

agree with Küster and think that his remarks apply well to my suggestions made above. Küster says:

"Gentlemen: When I bring this case before you, it is not to present to you a curious operation or a curiosity in the line of operating. The value of the observation appears to me to lie in the fact that it shows a method by which it may be possible to avoid the mutilating and dangerous operation of nephrectomy in cases of pyonephrosis where and when we do not know that the other kidney is perfectly healthy."

I would add—and a means to save or avoid some instances of permanent fistulas following nephrotomy for pyo- or hydronephrosis.

NOTE:—When I commenced to investigate the question of stenosis of the ureter and its possible operative treatment, I did not know that Küster had commenced work in the same direction. The first publication of Küster's case which reached me was his report before the Twenty-first German Surgical Congress, June 8 to 11, 1892, which appeared in the *Centralblatt für Gesamte Medicin*, for Aug. 13, 1892.

My first operation for stenosis was performed at a clinic and described in a clinical lecture given on May 31, 1892, at the Emergency Hospital, Chicago, for the Chicago Policlinic.

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## THE IDEAL KNEE SPLINT.

BY JOHN RIDLON, M.D.

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The ideal splint for treatment of disease at the knee-joint is one that gives 100 per cent. of immobilization and, at the same time, protects the joint from the traumatism incident to locomotion.

The early form of the Thomas knee splint, the one with the patten bottom, which is pretty generally used in this country, was markedly in advance of all the short splints, and of the splints making traction from adhesive plasters applied from the knee upward and downward; but the splint lacked somewhat in power to immobilize, and on that account confined the patient to bed unnecessarily long. Besides this,

a high patten was required for the opposite leg and the apparatus became a clumsy one.

The form of splint to which I wish to call attention is not new; it was used for the exclusion of the "patten" splint by Mr. Thomas for at least four years prior to his death, and has been exclusively used by Mr. Robert Jones and myself since that time. It

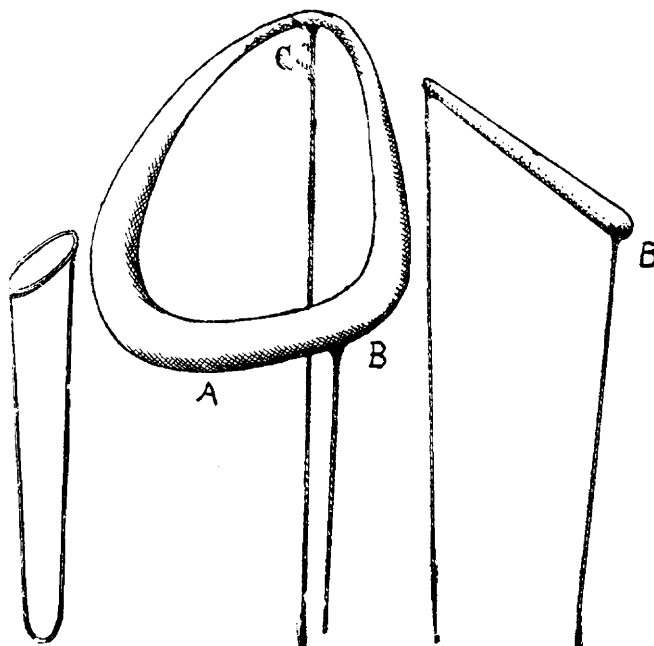


Fig. 1.

Fig. 2.

Fig. 3.

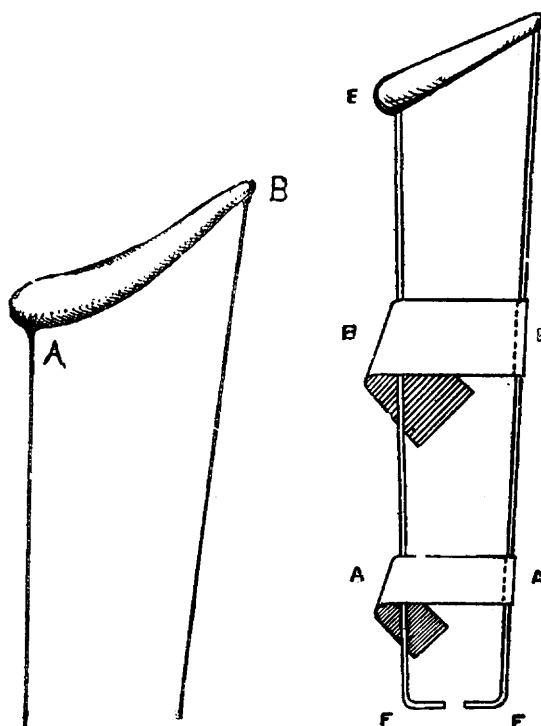


Fig. 4.

