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1889

THE CENTENNIAL EDITION

WITH A NEW INTRODUCTION BY

James M. Edmonson, Ph.D. & F. Terry Hambrecht, M.D.

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GYNÆCOLOGICAL.

UTERINE. MALPOSITIONS, DISPLACEMENTS.

Stem Pessaries, Repositors, Hysterophores.

"*Intra-Uterine Pessary, Stem Pessary.*—An instrument for rectifying uterine displacements—as anteversion and retroversion—consisting of a stem which is introduced into the uterus; this stem is attached to a flattened ovoid bulb or ball, on which the cervix uteri rests. Connected with this is sometimes an external part or wire frame, which is attached, at one extremity, to a flat tubular portion, passing into the vagina, to be fixed to the intra-uterine portion. The wire frame is made to press upon the pubis, so that the pessary can be kept in position *in utero.*"—DUNGLISON.

FIG. 3527.—Stem Pessary.

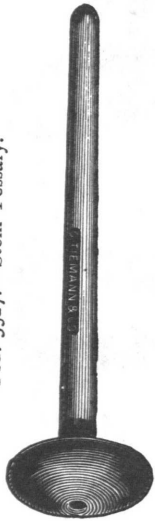


FIG. 3530.
Cole's Galvanic Pessary.



FIG. 3534.
Coxeter's Stem Pessary.

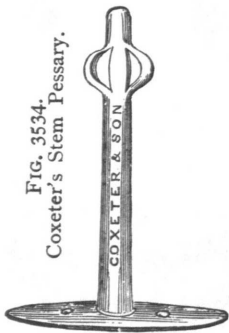


FIG. 3531.—Stem Pessaries.



FIG. 3535.—Peaslee's Stem Pessary.



FIG. 3528.
Conant's Intra-Uterine Stem Pessary.

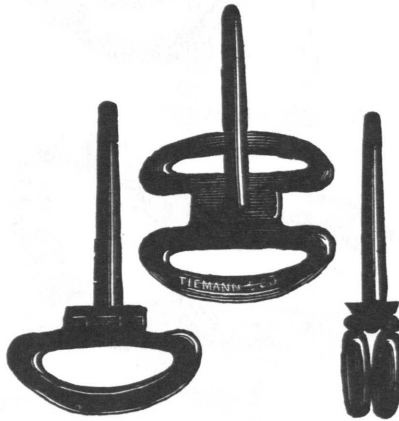


FIG. 3532.—Stem Pessary.



FIG. 3533.—Thomas' Galvanic Stem Pessary.

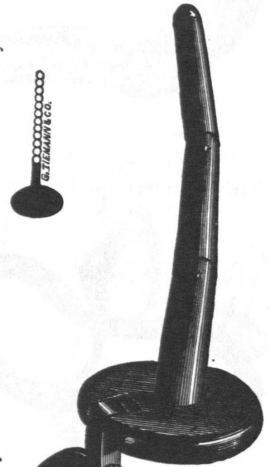


FIG. 3536.—Mossman's Intra-Uterine Stem Pessary.



FIG. 3529.—Ball's Stem Pessary.



GYNÆCOLOGICAL.

UTERINE. MALPOSITIONS, DISPLACEMENTS.

Supports, Stem Pessaries, Hysterophores.

FIG. 3537.—Sims' Stem Pessary.

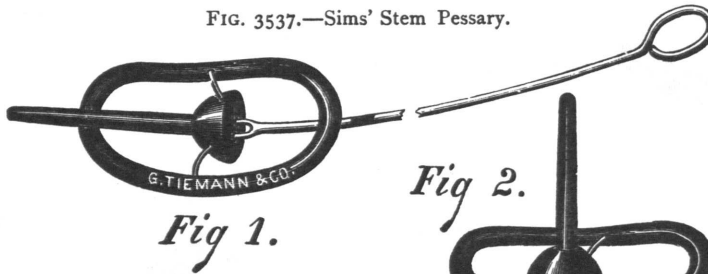


FIG. 3538.—Wilhoff's Stem Pessary.

FIG. 3539.—Donaldson's Flexion Pessary.

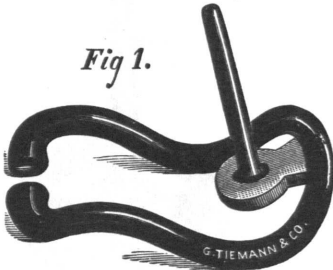


FIG. 3540.—Donaldson's Flexion Pessary, in position for insertion.

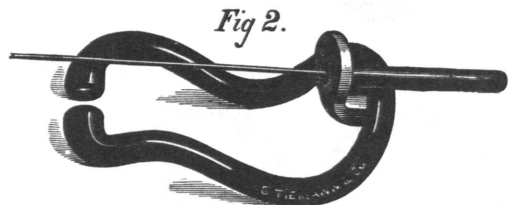


FIG. 3541.—Chambers' Stem Pessary.



FIG. 3542.—Edward's Stem Pessary.

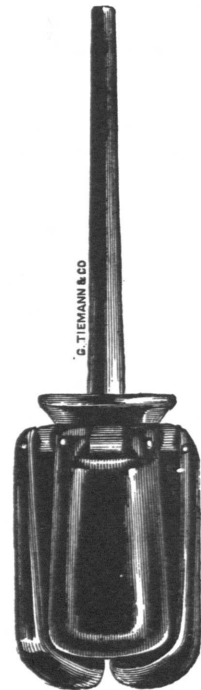


FIG. 3543.—Kinloch's Retroflexion Pessary.

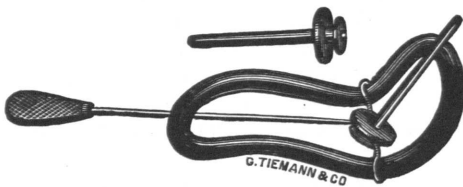


FIG. 3544. Kinloch's Retroflexion Pessary.



FIG. 3545.—Thomas' Intra-Uterine Stem Pessary, for Antelexion.



FIG. 3546. Weber's Pessary.



GYNÆCOLOGICAL.

UTERINE. MALPOSITIONS, DISPLACEMENTS.

FIG. 3547.—Wallace's Spring Tent.



Stem Pessaries and Repositors.

A straight spring is incarcerated in a sponge and compressed so as to retain the curved form as long as it is dry. When passed into the flexed uterus the sponge softens, the spring erects itself and straightens the uterus.

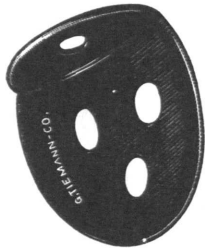
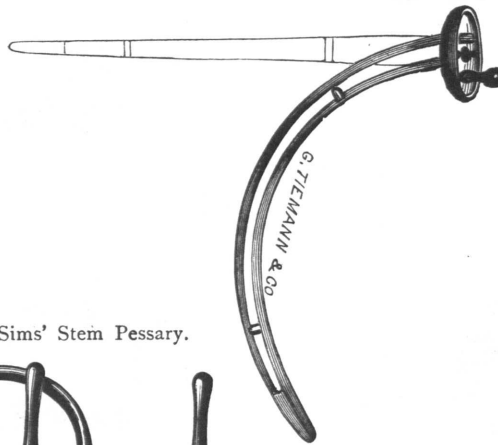
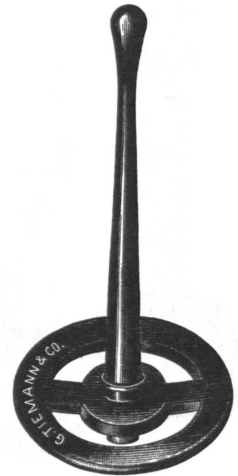
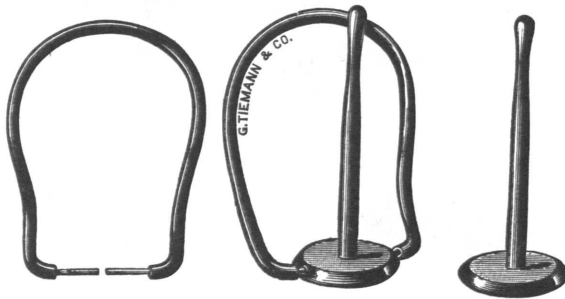
FIG. 3548.
Van de Warker's
Anteflexion Pessary.FIG. 3549.
Perry's Instrument for Flexion of the Uterus.FIG. 3550.
Van de Warker's
Retroflexion Pessary.

FIG. 3551.—H. Marion Sims' Stem Pessary.



VAN DE WARKER'S PESSARIES.—“An intra-uterine stem must be made with reference to a few principles which I believe to be unalterable. First, the stem must be shorter than the cavity of the uterus, and so small in diameter that neither the outer nor inner os is stretched or occluded. Secondly, it must be supported wholly from within the vagina.

Thirdly, the retaining part must be of such a size that it will not interfere with the action of the bladder or rectum, or with the comfort of the patient; and, lastly, the retaining part must be of such a form and so adjusted to the vagina that it will not restrict the normal uterine mobility. In order to comply with the latter condition, we cannot limit ourselves to any one form of the retaining part. *Anteflexion*, like all forward displacements of the uterus, is the most difficult to replace and retain comfortably in position. The vaginal part differs materially from that of the retroflexion form. Fig. 3548 shows the form of the anteflexion flange. The *retroflexion flange* has large fenestra cut out of the solid portion, which gives the flange superior retaining power and affords ready exit to the secretions of the cervix. This form generally converts a retroflexion into a retroversion, but, after years of work with this instrument, I have come to the conclusion that this is better than to further complicate the instrument by attachments to correct the resulting version. It will happen now and then that the flange and stem will get displaced. The remedy is a very simple one—replace them, remembering that if a stem is so securely held in place by the vaginal attachment that it cannot become displaced, it is probably too good a ‘fit,’ and the patient cannot wear it.”—*Philadelphia Medical News*, February 21, 1885. Ely Van de Warker, M. D.

