H. KRUESHELD AND A. J. WALTER.

SURGICAL INSTRUMENT.

APPLICATION FILED MAR. 15, 1920.

1,401,104.

Patented Dec. 20, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

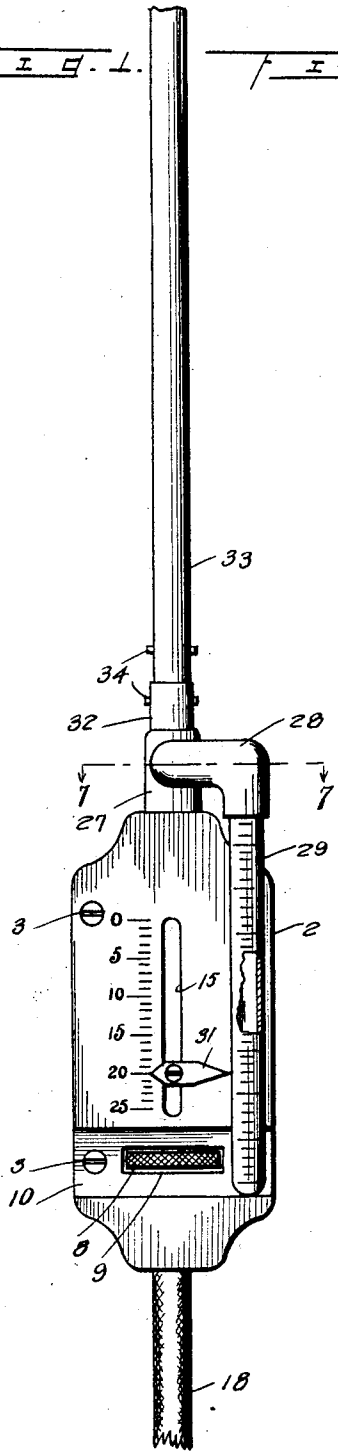


Fig. 2.

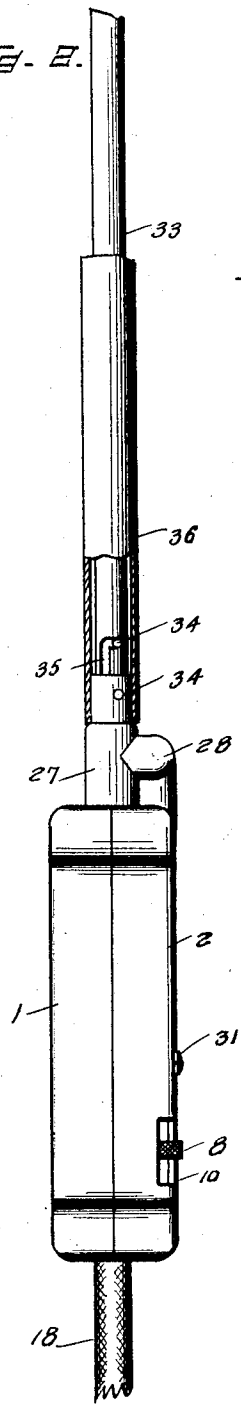


Fig. 7.

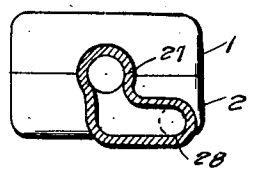
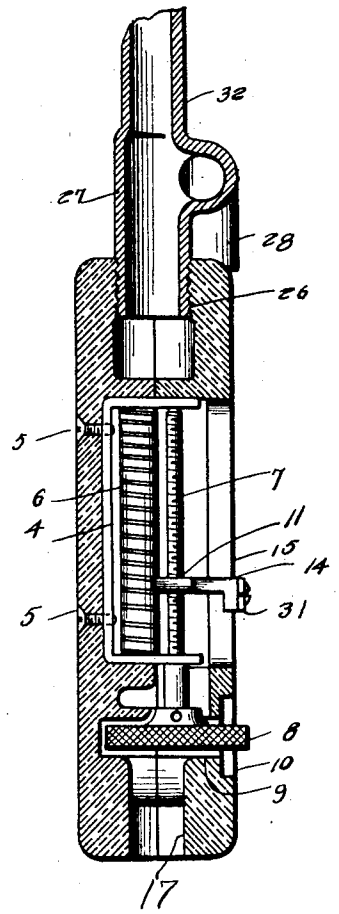


Fig. 3.



Inventors

A. J. Walter

H. Krueshold.

By A. Landreth, Jr.,

Attorney

H. KRUESHELD AND A. J. WALTER.

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2 SHEETS—SHEET 2.

Fig. 4.