Fig. 5.

was called by Mr. Thomas the "Caliper" splint, and may be readily made without the help of the instrument maker from the "bed" splint.

The bed splint consists of a ring of iron wire to which is welded a long loop of the same wire, Fig. 1. The ring, in shape, is an irregular ovoid, flattened in front, and drawn out at the posterior and

inner portion so that when padded it shall fit the upper circumference of the thigh, Fig. 2, and as here observed, the inner wire of the loop B, is joined more anteriorly than the outer wire C. The ring slopes from without inward, and from backward in

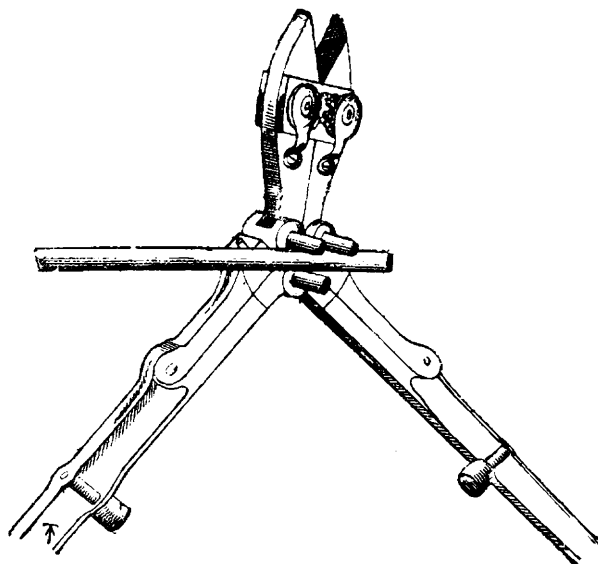


Fig. 6.

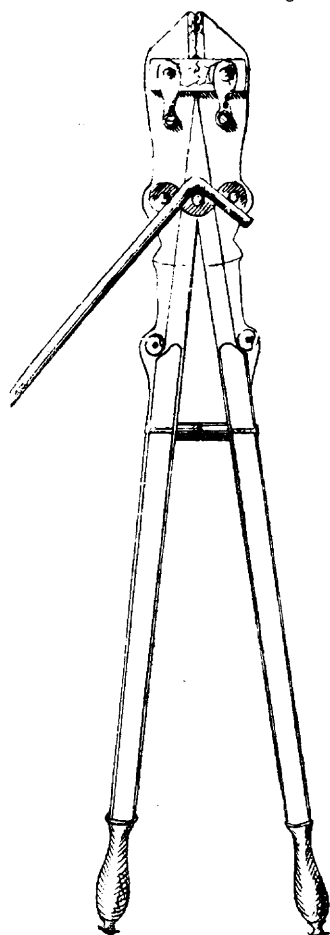


Fig. 7.

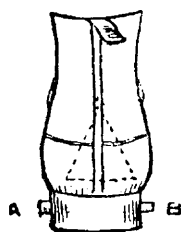


Fig. 8.

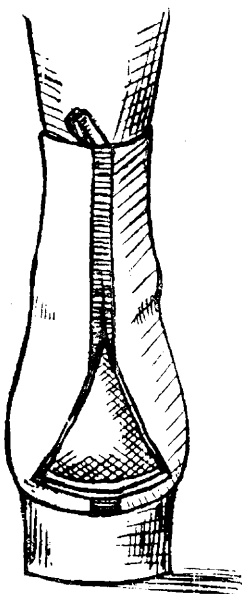


Fig. 9.

such a way that the point A upon which rests the tuberosity of the ischium is the lowest part of the ring. Fig. 3 shows front view and Fig. 4 the rear view. The angle formed by the lateral plane ring and the inner bar is about 135 degrees, and the

anterior angle formed by the antero-posterior plane of the ring and the inner bar is about 145 degrees. The wire used depends upon the weight of the patient and is from three-sixteenths to three-eighths of an inch. In making the ring the ends should be joined by welding, and the side bars of the long loop are joined to the ring in the same manner. Few surgical instrument makers are good blacksmiths and therefore find it easier to braze than to weld, but a brazed joint breaks on bending, while a welded joint holds fast. The lower end of the long loop is dimpled somewhat to receive and retain the strap from the adhesive plasters. The ring is padded with boiler felting to the thickness of about half an inch in its outer portion and from an inch to an inch and a half in thickness at the inner posterior portion upon which the tuberosity of the ischium is to rest, and then covered with basil leather, tan sheepskin, put on wet, and sewed after the manner of the harness