“Dr. H. M. Sims exhibits a hard rubber pessary of his own devising, adapted to cases of retroversion in which the cervix uteri is very short. It consists of a straight stem, to the base of which is attached a ring having the shape of the posterior half of a Hodge pessary. At the points where the ends of the rings join the base of the stem are two peculiar bends, or shoulders, of such a shape that when a downward pressure is exerted upon the stem, the ring is tilted upwards. The instrument is adjusted by exposing the cervix through a Sims' speculum, pulling the anterior lip downwards and forwards, and at the same time slipping the end of the stem into the os. As soon as the weight of the uterus rests upon the disk forming the base of the stem, the ring is thrown forwards against the symphysis, where it takes its *point d'appui*, pressing the cervix backwards, and thus everting the uterus.”—“Transactions of the Obstetrical Society of New York.” Stated meeting, April 6th, 1886.

GYNAECOLOGICAL.

UTERINE FIXATORS.

Tenacula, Tenaculum Forceps, for Holding the Uterus Steady during Operations.

FIG. 3552.—Tenaculum for Nott's Speculum.



FIG. 3553.—Hanks' Tenaculum Forceps.

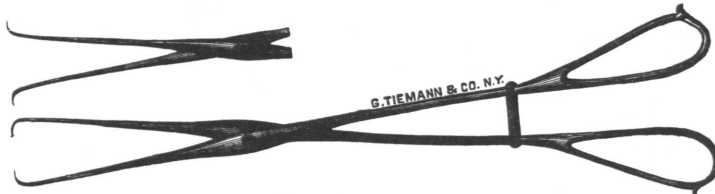


FIG. 3554.—Wylie's Tenaculum Forceps.

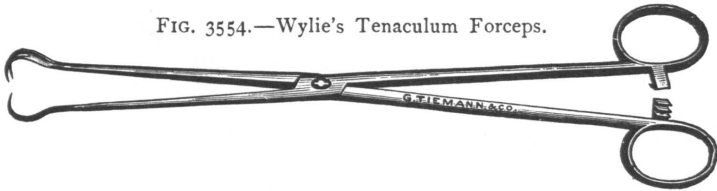


FIG. 3556. Byrne's Double Tenaculum Forceps.

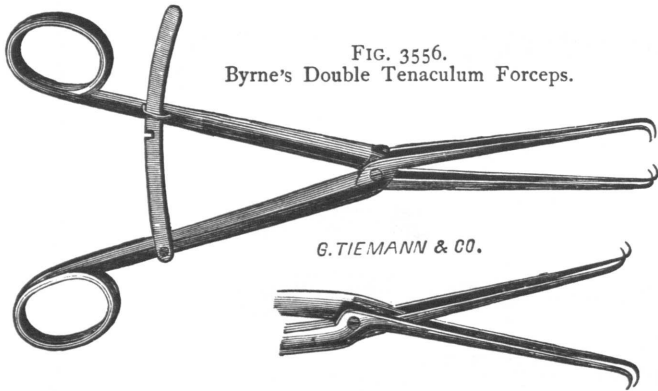


FIG. 3557.—Wooster's Tenaculum Forceps.

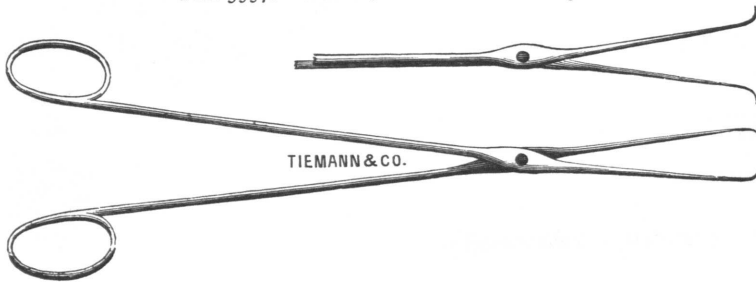


FIG. 3558.—Emmet's Double Tenaculum.

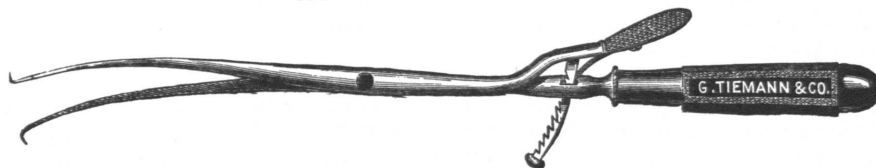
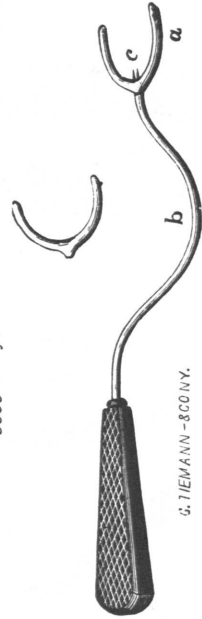
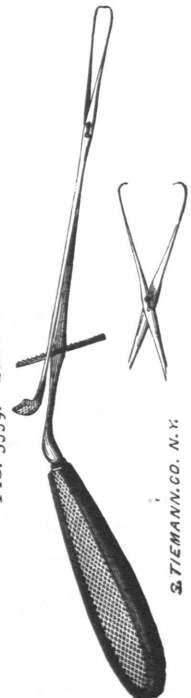


FIG. 3555.—Byrne's Uterine Fixator.



See "TENACULA," page 449.
Useful for seizing and holding steady the cervix uteri for examination, and during operations through the speculum.

FIG. 3559.—Sims' Double Tenaculum.

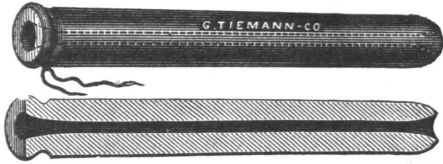


GYNÆCOLOGICAL.

UTERINE DILATORS.

For Gradual Dilatation of the Uterine Canal.

FIG. 3560. Sussdorff's Tupelo Dilators (Hollow).



SUSSDORFF'S TUPELO (NYSSA) DILATORS, for Dilatation of the Os and Cervix Uteri. Process of manufacture patented, May 17, 1882, by George Tiemann & Co.

FIG. 3561. Tupelo Dilators (Solid).

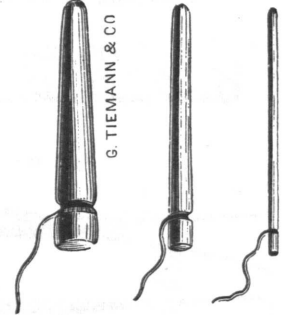


FIG. 3562.—Wallace's Spring Tent.



FIG. 3563.—Sponge Tent Expeller.



FIG. 3564.—Sponge Tent Expeller.

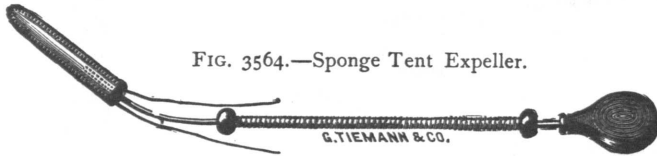
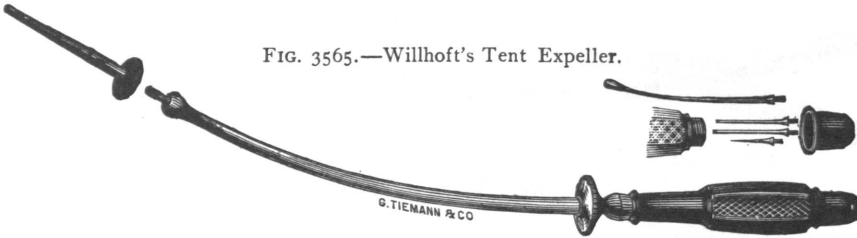


FIG. 3565.—Willhoft's Tent Expeller.



SPONGE TENT EXPELLER.—When the tent is *in situ* the stilet is withdrawn and the unsupported tent is left in the uterine canal.

FIG. 3566.—Campbell's Intra-Uterine Stem.

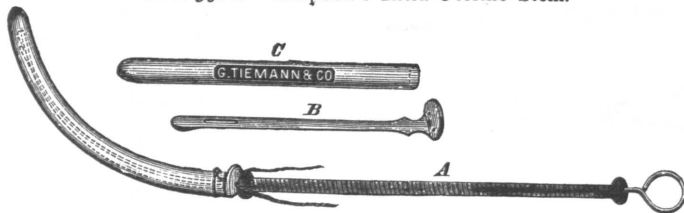


FIG. 3567.—Sponge Tent Expeller.



"Gradual dilatation is accomplished by porous substances, shaped to fit the uterine canal, which gradually swell through imbibition of the fluids from the surrounding tissues. These are called uterine tents. Tents are made of sponge, laminaria, tupelo, slippery elm bark, &c.

"Sussdorff's tupelo (tent) dilator absorbs fluids rapidly and expands to at least double its compressed size; when expanded its surface is, although not perfectly smooth, not sufficiently rough to injure the mucous membrane during its removal; it does not favor decomposition of fluids—indeed, I have never found a tupelo tent to possess the slightest offensive odor after having been left in utero over twelve hours."—"Minor Surgical Gynæcology." Mundé.

GYNÆCOLOGICAL.

UTERINE DILATORS.

For Rapid Dilatation of the Uterine Canal.

FIG. 3568.—Simpson's Uterine Dilators.

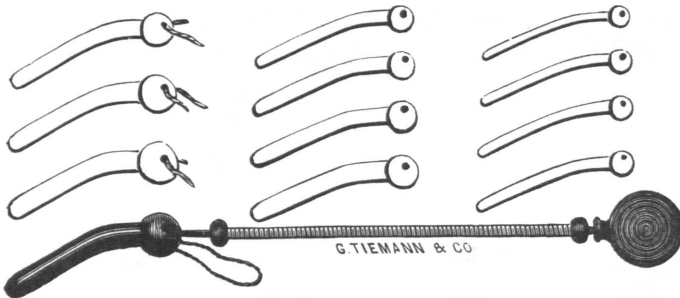


FIG. 3569.—Peaslee's Uterine Dilators.

