

C. A. LUNDBERG.
DENTAL TOOL HOLDER.

(Application filed Jan. 13, 1902.)

(No Model.)

Fig. 1.

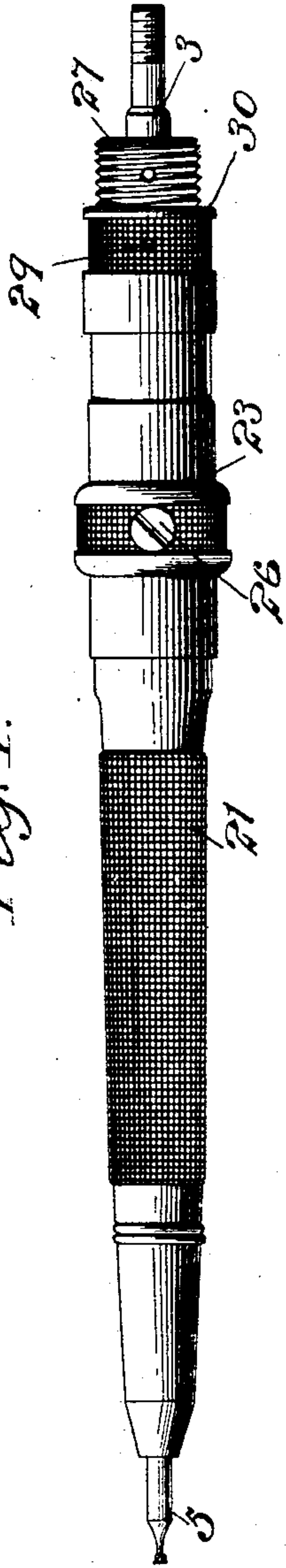


Fig. 2.

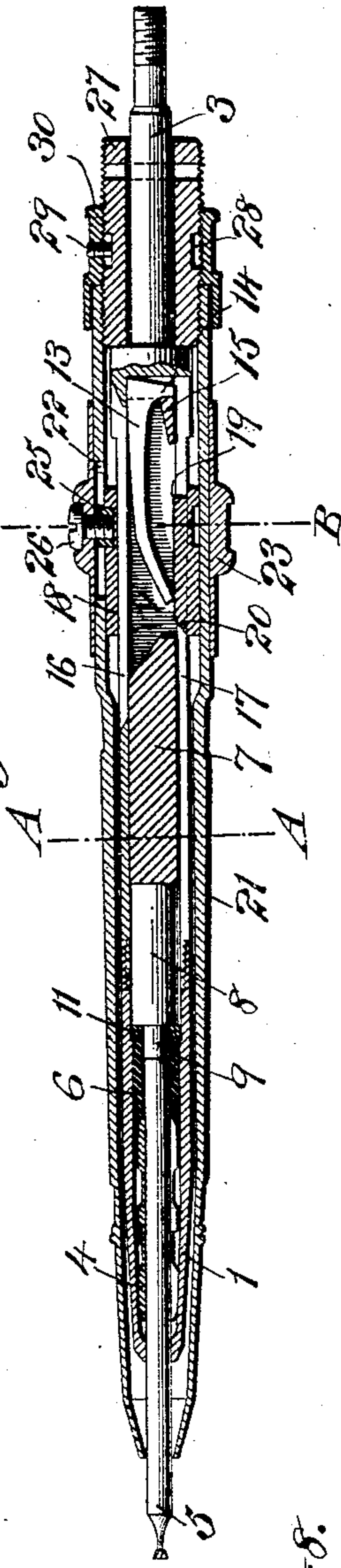


Fig. 7.