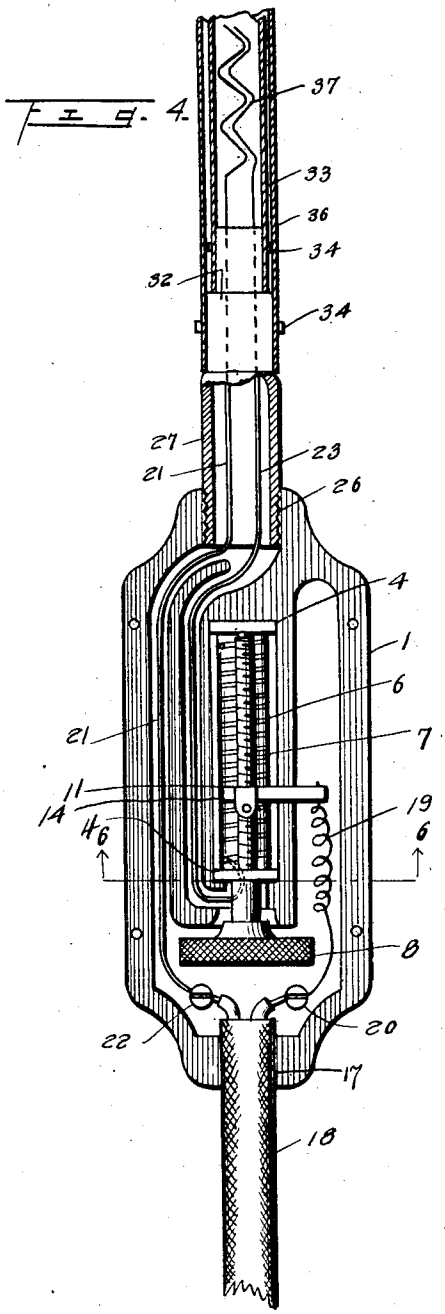
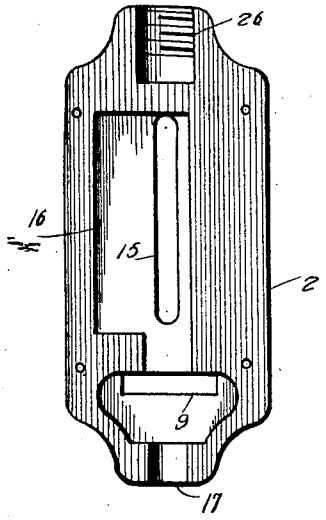


Fig. 5.



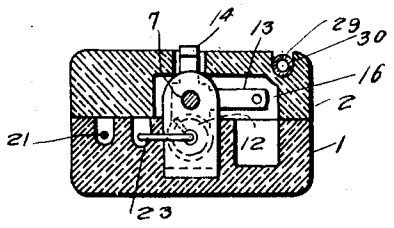


Fig. 6.

Inventors

A. J. Walter

H. Krueshold.

By A. Lauderback & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

HENRY KRUESHELD AND ALLEN J. WALTER, OF MANSFIELD, OHIO.

SURGICAL INSTRUMENT.

1,401,104. Specification of Letters Patent. Patented Dec. 20, 1921.

Application filed March 15, 1920. Serial No. 366,011.

To all whom it may concern:

Be it known that we, HENRY KRUESHELD and ALLEN J. WALTER, citizens of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Surgical Instruments; and we do hereby 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.

It is a well known therapeutical fact that the germ that causes gonorrhoea is susceptible to an increase of temperature of the infected person when suffering with a feverish condition, and persons, having typhoid or other fevers, who are infected with gonorrhoea, will be freed from the latter disease.

My invention has for its object to provide means by which a localized feverish condition may be set up in the infected organ, and consists in the provision of a heating element adapted to be inserted in the organ with means for regulating the temperature of the element, and to indicate the temperature at all times.

Another object of the invention is the provision of an improved construction of surgical instrument of the type set forth by which sounds of different diameters may be employed in connection with the heating element for the most effectual operation of the device.

Another object of the invention is the provision, in connection with an electric heater, of an improved construction of means for controlling the resistance in the circuit in the heating element, by which an exceedingly fine adjustment of the resistance may be effected.

The invention will be described in detail hereinafter and will be found illustrated in the accompanying drawings in which:—

Figure 1 is a front view of our device, partly broken away,

Fig. 2, a side view, partly broken away, and showing a fragment of a sound in position and partly in section,

Fig. 3, a longitudinal sectional view of the resistance control casing,

Fig. 4, a plan view of the base section of the resistance control casing with the resistance control installed and a fragmentary longitudinal section of the heater,

Fig. 5, a plan view of the cover section of the resistance control casing,

Fig. 6, a transverse sectional view of the resistance control and casing taken on a plane indicated by the line 6—6 of Fig. 4, and

Fig. 7, a transverse sectional view on a plane indicated by the line 7—7 of Fig. 1.