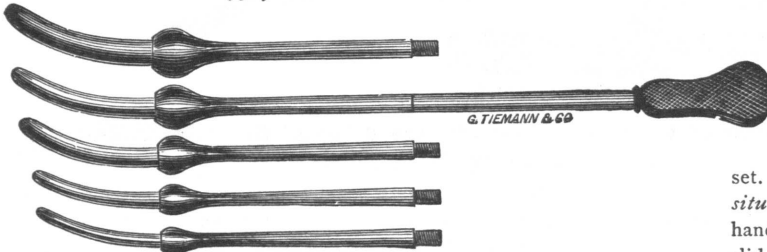
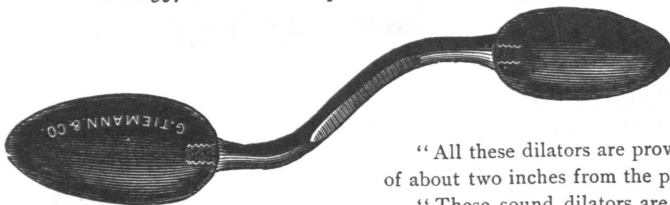


FIG. 3570.—Hank's Uterine Dilator.



FIG. 3571.—Hank's Rapid Uterine Dilators, set of ten.



"There are two methods of dilating the uterine canal without knife or scissors, and they differ simply in the degree of rapidity with which the dilatation is accomplished.

"Dilatation is effected by means of graduated sound-like instruments, which are forced through the uterine canal one after the other; or by steel two- or three-branched instruments, which are introduced closed, and then expanded by an external mechanism; or by tubes or bags of rubber which are inserted in a collapsed condition, and are then inflated with air or water; or by the finger.

"Graduated Sounds.—

The dilators of Simpson (Fig. 3568) are twelve in a set. They were designed to be left *in situ* for an hour or more, and the handle is therefore provided with a slide by which the dilator can be detached when it has been introduced. A tampon keeps it in place, and it is withdrawn by the string attached to it.

"In 1870 the late Dr. E. R. Peaslee devised a series of graduated metal sounds, which are arranged to screw into one handle (Fig. 3569). There are either three or five in a set. Later these are also made of hard rubber.

"Dr. Horace T. Hanks placed two dilators of different sizes on one handle, making eight sizes to constitute a set.* (Fig. 3570.)

"All these dilators are provided with a circular enlargement at a distance of about two inches from the point, to prevent their too deep insertion.

"These sound dilators are introduced through the speculum, the cervix is seized with a stout tenaculum (best a double tenaculum), and the uterus is slightly drawn down and straightened. The direction of the uterine canal being ascertained by the sound or probe, the smallest sized dilator is inserted into the os and forced upward toward the internal os, the cervix being steadily held by the tenaculum. As soon as the whole dilator has been introduced, it is allowed to remain a few moments, then withdrawn and the next size forced in, and so on until the desired degree or the limit of dilatation has been reached. The last dilator may be allowed to remain in utero for fifteen minutes or longer, or, if only temporary dilatation is desired, may be removed at once when the desired degree has been accomplished."—"Minor Surgical Gynæcology." Mundé. 1885.

"For the rapid dilatation of an already partly dilated cervical canal, as at the beginning of a miscarriage, or in rigidity of the external os during labor term, or for the removal of intra-uterine polypi and fibroids, Dr. Hanks has had constructed a series of much larger olive-shaped dilators of hard rubber (Fig. 3571). They are designed to take the place of elastic rubber obstetric dilators, which often burst and are liable to spoil. In using these dilators it is absolutely necessary to have a strong tenaculum-forceps in order to firmly fix the cervix." (See Fig. 3553.)

* The set may increase in number *ad libitum*.—G. T. & Co.

GYNÆCOLOGICAL.

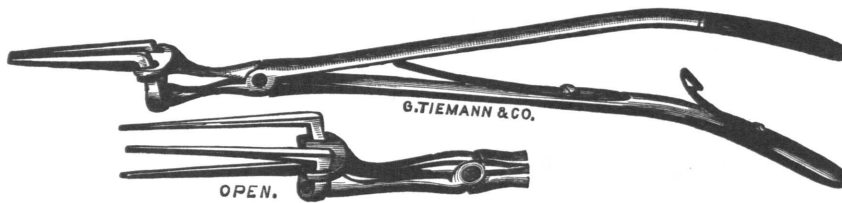
UTERINE DILATORS.

Specula for Rapid Dilatation and Ocular Examination.

FIG. 3572.—Tiemann & Co.'s Intra-Uterine Speculum.



FIG. 3573.—Elliott's Intra-Uterine Speculum.



Forcible and Rapid Dilatation of the Cervix Uteri; for the Relief of Stricture, Conical Os, Flexions, Sterility, &c.

“Dr. Ball’s description of the operation is as follows: First, introduce a metal bougie as large as the canal will admit, followed in rapid succession by others of larger size, until a No. 7 is reached, which is the size of Ball’s dilator; then introduce the dilator and stretch the cervix in every direction until it is sufficiently enlarged to admit a No. 20 bougie, or more if necessary; then introduce a gum elastic uterine pessary of about that size and retain it in position by a stem secured outside of the vulva for about eight days, during which time it has done its work and is ready for removal. During this time keep the patient perfectly quiet upon her back.

“By this operation all adhesions are broken and a radical change in the nutrition of the whole organ takes place, all abnormal sensibility and pain passing away.”—H. H. Tinker, M. D., in *New York Medical Times*, April, 1882.

FIG. 3574.—Ball’s Original Dilator.

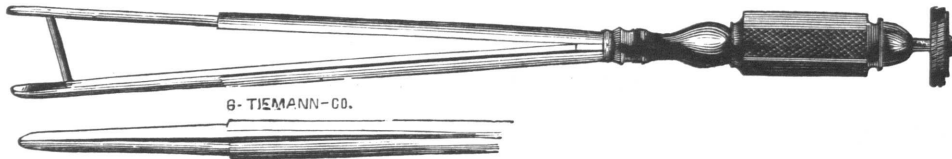


FIG. 3575.—Ball’s Modified Uterine Dilator.

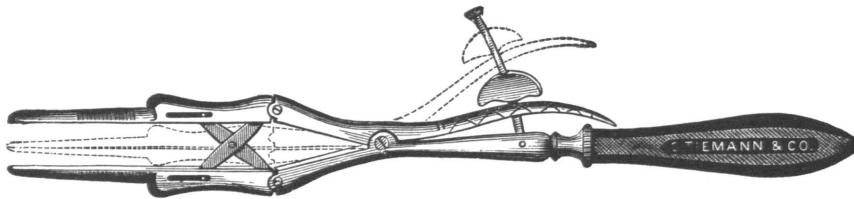


FIG. 3576.—Ball’s Stem Pessary.



See “BALL’S SPECULUM,”
Fig. 3185.

FIG. 3577.—Ball’s Stem Pessary.



GYNÆCOLOGICAL.

UTERINE DILATORS.

For Rapid Dilatation of the Uterine Canal.

FIG. 3578.—Ady's Uterine Dilator.

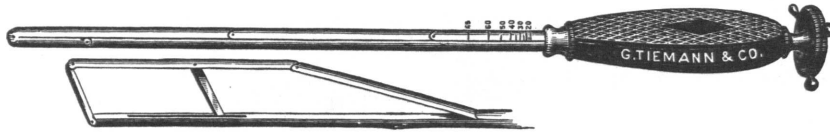


FIG. 3579.—Simpson's Uterine Dilator.

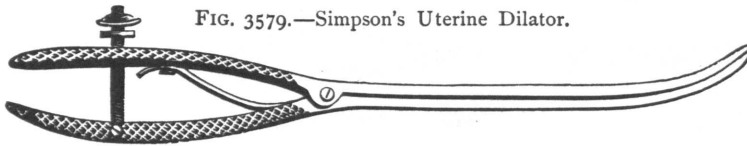


FIG. 3580.—Thomas' Uterine Dilator.

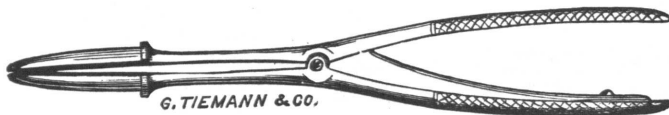


FIG. 3581.—Nott's Uterine Dilator.

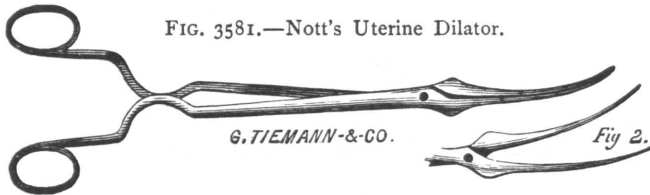


FIG. 3583.—Wessinger's Uterine Dilator.



FIG. 3584.—White's Uterine Dilator.



FIG. 3585.—Tiemann & Co.'s Intra-Uterine Speculum.

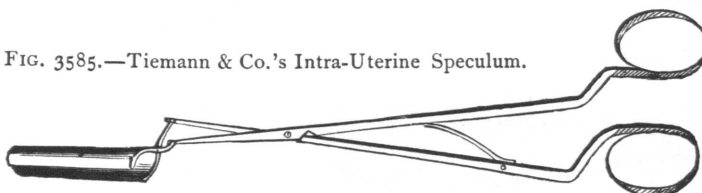


FIG. 3582.—Hunter's Uterine Dilator.

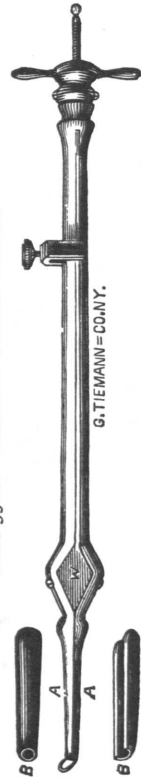
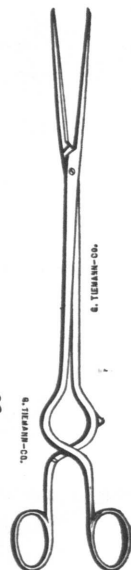


FIG. 3586.—Atlee's Uterine Dilator.



GYNÆCOLOGICAL.

UTERINE DILATORS.

For Rapid Dilatation of the Uterine Canal.

FIG. 3587.—Sims' Uterine Dilator.