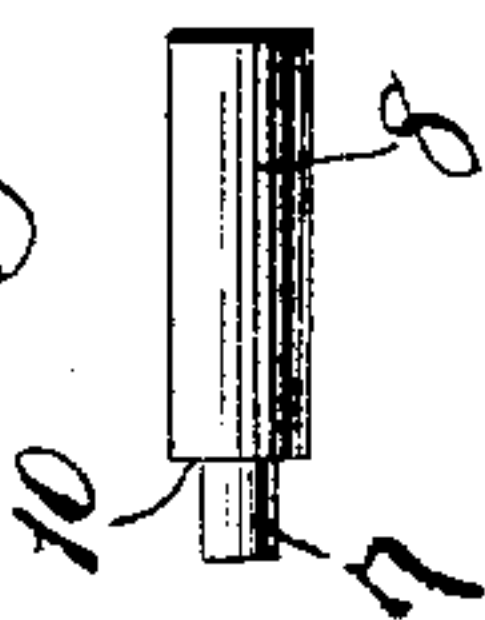


Fig. 3.

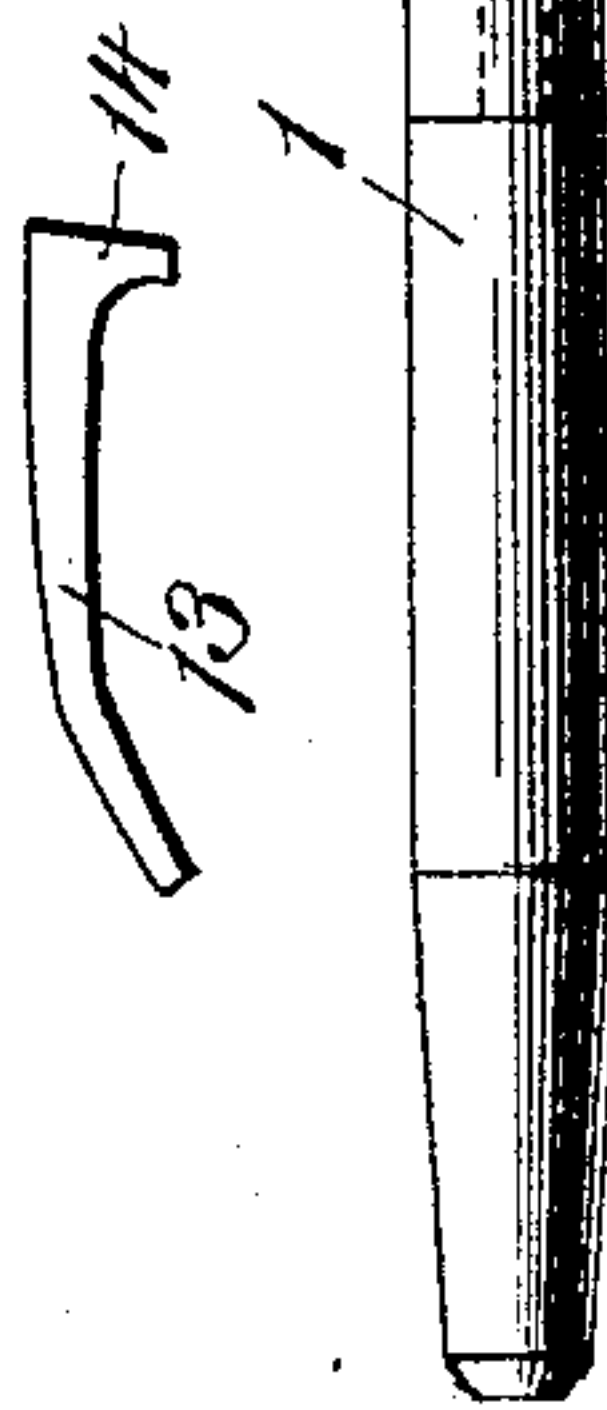


Fig. 4.

