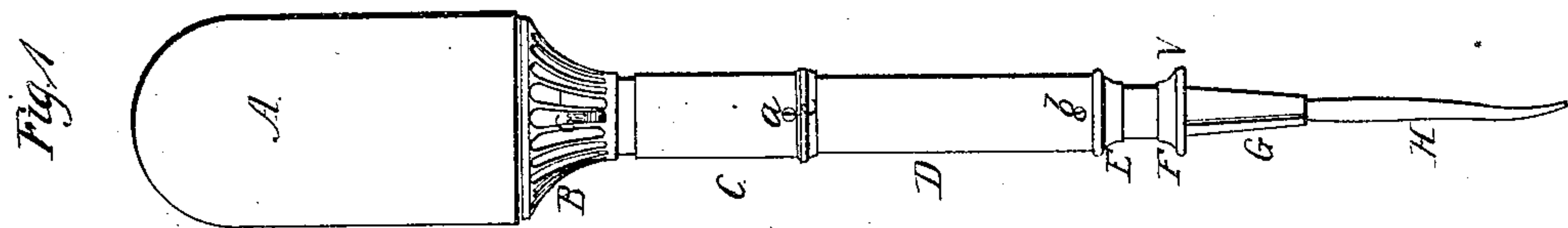
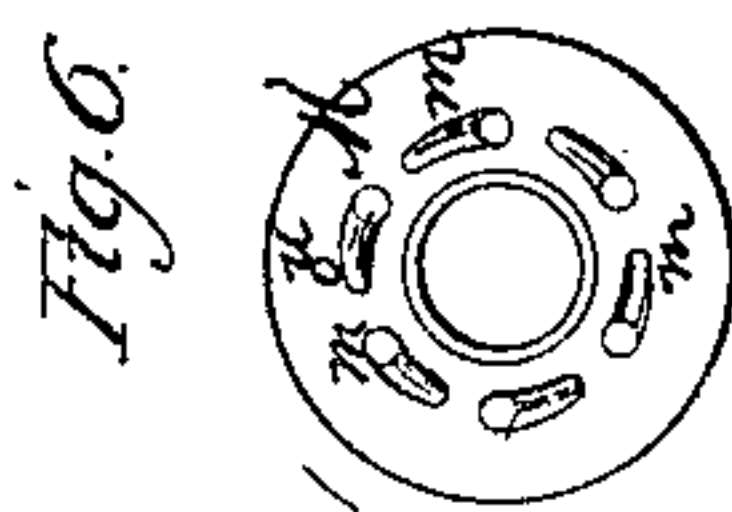
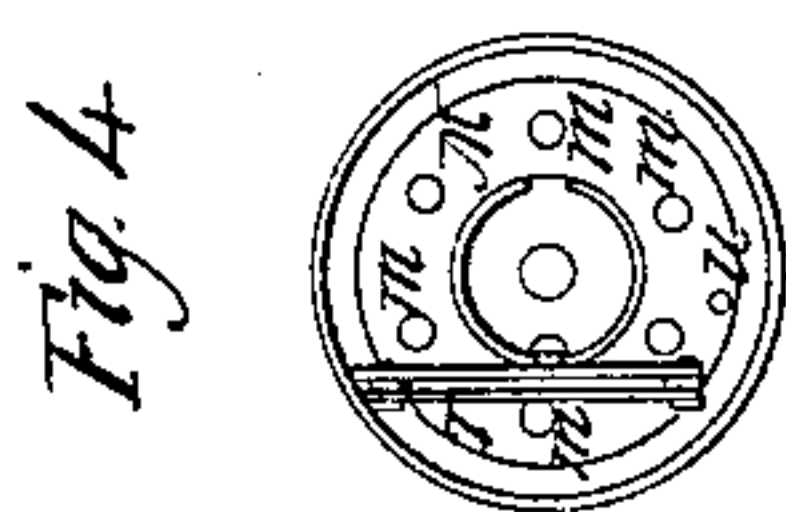