Referring to the drawings in which similar reference characters indicate corresponding parts throughout the several views, 1 indicates the base section of the resistance control casing of my improved apparatus and 2 the cover section thereof, said sections being made of insulating material such as rubber, fiber, or the like, and held together in any suitable manner, as for instance by screws 3, as shown in Fig. 1.

Secured in base section 1 is a U-shaped frame 4, by means of screws 5, carrying a resistance coil 6, and having a screw shaft 7 journaled therein and adapted to be rotated by a knurled wheel 8 secured to one end of said shaft. Wheel 8 is mounted in a recess 9 formed in the sections 1 and 2 of the resistance control casing and projects from the upper surface of cover section 2 to permit rotation thereof by the thumb or finger of the operator. The top surface of cover section 2 is formed with a transverse recess 10 surrounding the projecting edge of wheel 8 to provide for freedom of rotation of said wheel.

Mounted on screw shaft 7 is a nut 11 provided with a curved surface 12 that engages resistance coil 6, a laterally extending arm 13, and a vertically extending L-shaped arm 14. Arm 14 extends into and is adapted to reciprocate in longitudinal slot 15 in cover section 2, while arm 13 is received in recess 16 in said section 2.

The lower end of sections 1 and 2 of the resistance control casing is provided with mating recesses forming an opening 17 for installing an electric cable 18 having one of the wires, forming one of the terminals of the circuit, connected with a conductor 19, secured to arm 13, at binding post 20, while the other wire is connected to one of the terminals 21 of a heater, hereinafter described, at binding post 22. The other terminal wire 23 of the heater is in circuit with resistance coil 6, the base section 1 being provided with recesses 24 and 25 to receive said wires 21 and 23 respectively.

The upper ends of sections 1 and 2 of the resistance control casing are provided with recesses 26 that are correspondingly threaded to receive the threaded end of a tubular casing 27. Casing 27 is provided adjacent its lower end with an L-shaped tube 28 communicating with the interior of said casing and has mounted in its free end a clinical thermometer 29, extended downwardly, and seated in a recess 30 in cover section 2 that is parallel with slot 15 in said cover section.

Thermometer 29 is graduated as shown, and the face of cover section 2 is also provided with graduations shown in Fig. 1, and 31 indicates a double-ended pointer secured to L-shaped arm 14 to assist the operator in manipulating the apparatus.

Tubular casing 27 has one or more reduced portions 32 between the base and the extended portion 33, the drawings showing but one of said portions 32, but it will be apparent that there may be two or more if desired, said reduced portions being provided to permit of the use of conventional sounds of different diameters to conform to the dimensions of the orifice of the organ operated upon. Each of the reduced portions 32 and extended portion 33 is provided with diametrically arranged lugs or pins 34 that are adapted to receive bayonet slots 35 in the ends of the sounds 36 for holding them in position on the heater casing.

Mounted in extended portion 33 of casing 27 is an electric heater 37 of any well known type, no claim being made to the construction of said element.

In operation the instrument is inserted in the orifice of the organ to be treated, a sound of proper diameter having been selected and the current is turned on to set up an increase in the temperature of the heating element 37. By observation of the thermometer 29 and regulation of the resistance by rotation of the knurled wheel 8 the proper temperature may be obtained, and continued for any period desired.

Having thus described the invention, what is claimed is:—

1. In a surgical instrument, electrical resistance, and means to selectively secure different sounds over said resistance whereby a single resistance is common to all of the sounds.

2. In a surgical instrument, an attaching portion, electrical resistance extending therefrom, a second attaching portion, said portions differing in size, sounds for selective use attachable to said portions, and said resistance being common to all of said sounds.

3. In a surgical instrument, a casing, a sound extending therefrom, a thermometer, a mounting means for the thermometer in communication with the sound, and said casing having a recess in which said thermometer is disposed.

4. In a surgical instrument, a casing, a frame within the casing, an electrical resistance means mounted by the frame, indicating means coöperating with the resistance means having a movable part in circuit therewith, and means mounted by the frame to move said part.

5. In a surgical instrument, a casing in separable sections, a frame within the sections extending across the meeting faces thereof, a resistance coil mounted by the frame, a screw member mounted by the frame, a nut on the screw member in circuit with the coil and one of the sections having an elongated slot into which the nut extends.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY KRUESHELD.
ALLEN J. WALTER.

Witnesses:
D. D. PALMER,
J. W. CROKER.