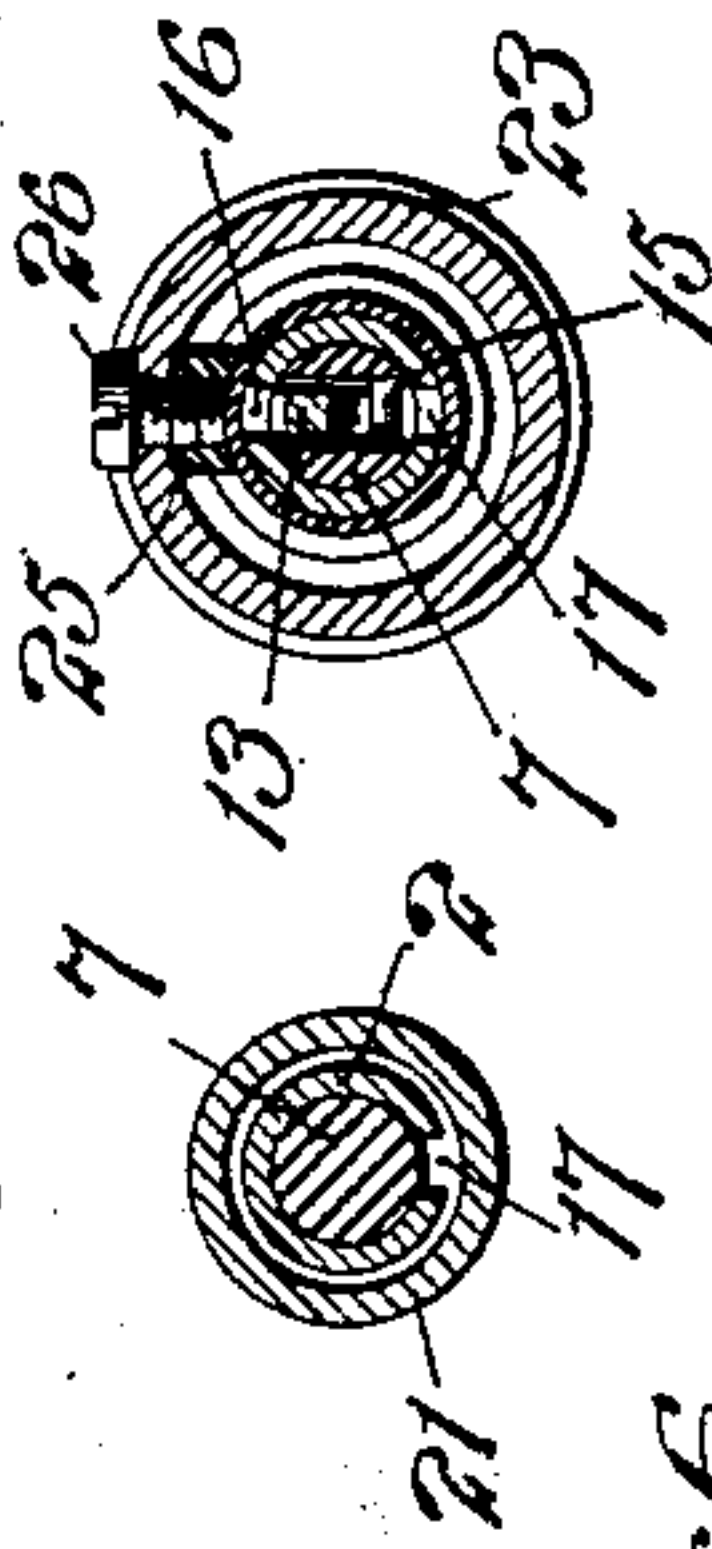


Fig. 6.