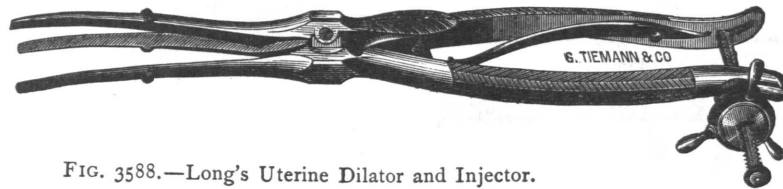


FIG. 3588.—Long's Uterine Dilator and Injector.

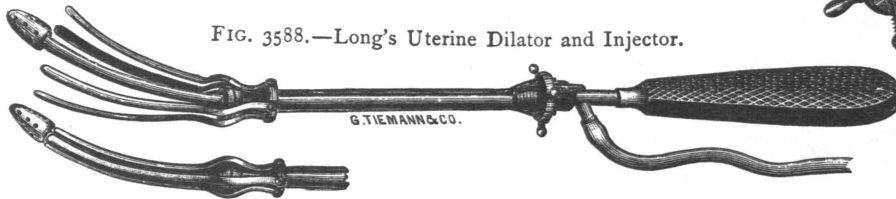


FIG. 3589.—Ellinger's Uterine Dilator.

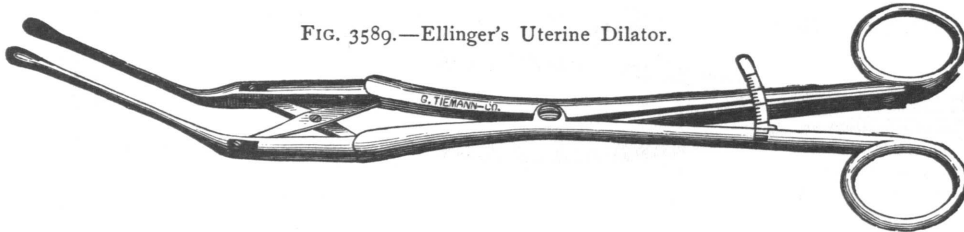


FIG. 3590.—Miller's Uterine Dilator.

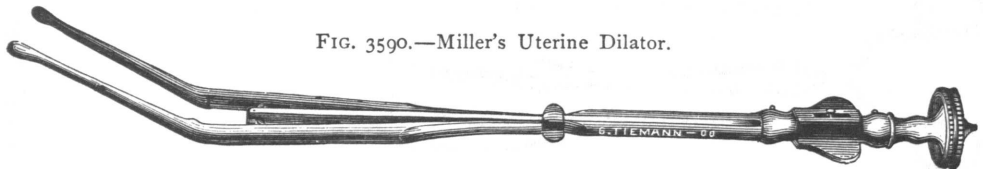


FIG. 3591.—Nelson's Uterine Dilator.

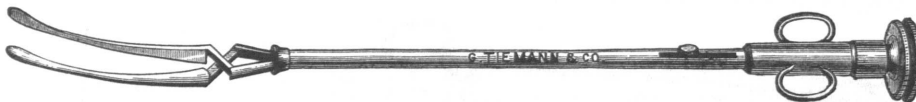


FIG. 3592.—Howard's Uterine Dilator.

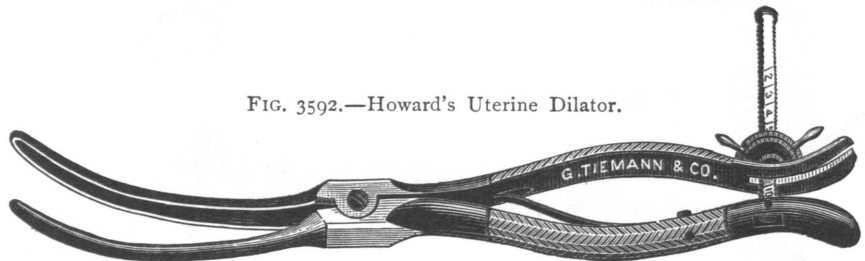
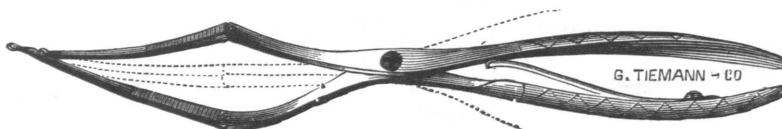


FIG. 3593.—Vanderveer's Uterine Dilator.



GYNÆCOLOGICAL.

UTERINE DILATORS.

For Rapid Dilatation of the Uterine Canal.

FIG. 3594.—Palmer's Uterine Dilator.

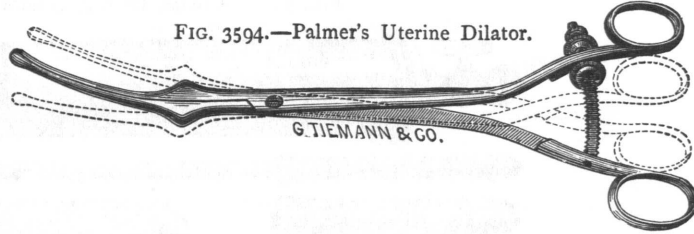


FIG. 3595.—Ellinger's Uterine Dilator.

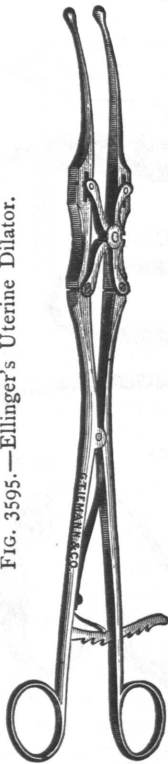


FIG. 3596.—Goodell's Uterine Dilator.

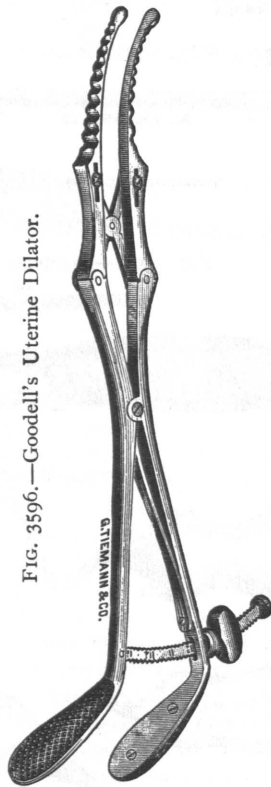


FIG. 3597.—McLean's Dilator and Introducer.

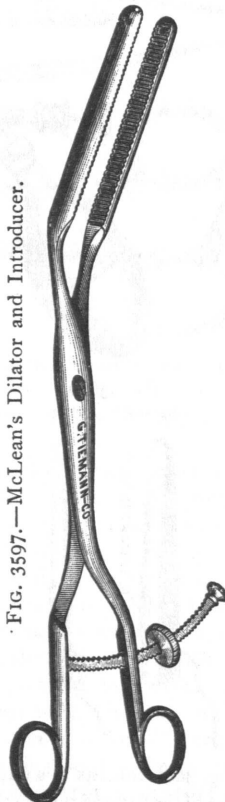
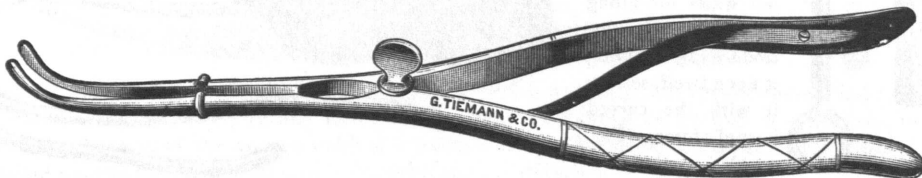


FIG. 3598.—Palmer's Uterine Dilator (latest).



Dr. Goodell recommends two dilators of different sizes with parallel action of their blades. The smaller of these has slender blades, and it pilots the way for the other, which is more powerful. He had the beaks of these dilators changed from an obtuse angle to a slight curve, so that it can be reversed within the womb. The light instrument needs only a ratchet in the handles, but the stronger one should have a screw with which to bring the handles together. Lest the beak should hit the fundus uteri, and seriously injure it when the instrument is opened, the blades are made no longer than two inches, and are armed with a shoulder which prevents further penetration.

FIG. 3599.—Wylie's Uterine Dilator.



GYNÆCOLOGICAL.

UTERINE DILATORS.

For Rapid Dilatation of the Uterine Canal.

FIG. 3600.—Emmett's Sponge Dilator.

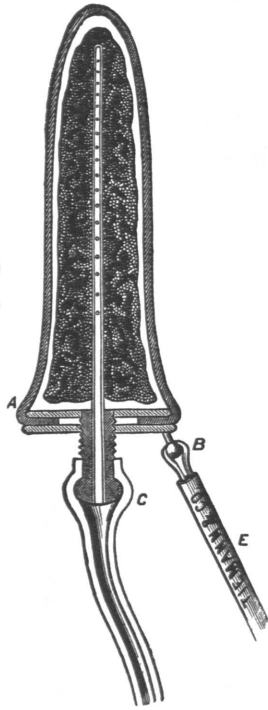


FIG. 3607.—Cowan's Uterine Dilator.

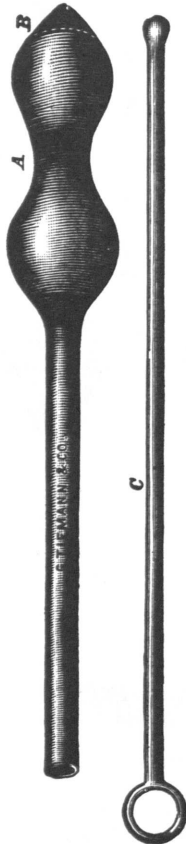


FIG. 3601.—Climax Uterine Dilator.