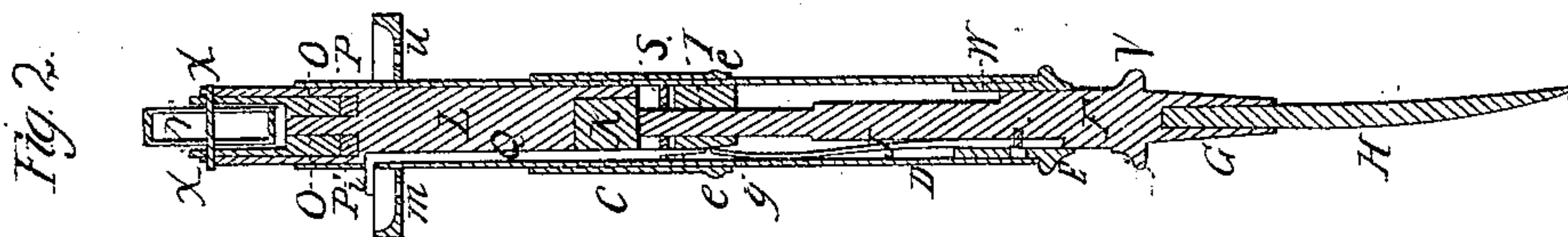
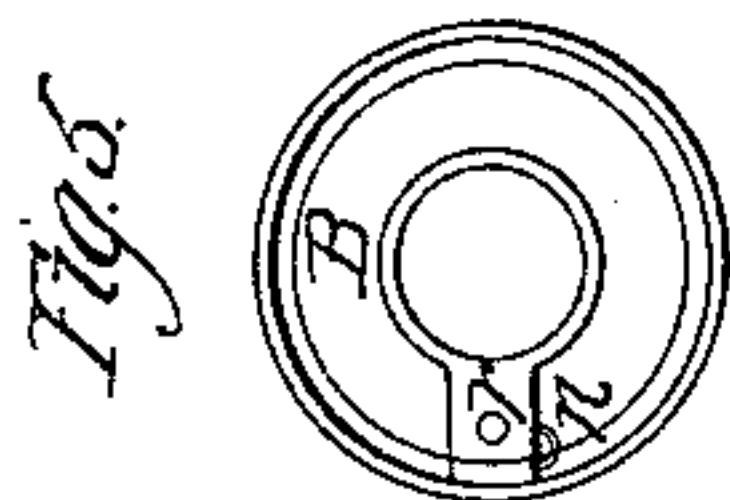
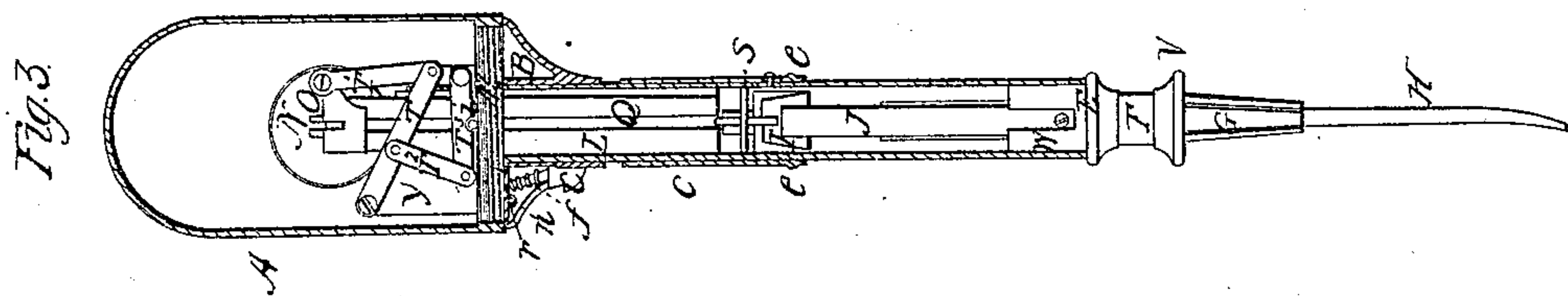