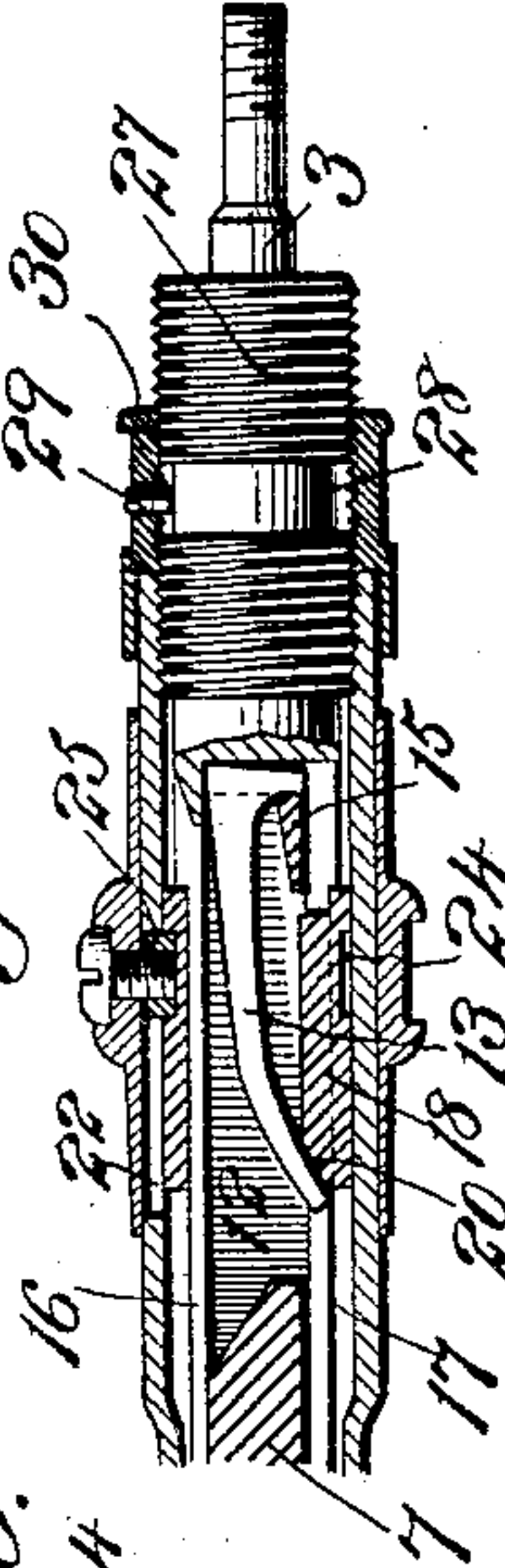
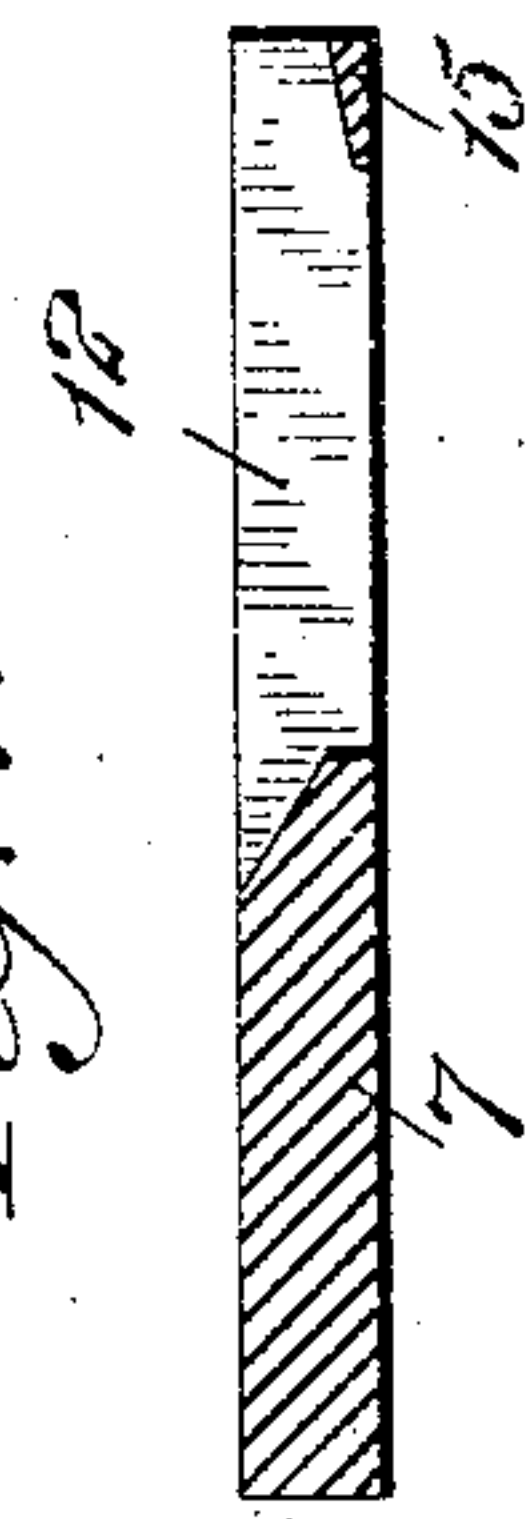


