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E. N. TURKUS

RETRACTOR FOR AMPUTATION PURPOSES

Filed April 9, 1924

Fig. 1.

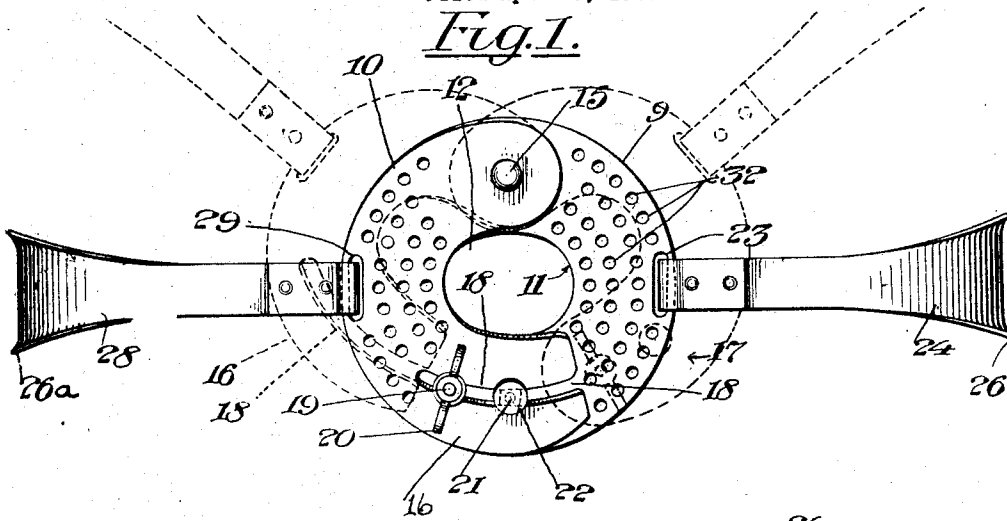


Fig. 2.

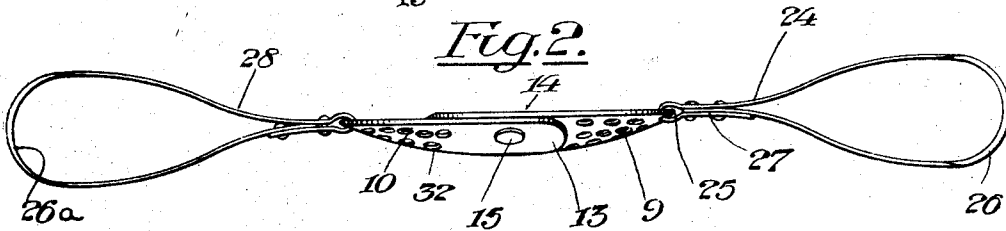


Fig. 3.

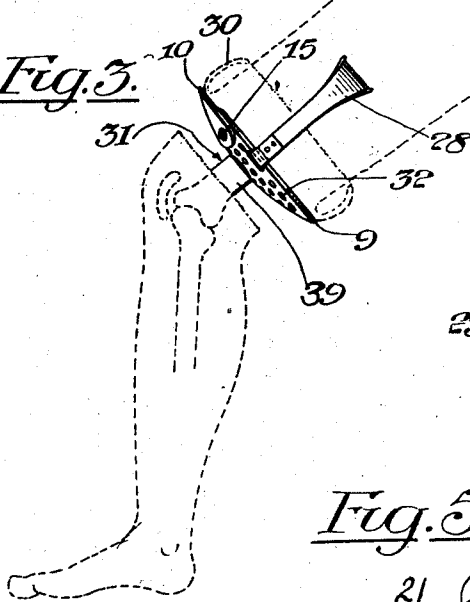


Fig. 4.

