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Patented Aug. 20, 1901.

R. P. McCULLY.
BRISTLE PROBANG.

(Application filed Dec. 27, 1899.)

(No Model.)

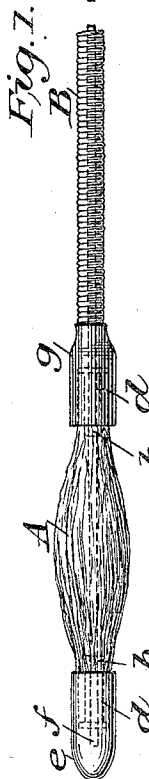
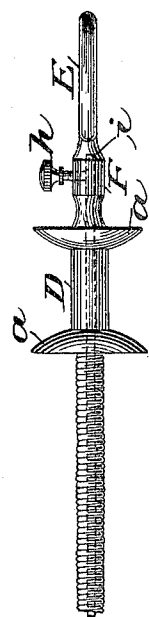


Fig. 2.

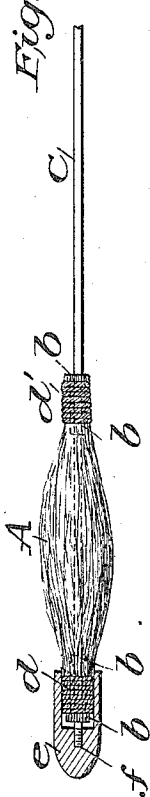


Fig. 3.



Fig. 5.

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UNITED STATES PATENT OFFICE.

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BRISTLE-PROBANG.

SPECIFICATION forming part of Letters Patent No. 680,936, dated August 20, 1901.

Application filed December 27, 1899. Serial No. 741,771. (No model.)

To all whom it may concern:

Be it known that I, RICHARD P. McCULLY, a citizen of the United States, residing at the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bristle-Probangs; and I 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.

My invention relates to surgical instruments, and particularly to that instrument technically termed a "bristle-probang," the function of which is to remove fishbones or other obstructions that may become lodged in the throat or esophagus.

The main object of my invention is to provide an instrument of the above character which is simple, effective, and durable, the parts of which may be easily and quickly detached or assembled without the use of tools. This feature is one of recognized importance, because it permits every part to be thoroughly sterilized or otherwise rendered antiseptic. It also permits the substitution of any new part, if desirable or necessary. The bristle-head being independent, a surgeon owning one of these instruments may keep in stock a number of bristle-heads, which may, if desired, vary in size and which he may use as desired. This permits the use of the bristle-head only once, after which it may be thrown away and replaced by another. Heretofore these instruments have been made in such manner that they cannot be dismembered. The bristle-heads have been permanently attached to the other parts of the probang, and consequently no variation in size is possible, nor is it possible to replace an old bristle-head with a new one. The construction of the bristle-head is such that it is difficult to thoroughly cleanse and antisepticize the same. Consequently the old instruments, such as referred to, have been found objectionable in that there is danger of the retention in the instrument of some contaminating germ. The old instrument therefore can be used with safety only once, after which it should be discarded.

In the accompanying drawings, Figure 1 is

a side elevation of my invention as it appears in its normal shape. Figs. 2, 3, and 4 are side elevations of details; and Fig. 5 is an end view of the detail shown in Fig. 4—to wit, the bristle-head.

In the drawings, A is a bristle-head which comprises a number of elastic bristles, usually pig bristles, which are laid evenly and secured at the ends by suitable wrappings *d*. Small tubes *b* are preferably inserted within each end of the bristle-head to form a passage and bushing for the operating or dilating rod, later referred to, so that said rod will not bind thereon, but may slide freely through one end of the bristle-head during the operation of the instrument and may pass freely through both ends of the bristle-head when said parts are being separated.

The finished bristle-head assumes a somewhat-elliptical form, so that when the ends *d* are moved toward each other the intermediate portion of the bristle-head expands laterally or is dilated into umbrella form, each bristle forming a snare, one or more of which in operation engage the foreign substance which may be lodged in the throat or esophagus, which foreign substance is removed upon the withdrawal of said instrument. In this respect the bristle-head acts in the usual manner.