Fig. 10.



Fig. 9.



Witnesses:
Henry Thorne,
George Barry Jr.

Inventor:
C. A. Lundberg
by his attorney
Brown & Seward

UNITED STATES PATENT OFFICE.

CHARLES A. LUNDBERG, OF NEW YORK, N. Y., ASSIGNOR TO THE CONSOLIDATED DENTAL MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

DENTAL TOOL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 713,319, dated November 11, 1902.

Application filed January 13, 1902. Serial No. 89,400. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. LUNDBERG, a citizen of the United States, and a resident of the borough of Bronx, in the city and State of New York, have invented a new and useful Improvement in Dental Tool-Holders, of which the following is a specification.

My invention relates to an improvement in dental tool-holders, and has for its object to provide a holder for use in connection with dental engines in which the several parts are so constructed and combined as to produce a very strong and effective device which may be accurately adjusted and in which the tool is locked within its chuck by the forward movement of the locking and releasing slide rather than by a rearward movement of the same, as has heretofore been common.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is an exterior view of the holder with a dental tool clamped therein. Fig. 2 is a longitudinal central section through the same. Fig. 3 is an exterior view of the combined chuck and spindle comprising the rotary portion of the holder. Fig. 4 is a transverse section taken in the plane of the line A A of Fig. 2. Fig. 5 is a transverse section taken in the plane of the line B B of Fig. 2. Fig. 6 is a detail view, partially in section, showing the position of the slide and the parts which it operates when the slide is at the limit of its backward movement for releasing the tool from the chuck. Fig. 7 is a side view of the intermediate rod. Fig. 8 is a side view of the locking and releasing dog. Fig. 9 is a longitudinal central section through the dog-carrying bar; and Fig. 10 is a longitudinal central section through the inner or cam section of the locking and releasing slide, showing a modified form of cam.

The combined spindle and chuck has a tubular forward section 1 and a tubular rear section 2, to which the forward section is removably secured in the present instance by means of a screw-threaded engagement therewith. This rear section 2 has projected rearwardly therefrom the reduced portion 3, to

which the flexible shaft (not shown herein) 50 of the dental engine may be attached.