J. N. SCRANTON & H. H. PARSONS.
DENTAL PLUGGING INSTRUMENT.

No. 90,879.

Patented June 1, 1869.



Witnesses:
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Letters Patent No. 90,879, dated June 1, 1869.

IMPROVEMENT IN DENTAL PLUGGING-INSTRUMENTS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JOHN N. SCRANTON, of the town of Bennington, and State of Vermont, and HENRY H. PARSONS, of the village of Hoosick Falls, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Automatic Mallets for Dental and other purposes.

The nature of this invention consists in a new method of raising the hammer which strikes the blow by means of a simple pressure upon the tool-holder, this pressure upon the tool-holder giving it a motion within the case in which it is enclosed, when the tool-holder is moved.

Motion is communicated through a rod to a system of levers, so connected with the hammer that the hammer is moved away from the tool-holder, and this motion of the hammer winds up a spring placed upon the hammer, this connection between the tool-holder and hammer being broken by mechanism hereafter described.

The spring acts upon the hammer, and drives it down upon the tool-holder with more or less force. The tension of this spring is varied by the operator, at pleasure, by mechanism hereinafter described.

By this arrangement of parts, the machinery to effect this operation is all enclosed within a case, and the machinery is entirely out of the way of the operator, allowing him thereby to turn the instrument in his hand, so that he can present the point of the dental tool in any position he may desire, and vary the strength of the blow at will, with the fingers of that hand alone in which he holds the instrument.

Another feature of this invention is a new method of constructing the tool-holder to hold the tool.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same, with reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1. is an isometrical view of the instrument complete.

Figure 2, a longitudinal section of the same, taken through one diameter.

Figure 3 is a front elevation of the instrument, looking in a direction at right angles to the plane of the longitudinal section shown in fig. 2, with one-half of the outside case removed.

Figures 4, 5, and 6 are detailed views of the mechanism for changing the tension of the spring.

Like letters of reference refer to like parts.

D is the lower portion of the case of the instrument.

F is the tool-holder.

H is the tool inserted in the same, as shown in the drawing.

W is a collar, through which the tool-holder passes, and is held securely within the case D by means of the screw *b*, fig. 1.

Within the case D is soldered the circular plate S.

This plate is perforated in the centre large enough to receive the upper end of the tool-holder F, so that the tool-holder F can freely slide up and down within the case, having for its upper bearing the ring S, and for its lower bearing the collar W.

The tool-holder is also provided with a collar, V, fastened rigidly to it, which prevents the tool-holder from being pressed too far into the case, and for another purpose, which will be more fully stated hereafter.

L is the hammer, which also slides freely in the upper portion of the case D.

Into the lower portion of the hammer is fitted a block, K. This block may be made of wood, or other substance, the object being to render the blow softer than would be attained by striking two pieces of steel together.

In the upper portion of the hammer is fitted the coiled spring N, similar to and encased like an ordinary watch-spring. The cylinder within which this spring is enclosed turns upon a shaft passing through its centre, the shaft being rigidly connected to the cylinder, and turning with it.

The bearings for this shaft X are made by inserting two pieces of steel, O O, in the upper portion of the hammer L, the lower ends of which rest upon the rubber bearings P P, and their upper ends cut out to receive the shaft at X, the object of the rubber bearings P P being to relieve the spring N and its bearings from the reaction produced by the concussion of the hammer when the blow is struck.

M is a disk, firmly secured to the outside case D, a short distance below the spring N.

Immediately above this disk M is firmly fastened a vertical plate, Y. To the upper corner of this plate is hinged one end of the lever T.

At the end of the lever T is hinged the lever T¹, and the upper end of the lever T¹ is hinged to a bar projecting from the hammer, and fastened rigidly thereto.

The lever T² is hinged to the lever T at a point one side of its centre, nearer to the point where the lever T is hinged to the plate than to its other end.

T³ is a lever, which is nearly horizontal, and is hinged at one end of the lever T², and at its opposite end, to the side of the plate Y, opposite the point to which the lever T is hinged.

The hammer L is grooved out to receive the rod Q. The upper end of this rod Q is furnished with a pin, projecting from its side. This pin acts upon and actuates the lever T³.

I is a small block of metal, perforated in its centre, through which the upper end of the tool-holder passes. The upper portion of this block is circular in form, and is grooved out to receive the rod Q. Below the circular portion, the block I is cut away in the shape of an inclined plane.

To the lower portion of the tool-holder F is fastened

the spring-catch J, which extends upward, and its upper end rests upon the inclined surface of the block I.

B is a ring, which fits over the case D, and is made in the form of a truncated cone inverted, a top view of which is shown in fig. 5.

A small bracket on one side of this ring extends from the inner to the outer circumference thereof, through which a pin projects at *r*, fig. 5. This pin passes through a spiral spring, the said spring being placed below the bracket.

The lower end of the pin is furnished with a catch, *c*, so that the operator can, with his finger or thumb-nail, press down the catch, and thereby withdraw the pin *r* below the upper face of the bracket, and when he lets go of the catch *c* the pin will resume its position, projecting above the bracket.