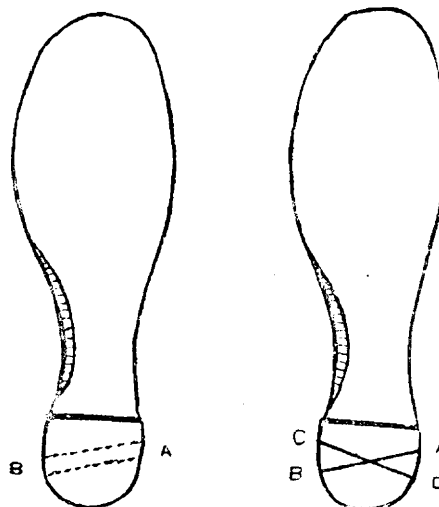


Fig. 10.

Fig. 11.

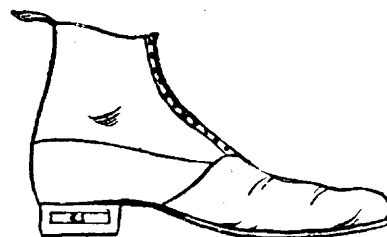


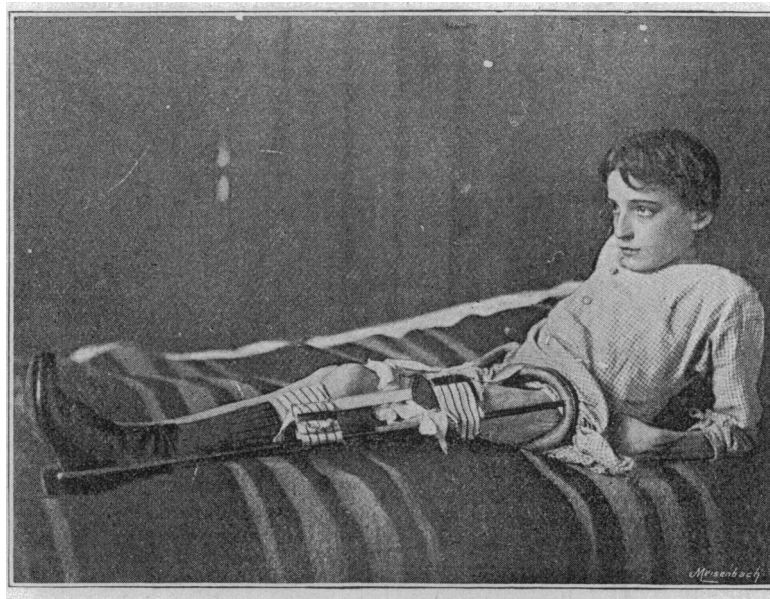
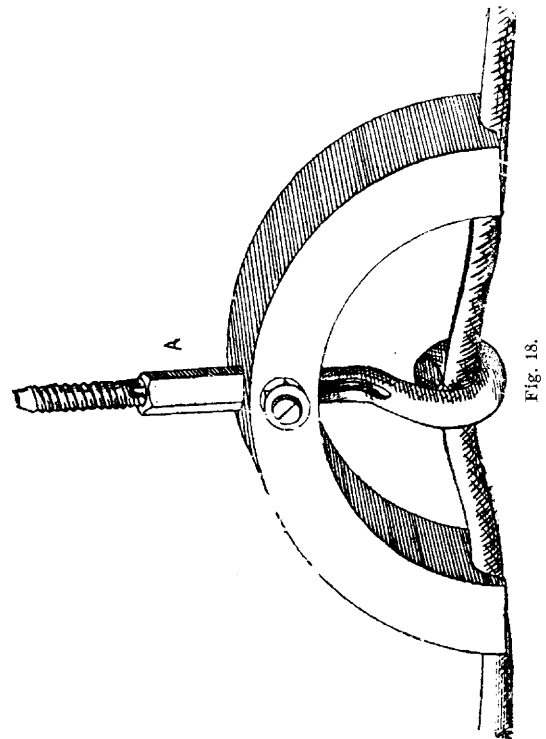
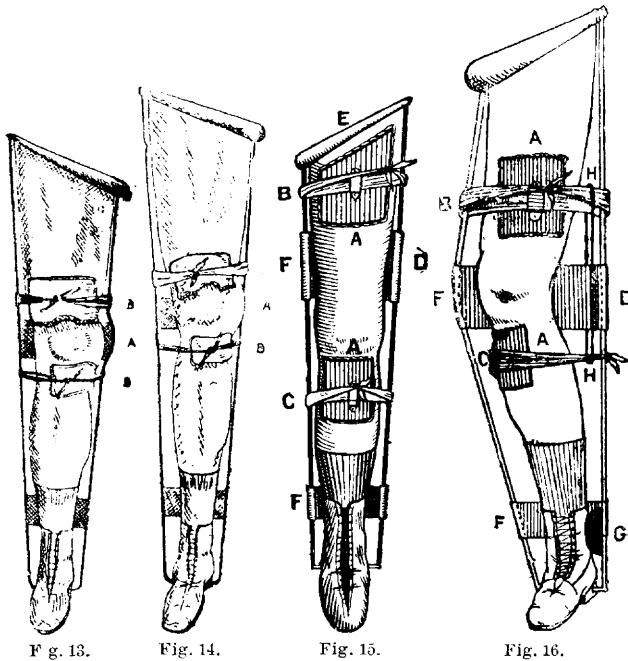
Fig. 12.