The forward tubular section 1 has located therein a split sleeve 4, fitted to receive the shank of the dental tool 5. The rear end of the split sleeve 4 is beveled, which bevel is engaged by the beveled forward end of a hollow solid sleeve 6, so that when the sleeve 6 is pushed forward it will close the split sleeve 4 and clamp the tool 5 therein. A bar 7 is fitted to the bore of the rear tubular section 2 so as to slide freely therein. An intermediate rod 8 is interposed between the bar 7 and the sleeve 6, which rod is provided with a reduced forward end 9, forming a shoulder 10. This reduced end 9 is fitted to the bore of the sleeve 6, and one or more washers 11 may be inserted between the shoulder 10 and the rear end of the sleeve 6, so as to accurately adjust the distance between the rear end of the sleeve 6 and the front end of the bar 7. The bar 7 is provided with an elongated slot 12 therethrough for receiving therein the tailpiece 13 of a spring-actuated dog, the head 14 of which is fitted to be interposed between the rear end of the bar 7 and the bottom of the bore within the rear section 2 of the combined spindle and chuck. The shape of the slot 12 is such that a bridge 15 is formed at the inner end of the bar, against which the forward face of the head 14 of the dog presses, while the rear face of the said head presses against the bottom of the bore in the rear section 2. Elongated slots 16 and 17 are formed through the opposite walls of the rear tubular section 2 for permitting the insertion and operation of the dog, as will be hereinafter set forth. The inner tubular section of the slide for operating the dog is denoted by 18, and it is provided along its bore with a longitudinal feather 19, which is fitted to slide along within the elongated slot 17 in the section 2 and also projects a slight distance into the interior elongated slot 12 in the dog-carrying bar 7. The front end of this feather is beveled, as shown at 20, to form a cam for operating the tailpiece 13 of the dog.

The handpiece 21 may be of any suitable shape and size for effectually concealing the

combined chuck and spindle. This hand-
piece 21 is provided with an elongated slot
22, extended lengthwise through one of its
walls adjacent to the inner section 18 of the
5 slide. The outer section 23 of the slide is
loosely fitted to the exterior of the casing
over the slot 22 therein.

The connection between the outer section,
which is held against rotary movement, and
10 the inner section of the slide, which rotates
with the combined chuck and spindle, is as
follows: The inner section of the slide is pro-
vided with an annular groove 24, within
which a nut 25 is located in position to re-
15 ceive a screw 26, carried by the outer section
23 of the slide. This nut 25 is loosely fitted
within the groove 24, so as to permit the inner
section to rotate with the spindle without ro-
tating the outer section also.

20 The combined chuck and spindle is re-
movably secured within the handpiece 21 as
follows: A hollow exteriorly-screw-threaded
plug 27 embraces the reduced portion 3 of
the spindle and has a screw-threaded engage-
25 ment at its forward end with the rear end of
the said handpiece 21. The screw-threaded
periphery of the plug 27 is intercepted by an
annular groove 28, which is engaged by a set-
screw 29, carried by a nut 30, which also has
30 a screw-threaded engagement with the said
plug. By this arrangement the nut 30 may
be adjusted a limited distance along the plug
27 and then locked in position by setting the
screw 29 home. The plug may then be
35 screwed into the rear end of the casing 21
until the nut 30 abuts against the end of the
casing.

The operation of the device is as follows:
Supposing the parts to be in the position
40 shown in Fig. 6, with the slide at the limit of
its rearward movement, the tailpiece 13 of the
dog is dropped beyond the end of the inner
section of the slide and its head is in a posi-
tion to permit the rear end of the bar 7 to be
45 brought in close proximity to the bottom of
the bore in the rear section 2 of the combined
chuck and spindle. After a tool has been
inserted within the split sleeve 4 the slide is
moved forward, thus causing the cam 20 on
50 the front end of the feather 19 of the inner sec-
tion of the slide to force the tailpiece 13 of
the dog inwardly, thus rocking the head 14
for forcing the rear end of the bar 7 away
from the bottom of the bore in the rear sec-
55 tion of the combined chuck and spindle. The
movement of the slide is sufficient to cause the
tailpiece 13 to travel along the feather, and
thus hold the tailpiece in its position under
tension, owing to a slight spring in the tail-
60 piece. This forward movement of the bar 7
will force the intermediate rod 8 forward, and
it in turn will move the solid sleeve 6 forward
for bringing the split sleeve 4 into clamping
engagement with the tool 5.

65 The construction as above set forth is ex-
tremely strong and durable and one which is
not liable to get out of order. Furthermore,

the locking of the tool in position by the for-
ward movement of the slide prevents any
unintentional releasing of the tool when pres- 70
sure is applied thereto.