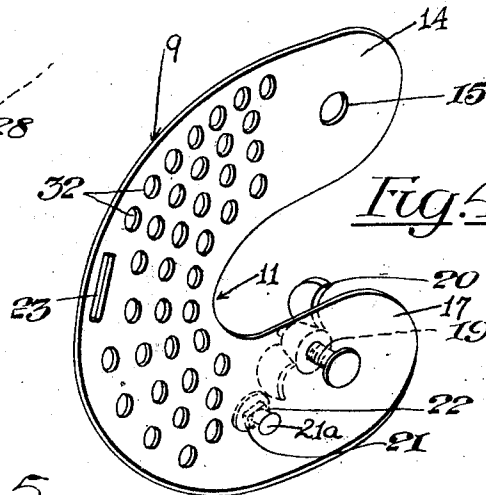
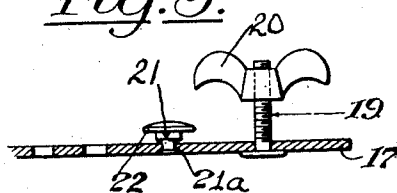


Fig. 5.



INVENTOR
E. N. Turkus
BY
Weed & Gray
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD NEWTON TURKUS, OF BROOKLYN, NEW YORK.

RETRACTOR FOR AMPUTATION PURPOSES.

Application filed April 9, 1924. Serial No. 705,207.

To all whom it may concern:

Be it known that I, EDWARD NEWTON TURKUS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Retractors for Amputation Purposes, of which the following is a specification.

This invention relates to surgical retractors adapted particularly for use in the amputation of the legs or arms of the body, an object of the invention being to provide an improved instrument of this character which will be relatively simple in construction, easily and conveniently manipulated by the surgeon, readily adjusted over the bone of the member to be amputated, and which may be employed to effectually retract or hold back the flesh from the point where the bone is to be sawed.

A further object of this invention is to provide an improved retractor for amputation purposes comprising a pair of relatively swinging plates or jaws correspondingly notched at adjacent edges thereof and so constructed that they may be swung into position to embrace the bone, readily adjusted to conform to the size of the bone, or to embrace the bones of the forearm, and wherein the device is provided with handles so constructed in an improved manner as to enable the instrument to be manipulated readily and efficiently.

Other objects of this invention will appear in the following description and appended claims thereof, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters indicate corresponding parts in the several views and wherein Fig. 1 is a plan view illustrating an embodiment of my invention; Fig. 2 is a side view of the construction shown in Fig. 1; Fig. 3 is a view illustrating the device in operative position; Fig. 4 is a perspective view of one of the pivoted jaws; and Fig. 5 is a fragmentary section of the jaw shown in Fig. 4, illustrating the fastening devices.

Before explaining in detail the present improvement and mode of operation thereof it is desired to have it understood that the invention is not limited to the details of construction and arrangement of parts which are illustrated in the accompanying drawings, since the invention is capable of

other embodiments, and that the phraseology which is employed is for the purpose of description and not of limitation.

In its present preferred form herein shown and described the present invention comprises a pair of metal plates or members 9 and 10 which are swingingly connected together in overlapping relation and so constructed that they may be swung into position to embrace the bone of the limb to be amputated. As illustrated each of the members or plates 9 and 10 may be correspondingly semi-circular in shape, forming when pivoted together at one end, an elongated or substantially semi-circular opening 11 for the reception of the bone. These plates are thus substantially U-shaped in construction, and owing to their overlapping meeting ends the bone-receiving opening can be varied in its diameter to fit different sizes of limb bones.