maker along the lower and outer border of the ring, i. e., where the seam will not chafe the patient. Two strips, from three to four inches wide, of the same leather, are sewed to one of the side bars, the other end being left free and of sufficient length to be drawn across to the opposite bar, and when sewed there, forms a support to the back of the limb when the splint is applied; one of these strips is to be back of the knee and the other back of the ankle.

The splint is applied by slipping the ring on over the leg and pushing it well up against the tuberosity of the ischium. If fixative traction is to be used, strips of long adhesive plaster in width about one-fourth of the circumference of the leg, and in length equal to the distance from the knee to the ankle, to the lower ends of which pieces of strong tape, webbing, or muslin bandage, have been sewed, are applied to the outer and inner surfaces of the leg; if these pieces of adhesive plaster are supplied with

narrow, oblique, lateral strips for winding around the leg, they will remain much longer attached to the skin. The plasters applied are held in place by an ordinary bandage. The surgeon now grasps the patient's foot, and pulls steadily downward, at the same time pushing the splint upward, and having straightened the limb as much as the patient will

one side bar and then the other; or a thick pad may be placed across the lower end of the thigh, well down upon the patella, and backward pressure made by a strong strip of muslin bandage, passed across



tolerate, ties the tape terminations of the adhesive plasters at the dimple, or upward bend, at the lower end of the splint. The lower leather cross strip is now placed back of the ankle, drawn snugly across and sewed fast. The other leather strip is placed back of the knee, or back of some part of the thigh if the knee is too greatly flexed to rest upon it, and it is drawn across to the opposite bar and sewed there. The knee is now pressed backward, straightening it as much as the patient will tolerate, and held there by a roller bandage carried back and forth across the front of the limb, and around first

from side to side and somewhat downward, and tied to each side bar by a half-hitch, and then carried across the pad and tied. After this, the traction tapes at the bottom are again tightened. The limb is left thus, if everything remains in place, for two or three days, when it can again be made straighter and the fastenings tighter. In this way, the limb is straightened. If the limb is to be straightened at once under an anesthetic, it is better to apply at once after the straightening, the caliper splint, which will now be described.

The caliper splint is made from the bed splint by

cutting off the lower end of the loop and bending an inch or more of each side bar inward at a right angle. Fig. 5. The bed splint is applied and pushed well upon the straightened limb, a point is marked on each side bar an inch below the sole of the foot, and an inch or an inch and a half below this; the side bars are cut off and the bend is made at the point marked. Figs. 6 and 7 show the tool used for cutting off these bars, and the process of bending them. A shoe is cut at the heel as shown at Fig. 8 or Fig. 9; a hole is bored through the heel, Fig. 10, line AB, or a slot made by a second hole, line CD, Fig. 11, and a tube inserted, Figs. 8 and 12, into the hole or tube the bent ends of the side bars are passed, the leather

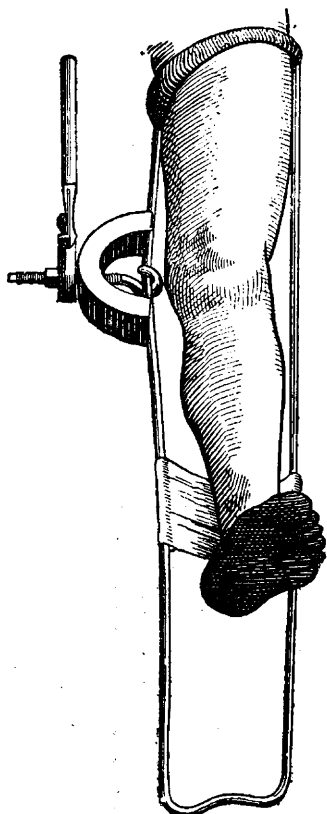


Fig. 19.

strips drawn fast and sewed, and the limb tied or bandaged in place, as shown in Figs. 13, 14, 15, 16, 17. If the knee is swollen so that the inner bar presses against it, this bar is drawn outward with wrenches, or the tool, Figs. 18 and 19, employed. When a joint has been straightened under an anesthetic, it should be left in the splint, without change of shoe, stocking or bandages until all pain and tenderness have passed off. In a word, the joint has been more or less sprained by the maneuver, and must be treated with all the consideration which a sprain demands.