Where the tool was locked by the rear
movement of the slide the operator had to be
careful not to exert a forward pressure on the
slide, as that would tend to release the tool. 75

In Fig. 10 I have shown a modified form of
inner section of the slide, in which a shoul-
der 31 is provided at the rear end of the cam-
bevel 20, so as to cause the tailpiece of the
dog to engage the shoulder when the slide is 80
moved into position to clamp the tool, thus
locking the dog in position.

What I claim is—

1. A tool-holder for dental engines compris-
ing a handpiece, a hollow combined chuck 85
and spindle, a split sleeve therein adapted to
receive the tool, a dog-retaining bar located
in the combined chuck and spindle for oper-
ating the split sleeve, a rocking dog located
within the dog-retaining bar and engaging 90
the bar and combined chuck and spindle for
forcing the bar forward to cause it to operate
the split sleeve to clamp the tool and a slide
for operating the dog, substantially as set
forth. 95

2. A tool-holder for dental engines compris-
ing a handpiece, a hollow combined chuck
and spindle, a split sleeve therein adapted to
receive the tool, a dog-retaining bar located
in the combined chuck and spindle for oper- 100
ating the split sleeve, a rocking dog having
its head interposed between the rear end of
the bar and the closed end of the hollow com-
bined chuck and spindle for forcing the bar
forward to cause it to operate the split sleeve 105
to clamp the tool and a slide for operating
the dog, substantially as set forth.

3. A tool-holder for dental engines compris-
ing a handpiece, a hollow combined chuck
and spindle closed at one end and having 110
therein a split sleeve for receiving the tool, a
dog-retaining bar for operating the split
sleeve, means for positively sliding the bar
forward consisting of a rocking dog having
its head engaged with the rear end of the bar 115
and the closed end of the combined chuck
and spindle and a slide for rocking the dog
comprising an inner cam-section having an
annular groove therein, a nut fitted to said
groove, an outer section carried by the hand- 120
piece and a screw passing through the casing
and connecting the outer section with the nut,
substantially as set forth.

4. A tool-holder for dental engines compris-
ing a handpiece, a hollow combined chuck 125
and spindle closed at one end and having
therein a split sleeve for receiving the tool, a
dog-retaining bar having an elongated slot
therein, the said combined chuck and spindle
having an elongated slot therein in alinment 130
with the slot in said bar, a dog having its
head engaging the rear end of the bar and
the closed end of the combined chuck and
spindle and its tailpiece located in said slot

in the dog-retaining bar and a slide having a feather arranged to travel along the slot in the combined chuck and spindle in engagement with the tailpiece of the dog, the said
5 feather having a cam at its forward end for rocking the dog to slide the bar forward for operating the split sleeve, substantially as set forth.

10 5. A tool-holder for dental engines comprising a handpiece, a hollow combined chuck and spindle closed at one end and having therein a split sleeve for receiving the tool, a chuck-retaining bar having an elongated slot therein and the said combined chuck and
15 spindle having an elongated slot therein in alinement with the slot in the said bar, a dog having its head engaging the rear end of the bar and the closed end of the combined chuck and spindle and its tailpiece located in the

said slot in the dog-retaining bar and a slide 20 having a feather arranged to travel along the slot in the combined chuck and spindle in engagement with the tailpiece of the dog, the said feather having a cam at its forward end for rocking the dog to slide the bar forward 25 for operating the split sleeve and a shoulder at the end of the cam for engaging the tailpiece to prevent the unintentional release of the dog, substantially as set forth.

In testimony that I claim the foregoing as 30 my invention I have signed my name, in presence of two witnesses, this 2d day of January, 1902.

CHARLES A. LUNDBERG.

Witnesses:

GEORGE J. BULTMAN,
MICHAEL J. MURRAY.