A cord, represented in fig. 3 by a red line, is fastened to and coiled around the case which encloses the spring N. This cord, after leaving the top of the spring N, passes vertically down through the hole *u* in the disk M, fig. 4, and the lower end of the cord is fastened at *n* in the ring B.

The disk M is furnished with a series of holes, this series of holes being in a circumference corresponding to the circumference of the circle in the ring B, made by the revolution of the ring B about the case D.

These holes in the disk M are cut out on their under side, in one direction, in the form of an inclined plane, but, in the other direction, present abrupt edges to the pin.

Fig. 4 shows a top view of the disk M, and fig. 6 shows a top view of the disk inverted.

C is a short case, which slides on the outside of the case D.

In the case D is a short slot. At *a*, a small screw passes through the case C, and through the short slot in the case D, and screws into the block I. By this arrangement the case C and the block I can slide up and down the length of the slot, the case C sliding outside of the case D, and the block I sliding within the same.

A is a case, which covers the upper portion of the instrument, and screws on to the periphery of the disk M.

When the instrument is not in use, the upper end of the tool-holder abuts against the lower end of the hammer, but when the operator presses the tool against any hard substance, the tool-holder F slides upward in its bearings, and carries with it the spring-catch J.

This spring-catch presses against the rod Q, and thereby carries up, by means of its projection *i*, the lever T³, and, by the arrangements of the levers T, T¹, T², and T³, carries up the hammer and the coiled spring faster than the tool-holder moves up, and thereby moves the hammer away from the tool-holder until the upper end of the spring-catch J reaches the top of the inclined plane in the block I, where the connection between the spring-catch J and the rod Q is disengaged.

It is plain that in this upper movement of the hammer, and the coiled spring fastened thereto, the cord being fastened at its lower end below the disk M, the coiled spring is wound up, and the tension of the coiled spring will be increased in proportion as the hammer is raised, and as soon as the connection between the spring-catch J and the rod Q is broken, the hammer

will be forced down upon the tool-holder, and the force of the blow will be conveyed through the tool-holder and tool to any resisting substance.

The object of the ring B, and its connection with the disk M through the pin *r*, is to enable the operator to graduate the strength of the blow. Should he wish to increase the strength of the blow, he places his thumb or finger upon the corrugated surface of the ring B, and revolves the ring upon the case the desired distance, when the pin *r* will slide along the inclined under surface of the disk M, and, by action of the spiral spring, the pin *r* will drop into one or other of the holes in the disk M, and will be retained in that position until the spring-catch *c* is drawn down, when the ring B will resume its former position, or an intermediate one, as the case may be.

The blows may be graduated within certain limits by sliding down the case C on the case D, thereby sliding down the block I, and sooner disengaging the spring-catch J and the rod Q.

The lower end of the tool-holder F is made with a socket to receive the tool, and is made of steel, the size of the hole being made to fit the shank of the tool. After this hole is bored to receive the tool, the end of the tool-holder is slotted lengthwise, as shown at G. The point is then heated, and the several sections, after being slotted, are then bent in towards the centre. The end of the tool-holder is then hardened, which makes the cavity in the end smaller than above the end, so that the point of the tool-holder will compress the tool. The object of this arrangement is, with a properly-prepared device, to hold the several tools used in dentistry, to enable the operator to take out one tool and insert another without laying down the instrument.

The operator can also, by placing his finger upon the collar V on the tool-holder, use the instrument as he would an ordinary dental tool, to pick up and place in position gold-foil, or other material with which he desires to fill the cavity.

A modification of this system of levers may answer the same purpose, by using only one lever, and passing it through the tool-holder, which we have not deemed necessary to show in the drawings.

Having thus fully described the nature and object of our invention,

What we desire to secure by Letters Patent, is—

1. The arrangement of the hollow case with the tool-holder and tool sliding therein, and a lever or system of levers, and a tripping-mechanism, connected therewith, by which the hammer is raised and let fall, as herein described and represented.
2. The combination of the spring-catch J, inclined plane, hammer, tool-holder, levers, and spring, when the same are enclosed within the case.
3. The combination of the perforated disk M, and ring B, with a spring-catch, *c*, substantially as set forth.
4. The combination of the hammer and spring N, with the bearings X X, resting upon the rubber stops P-P.

J. N. SCRANTON.
H. H. PARSONS.

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