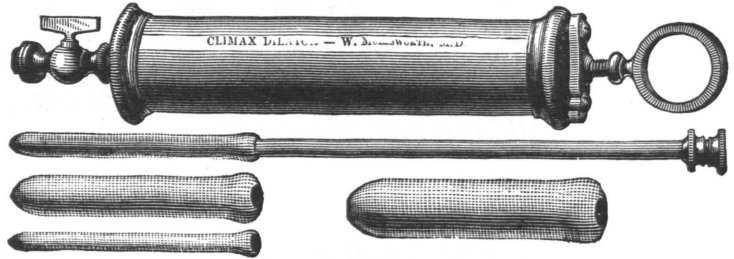


FIG. 3602.—Ohr's Dilator and Corrector.



FIG. 3603.—Emmett's Water Dilator.

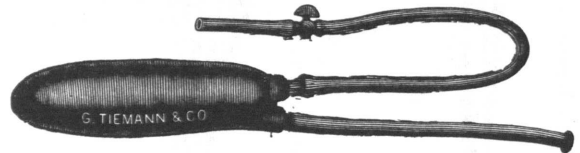


FIG. 3604.
Sponge Tents.

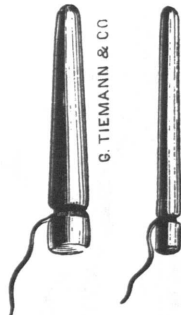


FIG. 3605.—Barnes' Dilators.

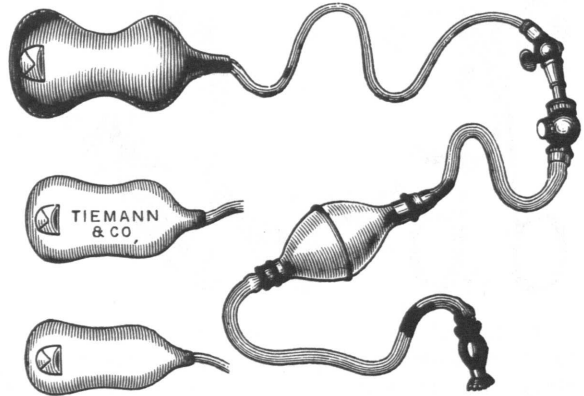


FIG. 3606.—McLean's Modification of Barnes' Dilator.

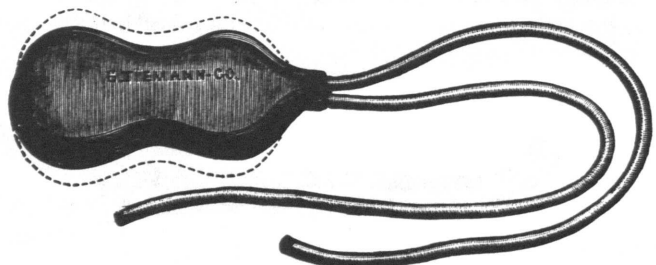


Fig. 3606 consists in a duplication of the bag and tube so that one side may be distended independently of the other, and requires but one insertion; the bag has no extra pocket on the outside. There need be only two sizes used, and Dr. McLean always uses carbolized hot water for filling them. The bag is introduced by doubling it upon itself, seizing it with the curved jaws of a forceps (Fig. 3597).

GYNÆCOLOGICAL.

UTERINE, STENOSIS, HYSTEROTOMY, TRACHELOTOMY.

Hysterotomes, Metrotomes, Uterotomes, Scissors, for Incising the Cervical Canal.

FIG. 3609.—Simpson's Hysterotome or Metrotome.

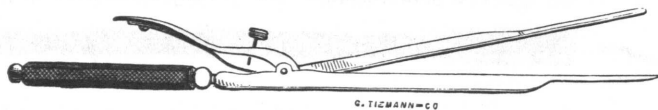


FIG. 3610.—Thomas' Uterine Double Scissors.

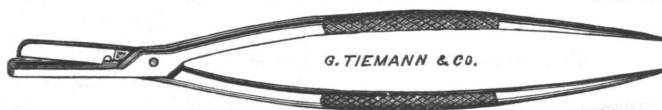


FIG. 3611.—Bozeman's Angular Scissors.

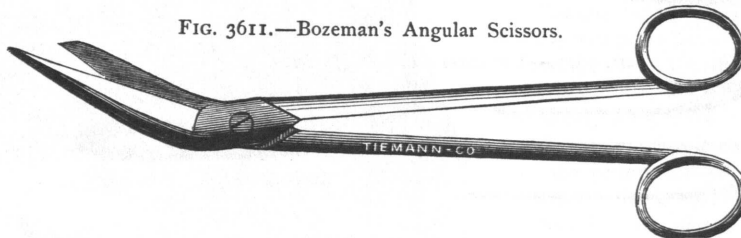


FIG. 3612.—Stohlmann's Hysterotome.

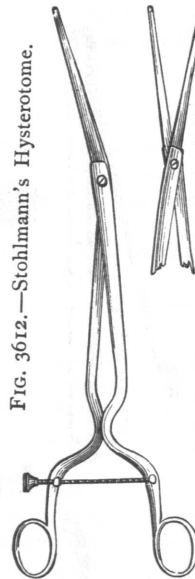


Fig. 3608.—White's Hysterotome.



"The hysterotome is an instrument for incising the interior of the cervical canal. It is occasionally needed in stenosis of the cervix; its use must, in these cases, be followed by the daily introduction of the bougie smeared with vasiline, to prevent the adhesion of the cut surfaces and the consequent diminution of the size of the cervical canal."—"Diseases of Woman." Eaton. 1880.

"In 1843 Professor Simpson, of Edinburgh, advocated and practiced cutting through the walls of the cervix and thus gaining space without dilatation. He employed a single-bladed hysterotome, represented in Fig. 3609.

"This instrument is introduced without a speculum, the patient lying on her left side. The hysterotome, with its blade concealed, is guided by the index finger up to, and, if necessary, as is very rarely the case, through the os internum. If the cervical canal be too small to admit it, previous dilatation should be practiced by tents. Being placed in position the blade is thrown out, the force being increased as it is withdrawn to the os externum. By thus increasing the pressure upon the handle of the blade, the incision is made wider at the lower than at the upper part of the canal. The instrument is then reintroduced and the other side incised in a similar manner, and the surface is brushed over with the solution of persulphate of iron. To accomplish the incision of both sides simultaneously, a number of double hysterotomes have been devised with two blades instead of one. A very simple one, devised by Mr. Stohlmann of this city, is represented by Fig. 3612."—"Diseases of Women." Thomas.

"Sims' method consists of the following steps: 1st. The patient is placed on the left side and the speculum introduced; 2d. The uterus being fixed by a tenaculum, one wall of the cervix is cut with a pair of long scissors, one blade of which is passed into the cervical canal until the other reaches nearly to the vaginal junction. In like manner the other wall is incised.

"I have so often found the slit in the posterior wall heal up for a great part of its extent some months after the patient has passed out of observation, that I now resort to a different procedure. By means of the double scissors (Fig. 3610) I cut by one stroke a strip of tissue one-quarter of an inch wide, and extending from the os externum to the vaginal junction. Having removed this I then cut, by the same instrument, a small piece out of the upper extremity of the incision. Then a knife should be slid up, so as to make a straight and unobstructed canal."—THOMAS.

FIG. 3613.—Peaslee's Uterotome.



"*Superficial Trachelotomy.* (Peaslee's Operation.)—For relieving sterility, Dr. Peaslee devised and practiced an operation, which consist in merely cutting through the external or internal os, or both, if constricted, to a depth sufficient to make the canal of the average width of a parous woman. According to Peaslee, if the external os does not easily admit a sound one-sixth of an inch in diameter, there is stenosis as to conception.

GYNÆCOLOGICAL.

UTERINE PLETHORA.

Scarifying, Cupping and Leeching.

FIG. 3614.—Buttles' Scarifyer and Tenaculum.



FIG. 3615.—Chapman's Uterine Scarificator.



FIG. 3616.—Probe Pointed Uterine Knife.

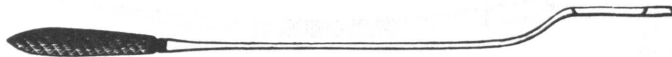


FIG. 3617.—Lenneker's Uterine Knives.

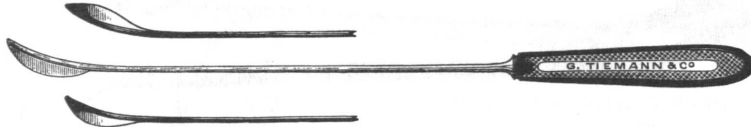


FIG. 3618.—Skene's Sound and Scarificator.

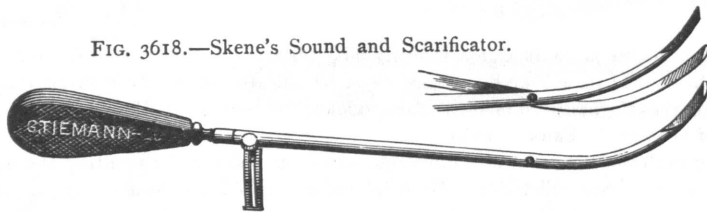


FIG. 3619.—Thomas' Dry Cupper.

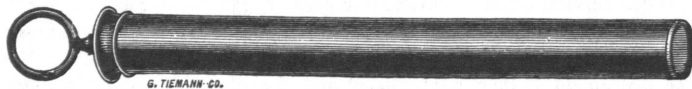


FIG. 3620.—Reese's Uterine Leech and Aspirator.

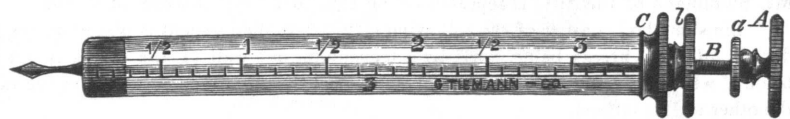


FIG. 3621.—Chapman's Uterine Scarificator.

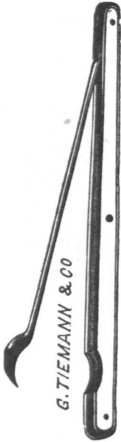


FIG. 3622.—Storer's Uterine Scarificator.

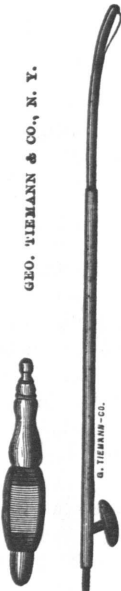


FIG. 3623.—Buttles' Scarificator.