B is a tubular portion termed the "stem," which portion is preferably formed of metal. A preferred way of making this tube is to shape a steel wire into spiral form closely wound, so as to give the appearance of a tube, thus giving to said stem sufficient flexibility to permit it to be inserted into the esophagus or withdrawn with perfect safety.

D is an operating-handle for the stem B, which handle preferably has flanges *a a*. At the inner end of the stem there is a cup-like projection or socket *g*, the function of which is to engage and preferably cover one end of the bristle-head, as hereinafter described.

C is a dilating or operating rod, preferably in the form of a flexible wire. At one end of the operating-rod C is a suitable socket *e*, said socket *e* being secured to said rod C by means of a screw-thread or otherwise. At the other end *i* of the rod C may be secured an operating-handle E in the form of a ring, which may

have a tubular extension F, the bore of which is adapted to receive the end *i* of the operating-rod.

h is a thumb-screw carried by the tubular extension F, which thumb-screw is adapted to detachably bind the parts C and E together.

When the parts are assembled as shown in Fig. 1, the operating-rod C passes freely through the tubular stem B. The handle upon the stem B may be engaged between the first and second finger. The thumb may engage the ring E. By separating said parts the sockets *g f* are caused to approach each other, and thus expand or dilate the bristle-head into the aforesaid umbrella shape.

In operation the instrument (in the form shown in Fig. 1) is passed into the esophagus. The bristle-head A is then dilated, and the instrument is withdrawn while the head is in the dilated form. This withdrawal of the dilated bristle-head will dislodge and remove any foreign substance that may be located in its path. The flexibility of the instrument avoids any danger of tearing or lacerating the membrane. When the foreign substance has been removed, the thumb-screw *h* may be loosened, the handle E removed, and the stem B slid off the operating-rod C, leaving the parts as shown in Fig. 2. The bristle-head A may then be slid off the operating-rod C and thrown away. The parts, which are in the main preferably of metal, may then be thoroughly cleansed and rendered antiseptic and a new bristle-head thereupon put in place, or, if desired, the user need not insert a bristle-head until there is another occasion to use the instrument. The parts of the instrument are normally held in the position indicated in Fig. 1 by reason of the normal tendency of the bristles to assume the position shown.

Obviously the particular construction which has been shown and described in detail may vary in many respects without departing from the spirit and scope of my invention.

I claim—

1. A bristle-head for a bristle-probang comprising, a plurality of bristles arranged substantially in line and secured at their ends, and a bushing within the end of said bristle-head.

2. In a bristle-probang, a hollow stem, an

operating-rod passing through and cooperating with said stem, and a bristle-head detachably held by said stem and operating-rod.

3. In a bristle-probang, a flexible hollow stem, an operating-rod passing through and cooperating with said stem, and a bristle-head detachably held by said stem and operating-rod.

4. In a bristle-probang, a flexible hollow stem, an operating-rod cooperating with said stem, a bristle-head detachably held at opposite ends by said stem and operating-rod, an operating-handle at the rear end of said tubular stem, and an operating-handle at the rear of said operating-rod, and means for securing together the last-named operating-handle and said operating-rod.

5. A dismemberable bristle-probang comprising a bristle-head having bushings at each end thereof, an operating-rod passing through said bushings, a socket carried by said operating-rod and detachably engaging one end of said bristle-head, a tubular stem surrounding a portion of said operating-rod and carrying a socket at one end to detachably engage the other end of said bristle-head, and means whereby said operating-rod may be moved within said tubular stem.

6. A dismemberable bristle-probang consisting in the combination and of the following parts, a bristle-head having metallic tubes inserted in the ends to form bushings for the dilating-rod, a dilating-rod having a thimble at the head end thereof to receive and detachably hold one end of the head, a tubular flexible stem made from spring-wire wound spirally, and having a thimble at one end to receive and detachably hold the other end of the head, a tubular handle fixed to the other end of the flexible stem and a socket-piece provided with a set-screw to detachably hold the dilating-rod in the flexible stem and the ends of the bristle-head in the thimbles, substantially as specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

RICHARD P. McCULLY.

Witnesses:

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