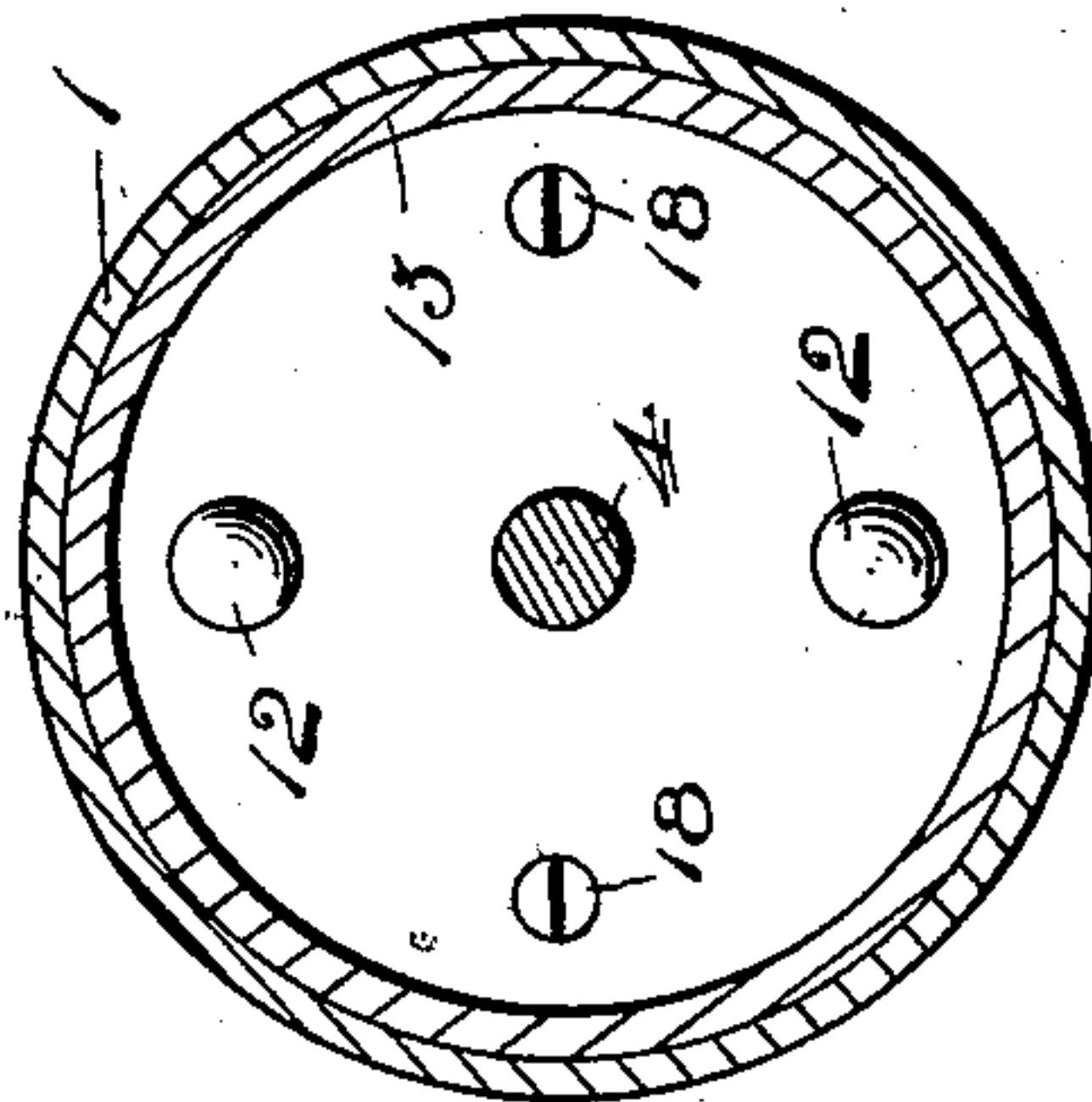


Fig. 2.



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UNITED STATES PATENT OFFICE.

HARRY SHOEMAKER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
GUSTAVE P. GEHRING, OF SAME PLACE.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 672,920, dated April 30, 1901.

Application filed October 22, 1900. Serial No. 33,801. (No model.)

To all whom it may concern:

Be it known that I, HARRY SHOEMAKER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dental Pluggers; and I do 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.

My invention relates to certain novel improvements in dental pluggers; and the object is to simplify and improve the construction, increase the efficiency, and reduce the cost of manufacture.

To this end my invention consists in the construction, combination, and arrangement of the several elements of the device, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the accompanying drawings the same reference characters indicate the same parts of the invention.

Figure 1 is an enlarged longitudinal section of the dental plugger embodying my invention. Fig. 2 is a transverse section on the line $x x$ of Fig. 1 looking in the direction of the arrow. Fig. 3 is a similar view looking in the opposite direction to the arrow.