FIG. 3624.—Uterine Knife.



“Should scarification be employed, a very sharp and narrow bistoury or tenotomy knife may be introduced within the os and drawn outward towards the vaginal edges of the cervix, so as to sever all the superficial vessels over which it passes. I would recommend, in preference to this plan, the use of Dr. Buttles' spear-pointed scarificator; this, when plunged about one-sixteenth of an inch into the cervix and given a rapid half-turn before removal, causes a very free flow of blood should congestion exist. If a sufficient flow does not occur from three or four of its punctures, this can be caused by *dry cupping* the cervix by a very simple instrument, made of vulcanite, which is introduced through the speculum, the medium size of the cylindrical variety being large enough to admit it. Being passed up to the cervix, the piston is retracted, and, so perfect is the working of these instruments, when constructed of vulcanite, that a perfect vacuum is produced. By using this for a few minutes, and then puncturing with Buttles' spear, from two to four ounces of blood may readily be drawn. The exhauster should not be used after puncturing, but before. All that will be necessary afterwards will be to pass a moist sponge, attached to a sponge-holder, over the punctured surface, so as to prevent clotting in the mouths of the bleeding vessels.”—“Diseases of Women.” Thomas.

See ARTIFICIAL LEECHES, page 116.

GYNÆCOLOGICAL.

UTERINE. TUMORS, POLYPI.

Galvanism.

“By stimulating the trophic nerves to greater activity, the constant galvanic current has caused retrogressive changes in these tumors. I look upon this agent as one yet in its infancy, and as one from which much may in the future be expected in the treatment of fibroid tumors.”—“Lessons in Gynæcology.” Page 300. Goodell.

The merits of this battery are *constancy, durability, portability and general convenience.*

Constancy.—The strength of the current is absolutely constant. The battery is not weakened by work. The power to furnish the required quantity of electricity is stored up in the stable and insoluble compound, chloride of silver, and so long as the smallest portion of this remains upon the silver plate the chemical relations of the elements remain unchanged, and the electro-motive force of the battery is undiminished.

The quantity and quality of the current which the battery will give after six months' or a year's service, in fact up to the time when the metallic elements are entirely reduced, are found to be the same as when the battery is first used.

Durability.—It is found by actual experience that the battery will do all the work of an active practitioner, for at least two years, without requiring a renewal of the elements. The battery does not waste when not used, as the zinc and chloride of silver are insoluble in the fluid, and remain untouched by it so long as the battery remains on open circuit. When the battery is put to work and a current of electricity is drawn from it, certain regular and well defined chemical changes take place which are in exact proportion to the work done.

The connections of the battery are entirely free from corrosion. The silver wires which are attached directly to the zinc and silver plates in the cells are passed up through the caps and plate, and fastened down under nuts which screw upon the connecting studs. There are no connections underneath the plates. The nuts and ends of the silver wires are on the top of the plate, easy of access, and entirely removed from moisture or the fluid of the cells.

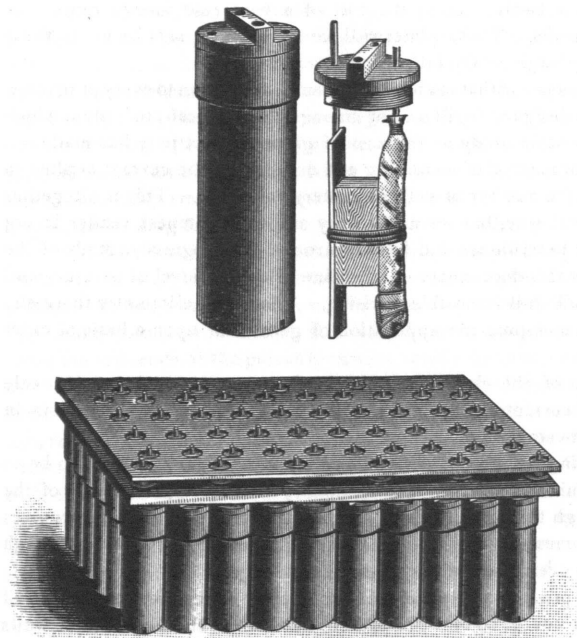
Portability.—The battery is the most portable in every respect—the lightest, the smallest, the neatest and most convenient known for medical purposes, or for any other purpose for which such a galvanic apparatus may be used. A fifty cell battery measures 7 x 7 x 12½ inches, and weighs, with electrodes, 13 pounds. The elements remain permanently in the fluid, which is non-corrosive, and the cells are hermetically sealed. The battery is shipped with perfect safety by express, ready charged with the fluid. The battery can be packed in a trunk for traveling, or carried in any of the ordinary ways in which baggage is transported, without danger of spilling or damage.

Convenience.—To use the battery it is necessary only to open the cover, connect the electrodes, and

FIG. 3625.—Barrett's Chloride of Silver Battery.



FIG. 3626.—Elements.

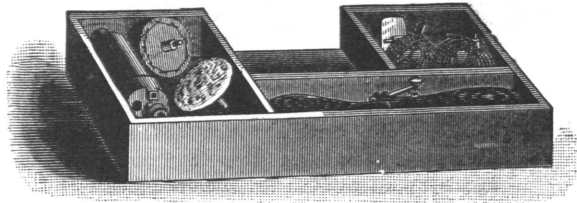


GYNÆCOLOGICAL.

UTERINE. TUMORS, POLYPI.

Galvanism. (Continued.)

FIG. 3627.—Electrodes.



select the number of cells desired. A current reversing switch is provided in the cover of the box. A handsome tray of electrodes is a part of each complete battery. The elements are permanently in the fluid, and do not require to be raised and lowered as in acid batteries. The fluid does not need to be changed during the life of the metallic elements, that is for two years or more of regular medical work. There is no gas or odor about the battery, either when in use or idle. The zincs do not require amalgama-

tion. The parts and connections do not corrode, nor need repairs of any sort. In short, all the annoyances which are so familiar to the users of bichromate and acid batteries are entirely absent from this form of battery.

We ship the battery, charged ready for immediate use, to any address.

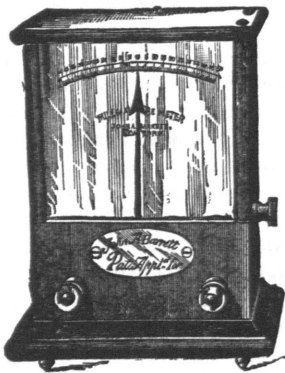
The Care and Use of the Battery.—In using the battery screw the electrodes to the handles, and attach the cords to the handles and the posts on the current reverser. The binding posts have no screws, but are in the form of split clips, into which the tips of the cords are pinched firmly, always securing good connections. Select the desired number of cells by means of the hollow plugs at the ends of the short cords and the numbered connecting studs. It is recommended to use the cells as uniformly as is convenient, that is, to count backward from the upper end of the battery a part of the time, instead of always using the cells at the lower end.

The only precaution to be observed is not to put the battery to extra and accidental work, by which the material is wasted without doing its regular work. Any moist or metallic article laid upon the connecting studs provides a path for the escape of the electricity between all the cells which are thus connected. Also, when the conducting cords are connected to the battery, care should be taken not to lay them together so that the current can pass directly through them, for a direct contact or, as it is called, a short circuit, of this sort gives the entire battery a large amount of wasteful and unprofitable work to do. By observing a little care in these respects, entire satisfaction with the battery is guaranteed.

Renewal of Battery.—After the elements have furnished the full amount of the electricity stored up in them, the original composition of silver is reduced to a solid plate of pure metallic silver. This applies towards the cost of new plates. The reduced plates may be readily removed and new plates substituted. The cost of a new silver plate is thirty-two cents; the value of the worn-out silver plate is twelve cents; the cost of a new zinc is two cents; the actual cost of a pair of new plates is thus twenty-two cents. These plates will be supplied in sets by us on these terms. If the batteries are sent to us we will make no charge for the labor of renewing.

On these terms this battery is very economical, our experience with it enables us to assure satisfaction to every purchaser.

FIG. 3628.
Absolute-Current Meter.



This instrument is designed to fill a want amongst the medical profession, which a closer and more scientific study of the uses of galvanic electricity has made apparent. The prevalent method of measuring and designating the current applied to the body has been by the number of cells of battery employed. This is altogether a simple and convenient way, but its uncertainty and indefiniteness render it not only misleading to the practitioner, but have obstructed the progressive study of the subject, and have kept this department of medicine below the level of accuracy and general usefulness to which it is capable of rising. The meter eliminates these elements of uncertainty, and puts the application of galvanism upon a basis of exact measurement.

The instrument is of the class of absolute galvanometers, and has its scale graduated in units of current strength, so that the movements of the index show in these units the absolute strength of current passing through the meter.

For use in measuring the electricity in medical application, the meter is to be so connected in the circuit that all the current which passes through the body of the patient goes also through the meter. In this situation the deflection of the index gives figures, which are the measure of the current strength which flows freely through the body, after having overcome the obstacles to its passage.

With the use of this meter, then, it being desired to produce a given effect upon a nerve or muscle, the number of cells of battery and the sensations of the patient would not be so much consulted, but the required number of units of current strength, or milliamperes, would be employed. The milliampere is the fractional unit of current strength

GYNÆCOLOGICAL.

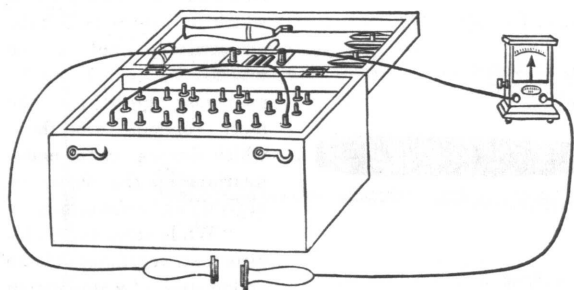
UTERINE. TUMORS, POPYPI.

Galvanism. (Continued.)

derived from the primary unit, the ampere. The milliamper is one-thousandth of an ampere. The unit by which the meter is graduated is thus a common and universal standard, and is neither arbitrary nor peculiar to the instrument itself. The number of milliamperes employed in most cases are from one to twenty, while, by the use of very large electrodes, thirty or forty milliamperes may be applied to some parts of the body.