The plates 9 and 10 are pivotally connected together in overlapping relation, one end 13 of the plate 10 being superimposed upon the corresponding end 14 of the plate 9, and pivoted together at 15. The plates 9 and 10 are thus constructed to form swinging jaws which may be readily swung toward and from each other. It will be seen that when the plates are shifted together, the end 16 of the plate 10 will be shifted to overlap the end 17 of the plate 9, and in the present construction means is provided for adjusting the ends 16 and 17 together in different positions. A curved open slot 18 is formed in the free end 16 of the plate or jaw 10, and the plate 9 is provided adjacent to the free end thereof with a projecting pin 19 which is threaded to receive a wing nut 20 which is preferably held in position against removal from the pin 19 by upsetting the outer end of the pin. The free end 17 of the plate or jaw 9 is also provided with a pin 21^a having a squared portion 21 and a relatively wide flat head 22. From this construction it will be seen that upon swinging the jaws 9 and 10 together, the pin 19 and the squared portion 21 of the pin 21^a will travel into the curved slot 18, the head 22 of the pin 21^a overlapping the edges of the slot and bearing thereagainst.

The pins 19 and 21 may be held in different positions within the slot 18 by screwing down the wing nut 20 against the edges

of the slot as shown in Fig. 1, whereby the jaws will be firmly clamped together in relatively fixed position.

The plate or jaw 9 is provided with a slot 23 located substantially midway of the length of the plates and therefore between the pivoted and meeting ends of the plate and adjacent to the edge thereof. A flexible metallic strap 24 is bent at one end 25 to extend through the slot 23. This strap is also bent to provide a loop 26 and the opposite ends of the strap are secured together at 27, thereby providing a flexible handle which may be readily grasped by inserting the fingers through the loop 26. The handle 24 is thus pivoted to the plate or jaw 9 and may be swung in opposite directions at either side of the plate or jaw. A similar handle 28 bent to form a flexible loop 26^a is connected to the plate or jaw 10 by means of a slot 29 likewise located between the ends of the plate. From the foregoing it will be seen that the handles 24 and 28 are sufficiently resilient or flexible so that when desired they may be gripped by the hands and the intermediate portions pressed together or contracted when gripped thereby preventing the hands from slipping when pulling on the handles.

In the operation of the present invention it will be understood that the usual incisions are made in the flesh of the limb to be amputated so as to expose the bone as shown diagrammatically in Fig. 3, and permit the flesh to be laid back away from the point where the saw cut is to be made. The handles 24 and 28 are thereupon grasped after loosening the wing nut 20, and the jaws 9 and 10 swung apart sufficiently to permit the same to be inserted over the bone 39. By manipulating the handles the jaws are swung together to cause the pin 19 and the headed pin 21 to pass into the slot 18. The jaws are swung together in overlapping relation until the communicating notches 11 and 12 conform loosely to the shape of the bone. Thereupon the wing nut 20 is tightened so as to clamp the ends 16 and 17 of the jaws firmly together in fixed position. The handles 24 and 28 are then grasped by the surgeon and by pulling rearwardly on these handles the flesh, as indicated at 30, is retracted or held back from the point 31 where the bone is to be sawed. It will be noted that the plates 9 and 10 are concave on the inside, which construction enables the flesh to be retracted more readily. By virtue of the elongated slots or recesses 11 or 12 and the overlapping of one plate 9 upon the other, it is possible to adjust the retractor to any size bone. Furthermore where amputation of the forearm is to be effected the jaws may be readily adjusted to permit the communicating notches or recesses 11 and 12 to embrace both bones of the forearm. The

adjustment of the free ends of the jaws by means of the pin and slot connection is particularly advantageous since the entire device may be controlled merely by grasping and manipulating the handles 24 and 28, with the exception of tightening or loosening the wing nut 20 which is in such position exteriorly of the retractor as to permit it to be conveniently and quickly manipulated by the surgeon. Furthermore it will be observed that by virtue of the fact that the exterior face of the retractor is convex in shape the projecting wing nut 20 will be located entirely out of the way of the saw when making the saw cut close to the central part of the retractor as indicated in Fig. 3.