The deformity corrected, the patient should be kept off his feet until the muscular spasm which tends to deformity has subsided; then he may be allowed to walk about. If, for any reason, the patient has to be gotten up before this time, he should use crutches.

**Is Fond of Press Clinics.**—Superintendent Marks of the City Hospital, St. Louis, according to the veracious *Chronicle* of that city, has decided to admit reporters of the daily papers to the clinics of that institution.

## STENOSIS OF THE LARYNX AND TRACHEA.

(Reported from the Transactions of the Chicago Medical Society.)

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Dr. Ingals presented the history of a young woman, 23 years of age, who came under his care for stenosis of the larynx and trachea:

Five years previously she had been on the point of suffocation from the pressure of a large goitre, when tracheotomy had been done by Dr. Senn and artificial respiration established, which had saved her life. Dr. Senn had at that time removed a wedge-shaped piece of the thyroid and opened the trachea with the thermo-cautery. He had then introduced as a tracheotomy tube, a new device of his own, which possessed some advantages over the ordinary tubes.

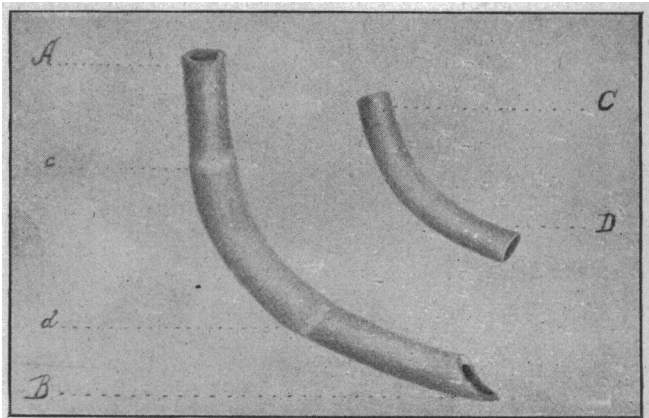


Fig. 1.—Half size. Senn's tracheotomy tube.

A B—Rubber trachea tube. C D—Silver tube to be worn inside the rubber tube A B, as shown at c d.

This tube, represented in Fig. 1, consists of a curved silver tube about one-quarter of an inch in diameter and two and one-half inches in length, which was placed inside a rubber tube of the same caliber and about five inches in length, but which might have been either longer or shorter, according to the indications in the special case. The silver tube maintained the proper curve, and the whole was easily retained in the trachea. This tube, while in position, was cleansed by the patient by means of a feather, or after it had been worn for a few weeks it could be removed and cleansed, the patient having a similar tube to insert immediately after its removal to prevent contraction of the wound and trachea. The enlargement of the thyroid had practically all disappeared.

The patient had been referred to Dr. Ingals during the past summer by Prof. Senn, whom she had consulted at the Presbyterian Hospital, on account of inability to speak, or to breathe through the mouth. Dr. Ingals found complete closure of the lower portion of the larynx between the cords and the tracheal wound. Finding a cicatricial tissue so firm that it could not be torn, he passed a forceps down upon it from the mouth and cut down to the instrument from the external wound. The cicatricial tissue was very tough and about six millimeters in thickness. It was cut away upon the sides with the punch forceps shown in Fig. 2, which had

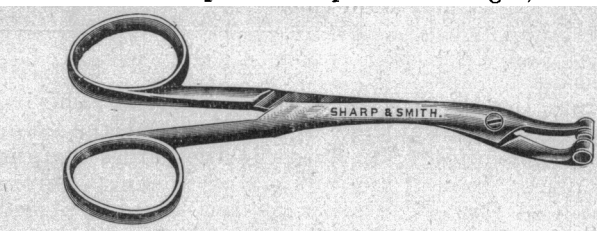


Fig. 2.—Ingals' punch forceps (half size).

been devised for this special purpose. The wound was then kept open by a rubber tube similar in size to that which had been used for the trachea. This tube was split down about three-quarters of an inch at one end, and the two sides were sewed together at the extremity, the edges of the cut being pared off so as to make an opening through which the tracheal tube could be passed. This laryngeal rubber tube