The instrument is constructed upon established scientific principles, with several devices for increasing its convenience and serviceability. The movable magnet rests upon frictionless, knife-edge bearings, and is provided with

a vane or wing of mica which checks the otherwise oscillations of the needle. The screw on the right hand is for fixing the needle when the instrument is not in use. To set the needle free give the screw half a turn to the left, and push it down to the bottom of the slot in which it slides. To fix the needle, raise the screw upward as far as it will go, and turn it to the right. The needle should always be fixed when not in use, to prevent wearing and damage to the knife-edges. The screw near the bottom on the left is for levelling the instrument.



The diagram shows the connections for using the battery and meter.

“*Galvanization* is chiefly applicable to the discussion and removal of certain tumors, diseases of the bloodvessels, chronic glandular swellings, from inflammatory exudations in and around joints, serous effusions, the formation of issues, and the treatment of rebellious sinuses, fistules and ulcers.”

Electrolysis.

“The electrolytic treatment of tumors is more universally applicable, although it is far more tedious than other methods. The only instruments necessary are fine gold, or gilt steel, or other electrolysis needles and a sponge electrode. In performing the operation, the needle is passed into the interior of the growth, and attached to the negative pole of the battery, while the sponge electrode, previously wet with salt water, is connected with the positive pole and placed outside on the skin. When the tumor is small, one needle will suffice; but when it has acquired considerable volume, the *serre-fines* conductors of Dr. Althaus will prove serviceable, as it permits the introduction of several needles in any direction that may appear suitable. They should be insulated to within a short distance of their points with vulcanite, so that they may not affect the skin. Although the transmission of the current is not painful, yet, to prevent any unpleasant shock, the precaution should be taken of commencing with low power, and gradually increasing it to the full quantity that it is designed to employ. The duration of the application will vary according to the nature of the case, two or three minutes being sufficient for small tumors, while larger growths require from fifteen minutes to half an hour. The sittings may be repeated every second or third day. The number of cells, or the quantity of electricity employed, must be proportionate to the consistence of the tumor; solid goitres and scirrhus, for example, demanding from thirty to forty cells, while other growths will yield to a battery of fifteen pairs of elements.

“The best results from electrolysis have been obtained in vascular, sebaceous, and goitrous tumors, particularly the cystic variety; in chronic glandular tumors; in hydatid tumors of the liver; in hydrocele, and in stricture of the urethra. In the treatment of aneurism it has almost been abandoned; but it has proved successful in several cases of the cirroid form of the disease that have been subjected to it. Nævoid, venous, and small sebaceous tumors rarely resist the influence of the galvanic current, while the testimony of Dr. Althaus and Dr. Mackenzie is strongly in favor of it in the management of goitre, the former observer believing ‘that all cases of bronchocele, however large, may be cured by electrolysis, if the treatment be persevered in for a sufficient time.’ Dr. Fagge and Dr. Durham, some years ago, recorded eight cases of hydatid tumors of the liver, in seven of which, one remaining doubtful, a cure was promptly effected. Dr. Ruschenberger, of our navy, Scoutetten, and Pétrequin have cured obstinate hydroceles by introducing both electrodes into the sac; while other surgeons have successfully employed electrolysis, in similar instances, with the cathode only in the sac. The observations of Mallez and Tripiet, Brenner, and others, demonstrate that good results may occasionally be anticipated from it in the treatment of stricture of the urethra.”—“System of Surgery.” Gross. Vol. I. 1882.

See page 36, ELECTROLYSIS NEEDLES, &c.

GYNÆCOLOGICAL.

UTERINE TUMORS AND POLYPI.

Curettes for Removing Intra-Uterine Vegetations.

FIG. 3629.—Thomas' Curettes, three in one handle.

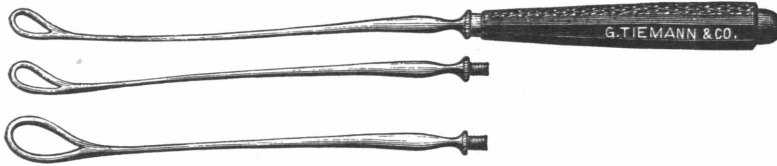


FIG. 3630.—Thomas' Curette.



FIG. 3631.—Sims' Curette.



FIG. 3632.—Sims' Curette.



FIG. 3633.—Hanks' Curette.



tic degeneration. Such a tumor may remain as an isolated mass within the uterine tissue, being limited in growth, or it may gradually involve the greater portion of the organ, attaining an almost unlimited increase in bulk. A fibrous tumor of the uterus has been termed a '*fibro-myoma*' by Virchow, a '*fibroid*' by Rockitansky, and a '*partial hyperplasia of the uterine parenchyma*' by Klebs. While small, such a growth may be designated a fibroid; when larger, and out of the pelvis, it may be called a fibrous tumor, or a fibrous growth of the uterus, without reference to the degree of development. As an exceptional circumstance, an accumulation of fluid sometimes occurs within certain portions of these growths, and then they are said to have undergone cystic degeneration. But should this process become so extensive as to involve the whole mass, leaving but little of the fibrous element, it is then termed a fibro-cystic tumor."—EMMET.

"*Fibrous Polypi*.—Nature often attempts to effect a radical cure of fibrous growths by giving them a polypoid shape, and experience has demonstrated that art can supply no safer or more effective method than that suggested by nature. The pedicle, or stalk, connecting the tumor to the uterus contains little else than small bloodvessels, a little connective tissue, and the lining membrane of the canal which the tumor carried before it. Owing to peculiarity of structure a polypus may have so short a pedicle as to remain in close contact with the surface from which it has been expelled. Under other circumstances the pedicle will be drawn out to a great length, so that the polyp may remain within the uterine canal, or be expelled by the uterus into the vagina without breaking its connection. I have seen an instance of a fibrous polypus, as large as a walnut, hanging out of the labia, and connected with the uterine wall by an attenuated pedicle. But, as a rule, the little artery by which it is nourished becomes at length so stretched that the supply of blood ceases, and the tumor then begins to slough in the vagina. This is a very frequent course of the efforts at a spontaneous cure, and the mass may come away as a whole or gradually disintegrate. * * *"—EMMET.

See page 514, ECRASEUR.

Vegetations of the Endometrium.

"The vascularity of the womb, its sexual and periodic congestions, the structural energy with which it is endowed, and the lesions to which it is subjected, make it peculiarly liable to be invaded by benign and by malignant growths. The most common are those which develop in the endometrium in the shape of vegetations."—GOODELL.

"While some gynecologists treat vegetations of the endometrium by application of powerful caustics, chiefly fuming nitric acid, the majority follow the lead of Sims and Thomas and remove the vegetations with the curette."—MUNDE.

Fibrous Growths of the Uterus.

"A fibrous growth has its origin within the muscular tissue of the uterus, and is generally of a dense structure, but not always, and it may or may not undergo cystic degeneration."

GYNÆCOLOGICAL.

UTERINE. TUMORS AND POLYPI.

Curettes for Removing Intra-Uterine Vegetations and Fibrous Growths of the Uterus.

FIG. 3634.—Emmet's Enucleator.

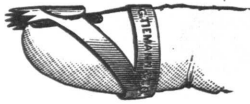


FIG. 3635.—Emmet's Curette Forceps.

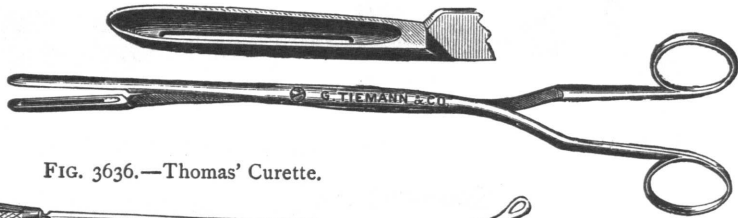


FIG. 3636.—Thomas' Curette.



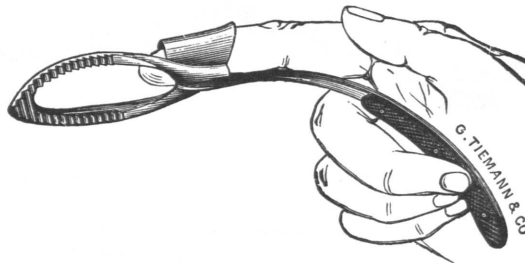
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FIG. 3637.—Skene's Curette.



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FIG. 3638.—Yarrow's Enucleator.



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FIG. 3639.—Richardson's Finger Elongator.

Fig 1.

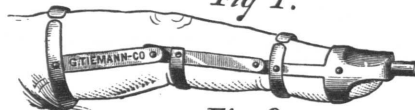


Fig 2.

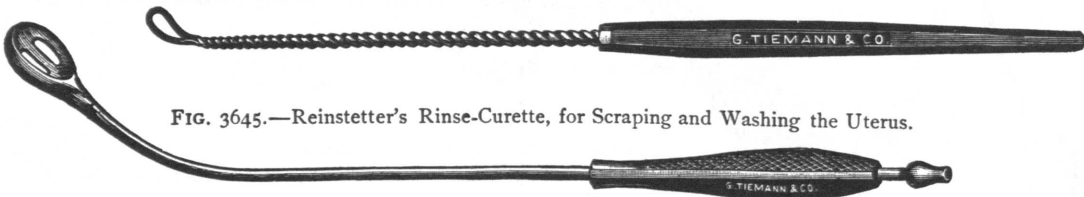


FIG. 3643.—Thomas' Serrated Scoop, for the Detachment of Sessile Uterine Fibroids.



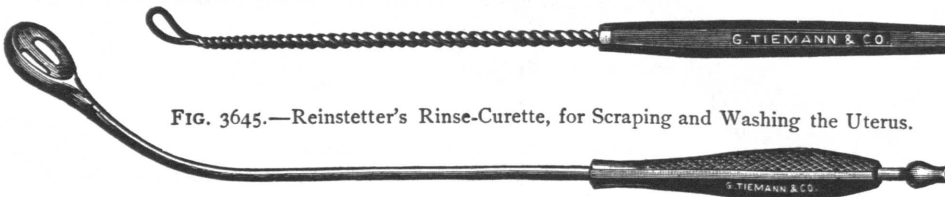
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FIG. 3644.—Bozeman's Curette.



