(No Model.)

F. A. STOHLMANN & E. PFARRE.

Surgical Dilator or Tent.

No. 241,569. Patented May 17, 1881.

Fig. 1.

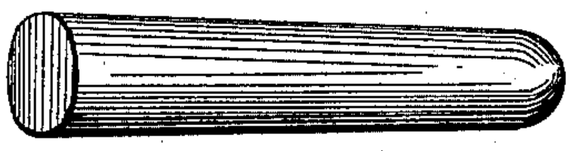
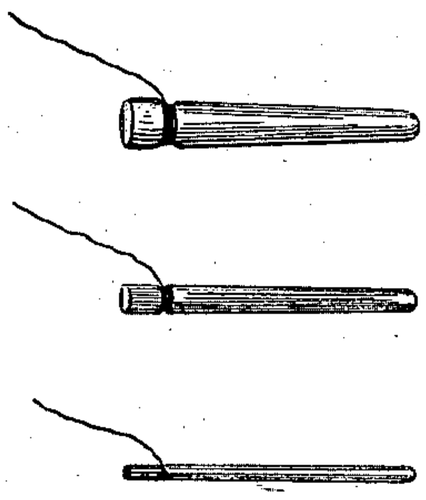


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK A. STOHLMANN AND EDWARD PFARRE, OF BROOKLYN, N. Y.

SURGICAL DILATOR OR TENT.

SPECIFICATION forming part of Letters Patent No. 241,569, dated May 17, 1881.

Application filed April 11, 1881. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK A. STOHLMANN and EDWARD PFARRE, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Surgical Instruments, of which the following is a specification.

Said improvement relates to a process of preparing the fibers of the root of *Nyssa aquatica* or the tupelo-tree for the purpose of forming them into surgical instruments known by gynecologists by the name of "tents," said tents being used for the purpose of dilatation of the cervix uteri in the treatment of uterine disease and other purposes.

Tents made of sponge and sea-tangle have been in general use for some time, and, although largely employed, are open to many objections, those made of sponge being irritating to the tissues, sea-tangle being of very slow dilating power.

The new agent, tupelo, was discovered by Dr. G. E. Sussdorff about three or four years ago, who at that time published its history. At his suggestion we undertook a series of experiments, which have resulted in the perfection of the instrument which bears the name of "Sussdorff tupelo tent" or dilators, under which appellation we have introduced them to the medical profession. The first of these tents we made by sawing the roots into square pieces and cutting them by knives, then turning them into smooth cylinders on the lathe. These cylinders we then subjected to pressure under a powerful screw-press, laying them between swage-like dies made of metal, each half of the mold being provided with a semicircular groove. About twelve to fifteen different-sized molds were required. The tents so made were found not to have as much dilating power as desirable. We next forced the tupelo cylinders through a series of tapering holes in a steel plate, similar to the draw-plates used by wire-makers. This, we found, destroyed the vitality of the fiber (more or less) by telescoping or pushing one into the other. We then cut cylinders of the material longer than required for the tent, pointed or tapered one end, and drew them through tapering holes in the plate. We found, on trial, that the fibers had become more or less broken and torn. Although the instruments so made had some dilating power, and were even better than the sponge or sea-weed tents, so far our experiments had not resulted to our entire satisfaction.

Our improved process, next described, has been adopted to avoid the difficulties heretofore experienced.

With our new process we have succeeded in manufacturing an entirely reliable tent or dilator in a very inexpensive manner.

Our new process of manufacturing tupelo tents or dilators is as follows:

The roots of the tupelo-tree, when freshly cut, are saturated with water, and when compressed between the thumb and fingers have a spongy, elastic touch, immediately expanding when the pressure is taken off. In this condition, even if subjected to very great pressure so as to expel the water, they will not answer for tents, as they partially resume their original size as soon as the pressure is removed. We have discovered that if the wood is cut into suitable lengths and then subjected to dry heat for a length of time it will retain the shape, or nearly so, into which it is pressed. For this reason we, after cutting the wood into suitable lengths, subject it to dry heat until every trace of moisture has disappeared.

Instead of, as heretofore, sawing the wood into square pieces and then turning it in a lathe, we prefer to cut it at once into smooth cylinders out of the solid block by pressing it against a swiftly-rotating tubular knife of proper size.

The most important part of the process is the compression, which we accomplish as follows: We make use of metallic rollers, cylindrical in shape, and placed one above the other in suitable frames and geared together and revolved by hand or otherwise. Into the circumference of each of these rollers a series of correspondingly-sized semicircular grooves are cut to form a series of circular openings of gradually-diminishing diameters. When the rollers are in motion we pass the dry tupelo cylinders through between the rollers, commencing with the larger aperture, then the next smaller, and so on until no further compression takes place. This process does not

destroy the vitality of the fiber, but accomplishes equal compression from the circumference to the axis, especially if care is taken to pass them through between the rollers so as to squeeze first one side and then the other. We finish the instrument by rounding off the point and smoothing the surface with sand-paper. Lastly, a hole is drilled near one end and a silk thread tied to it. This finishes the operation.

This tent or dilator is preferably inclosed in paraffined paper to keep it dry, and when used it will be found to be smooth and soft, and to swell by the absorption of liquid, and to dilate the passage into which it is introduced.

In the drawings, Figure 1 represents a blank adapted to be compressed as aforesaid, and Fig. 2 represents some of the dilators as complete and ready for use.

We claim as our invention—

1. The method herein specified of preparing tupelo-root and making dilators or tents, consisting in drying the root thoroughly, cutting the same out into cylinders, rolling the same between grooved rollers to compress and condense the same, and then finishing the surface, substantially as specified.

2. As a new article of manufacture, a tent or dilator of tupelo-root, cut, compressed, and finished, as set forth.

Signed by us this 28th day of March, A. D. 1881.

FREDK. A. STOHLMANN.
EDWARD PFARRE.

Witnesses:
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