1 denotes the handpiece, which may be of any suitable size and material and milled or checked on the exterior to afford a firm grip for the hand, and this handpiece is provided with the closed heads 2 and 3, in which are formed aligned bearings for the axial shafting.

4 denotes the main shaft, journaled in the head 2, and to its projecting end is attached the flexible shaft 5, leading from the usual dental engine or other source of power, and the inner end of said shaft 4 has a bearing in tubular sleeve 6, loosely mounted, so as to have a limited longitudinal movement in the head 3, and 7 represents a spring-actuated thumb or finger brake, also mounted in said head 3, its inner end extending through a longitudinal slot 8 in the sleeve and adapted to be pressed against the main shaft when desired to act as a friction-brake on the shaft 4, the brake being normally held out of contact with the shaft by the spring 9.

10 denotes a disk fixed on the shaft 4, and in it is loosely mounted two or more ball-hammers 12 12, of a larger diameter than the thickness of said disk, so that the opposite faces of the spheres will extend or project beyond the opposite faces of the disk, as shown. 13 denotes a casing cylindrical in form and encompassing the said disk and loosely mounted in the handpiece, one end a being connected to the head 2 by the helical spring 14 and the other end b to the head 3 by the corresponding spring 15, and the adjustment of these springs is such that normally the disk 10 will revolve in the casing-cylinder 13 without coming in contact with either of the ends a or b . The inner face of the end a is provided with a series of hemispherical anvils 16 16, fixed in the path of the hammer-balls 12 12, and the corresponding face of the end b is likewise provided with a similar series of anvils 17 17, also located in the path of the hammer-balls 12 12, and in practice I have found that a very good and practical result is attained by providing the disk with two hammer-balls, as shown in Fig. 2, and the casing ends with three anvils, as shown in Fig. 3, the result being that such revolution of the shaft 4 will impart six positive longitudinal reciprocating impulses or movements to the casing 13 and sleeve 6, as will be presently explained.

A suitable plugging-tool c being fixed in the chuck end of the sleeve 6, the handpiece is grasped in the hand, and when the point of the tool c rests against the object the handpiece is then pressed forward, so as to compress the spring 14 and permit the hammer-balls 12 12 to come in contact with the anvils 16 on the casing end a , and as the shaft 4 and disk 10 revolve the impact of the balls with the anvils causes the casing to rebound under the action of the spring 14, and thus impart a rapid reciprocating movement of the casing and sleeve, the force of the impact being under perfect control of the operator and depending entirely on the degree of pressure exerted on the handpiece. When a reverse-pointed tool—such as, for example, is shown in the dotted lines e in Fig. 1—is used, the operation of the plugger is substantially the same, except that in this instance the pressure is exerted on the handpiece in the op-

posite direction to that first mentioned and that brings the hammer-balls 12 12 in contact with the anvils 17 17, with a like result to that above described.

5 In Fig. 1 I have shown the disk 10 formed in two parts secured together by the screws 18, the meeting faces of the parts being provided with countersunk pockets for the reception of the hammer-balls; but the disk and
10 balls may be cast integral, if desired, and various other changes may be made within the skill of a good mechanic without departing from the spirit of my invention as set forth in the claim.

15 By means of the handpiece having the interior screw-threads *c* the heads 2 and 3 are easily secured thereto, and as the end *a* is secured to the casing 13 by screw-threads the disk can be readily placed in said casing, the
20 shaft having been placed in the tubular rod. Thus it will be seen that the tubular rod and casing can be placed upon the shaft, the spring placed upon the tubular rod, the end secured in the casing 13, the spring placed
25 upon the shaft, these parts inserted in the handpiece, and the ends of the handpiece secured in their proper places, insuring the easy assemblage of the parts of the instrument.

Having thus fully described my invention, 30 what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

In a dental plugger, a handpiece or outer casing, a shaft passing therethrough from end 35 to end, a coil-spring surrounding the shaft in the rear end of the casing, a tubular sleeve slidably mounted in the forward end of the casing and surrounding the forward end of the shaft and adapted to carry a tool, a cy- 40 lindrical casing adapted to slide in the outer casing carried by the inner end of said tubular sleeve and having a series of anvils upon each inner face of the respective ends of said casing, a disk carrying a series of ball-ham- 45 mers, which protrude upon both sides thereof, rigidly secured to the shaft and surrounded by the cylindrical casing, a coiled spring surrounding the tubular sleeve, and a spring-actuated hand-brake to engage the tubular 50 sleeve and prevent its turning with the shaft.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY SHOEMAKER.

Witnesses:

M. WIEGAND,
JOSEPH S. HAGAN.