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FIG. 3645.—Reinstetter's Rinse-Curette, for Scraping and Washing the Uterus.



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FIG. 3640.—Siemon's Curette.



FIG. 3641.—Siemon's Curette.



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FIG. 3642.—Three Curettes.



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Forceps, Ligators, Ecraseurs, Enucleators, for Removing Intra-Uterine Vegetations.

FIG. 3646.—Sims' Vulsellum Hook.



FIG. 3647.—Nelaton's Pedicle Forceps.

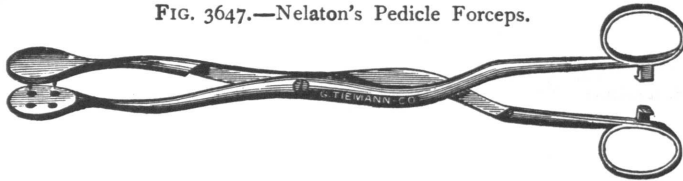


FIG. 3648.—Up de Graff's Tumor Forceps.

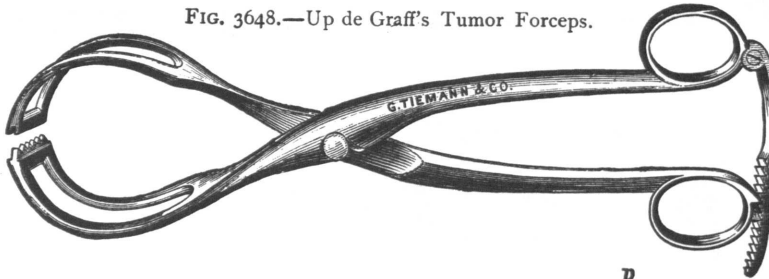


FIG. 3649.—Van Buren's Ligator.

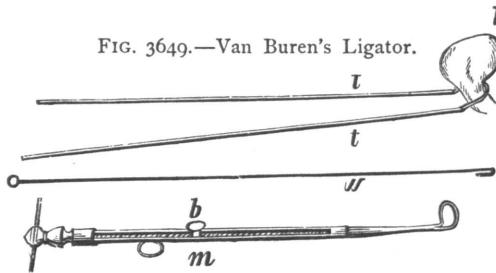


FIG. 3650.—Aveling's Polyprome.

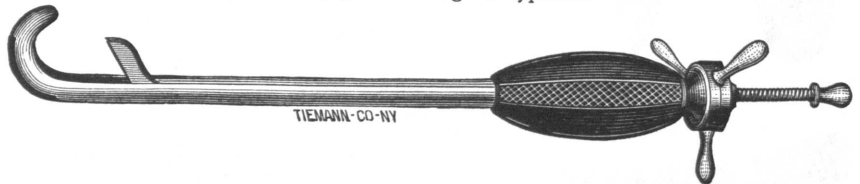
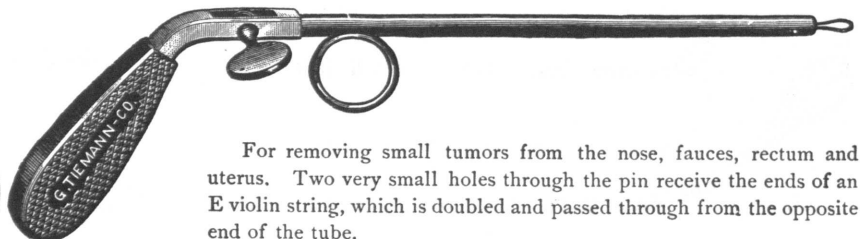


FIG. 3651.—Penn's Catgut Ecraseur.



For removing small tumors from the nose, fauces, rectum and uterus. Two very small holes through the pin receive the ends of an E violin string, which is doubled and passed through from the opposite end of the tube.

FIG. 3652.—Sims' Enucleator.



FIG. 3654.—Nelaton's Tumor Forceps.

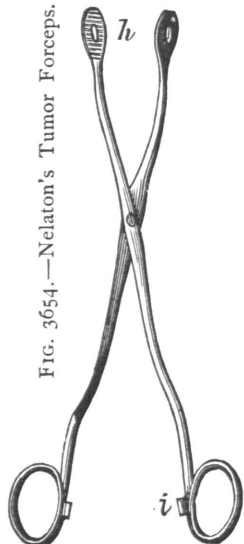
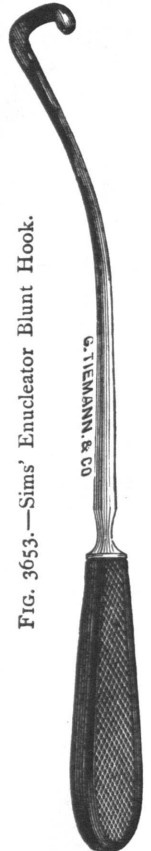


FIG. 3653.—Sims' Enucleator Blunt Hook.

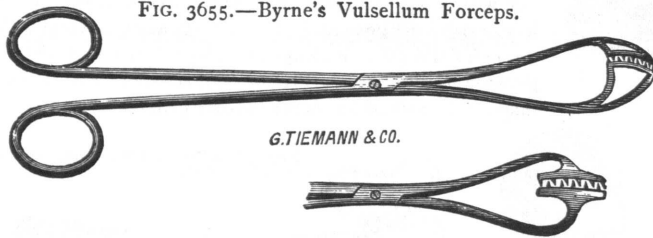


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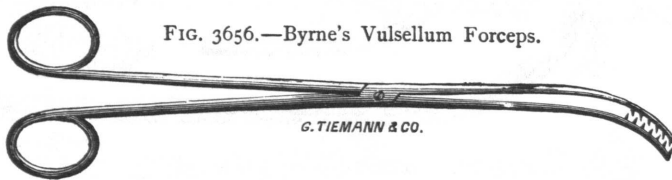
Forceps, Ligators, Ecraseurs for Removing Intra-Uterine Vegetations.

FIG. 3655.—Byrne's Vulsellum Forceps.



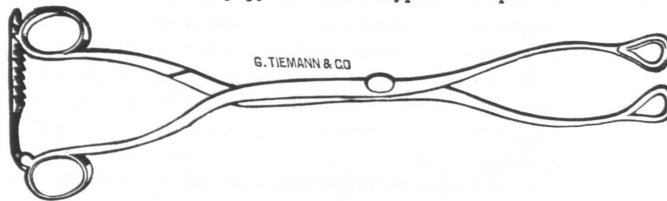
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FIG. 3656.—Byrne's Vulsellum Forceps.



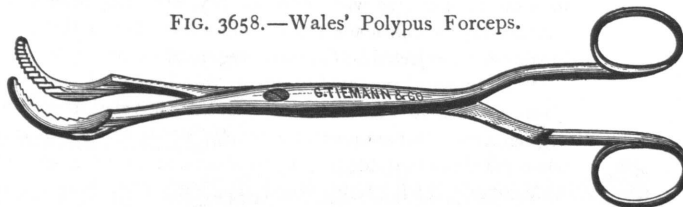
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FIG. 3657.—Luer's Polypus Forceps.



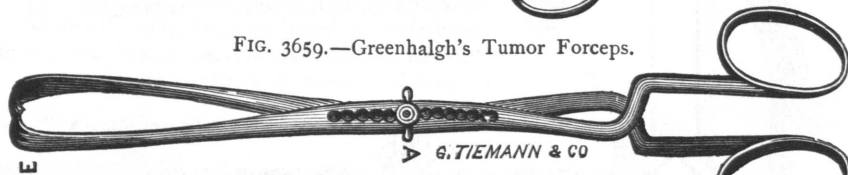
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FIG. 3658.—Wales' Polypus Forceps.



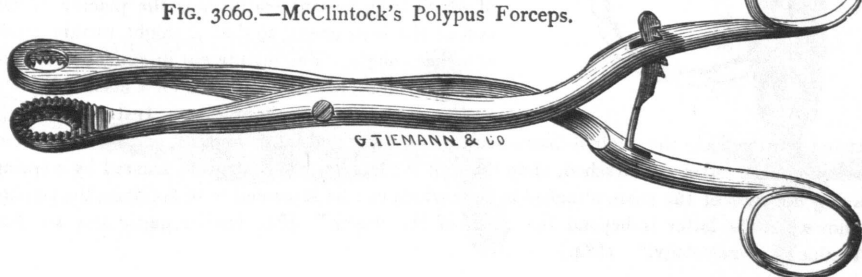
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FIG. 3659.—Greenhalgh's Tumor Forceps.



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FIG. 3660.—McClintock's Polypus Forceps.



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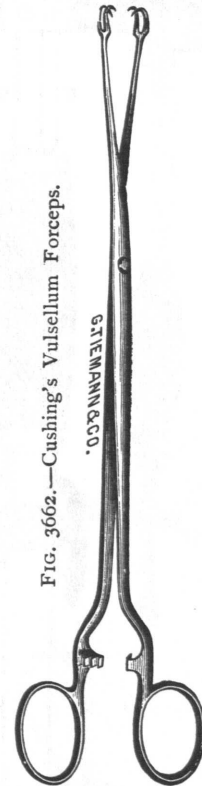
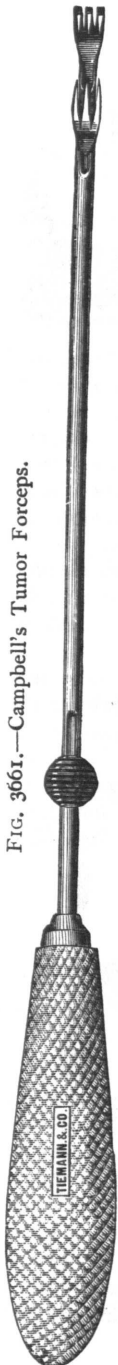


FIG. 3662.—Cushing's Vulsellum Forceps.

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FIG. 3661.—Campbell's Tumor Forceps.



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