As hereinbefore stated the retractor is preferably formed from metallic plates, and in order to reduce materially the weight of the device these plates are preferably provided with perforations 32. It will be also noted from the foregoing construction that by connecting together the jaws 9 and 10 in overlapping relation, and by releasably connecting the free ends of the jaws at two points by means of the headed pin 21 and the wing nut 20, the resistance strength of the retractor is considerably increased, and any tendency of the jaws to separate where considerable leverage is placed thereon is prevented.

It is to be understood that by describing in detail herein any particular form, structure or arrangement, it is not intended to limit the invention beyond the terms of the several claims or the requirements of the prior art.

Having thus explained the nature of my said invention and described a way of constructing and using the same although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I claim:

1. A surgical retractor comprising a pair of concave substantially semi-circular plates pivotally connected at one end for swinging movement into overlapping relation at the opposite end, whereby they are adjustable for various sizes of bone without the separation of the ends of said plates, means for detachably securing said plates together in closed position against swinging movement, said plates forming when closed a central opening adapted to embrace the bone of the limb.

2. A surgical retractor comprising a pair of concave substantially semi-circular plates pivotally connected at one end for swinging movement into overlapping relation at the opposite end, whereby they are adjustable for various sizes of bone without the separation of the ends of said plates, means for detachably securing said plates together in closed position against swing-

ing movement, said plates forming when closed a central opening adapted to embrace the bone of the limb, and a pair of handles connected one to each plate intermediate its ends.

3. A surgical retractor comprising a pair of concaved substantially semi-circular plates pivotally connected at one end for swinging movement into overlapping relation at the opposite end, whereby they are adjustable for various sizes of bone without the separation of the ends of said plates, means for detachably securing said plates together in closed position against swinging movement, said plates forming when closed a central opening adapted to embrace the bone of the limb, and a pair of handles connected one to each plate intermediate its ends, said handles being shiftable transversely of the plane of the plates.

4. A surgical retractor comprising a pair of plates pivotally connected at one end and each having a substantially semi-circular opening forming therebetween a bone-receiving opening, means for detachably securing the opposite ends of the plates together, and a handle carried by each plate between and spaced from the pivoted and meeting ends thereof.

5. A surgical retractor comprising a pair of concaved plates, each having a semi-circular opening forming therebetween a bone-receiving opening, said plates being pivotally connected at one end, means for detachably and adjustably securing the opposite ends of the plates together, and a handle carried by each of said plates substantially midway between its pivoted and meeting ends.

6. A surgical retractor comprising a pair of concaved plates, each having a semi-circular opening forming therebetween a bone-receiving opening, said plates being pivotally connected at one end, means for detachably and adjustably securing the opposite ends of the plates together, and a handle carried by each of said plates substantially midway between its pivoted and meeting ends, said handles being shiftable in opposite directions transversely of the plane of the plate.

7. A surgical retractor comprising a pair of substantially semi-circular plates pivotally connected at one end and forming therebetween a bone-receiving opening, means for detachably and adjustably securing the opposite ends of the plates together in overlapping relation, and a pair of loop-formed handles carried by said plates.

8. A surgical retractor comprising a pair of substantially semi-circular plates pivotally connected at one end and forming therebetween a bone-receiving opening, means for detachably and adjustably securing the opposite ends of the plates together in over-

lapping relation, and a pair of loop-formed handles carried by said plates, each located substantially midway between the ends of its plate.

9. A surgical retractor comprising a pair of substantially semi-circular plates pivotally connected at one end and forming therebetween a bone-receiving opening, means for detachably and adjustably securing the opposite ends of the plates together in overlapping relation, and a pair of loop-formed handles carried by said plates, each located substantially midway between the ends of its plate, said handles being compressible and shiftable in opposite directions transversely of the plane of the plates.

10. A surgical retractor comprising a pair of substantially semi-circular plates pivotally connected at one end for swinging movement into overlapping engagement at the opposite end and forming therebetween an adjustable bone-receiving opening without the separation of the ends of the plates, and fastening means carried by the free end of one plate, the free end of the other plate having a curved slot for the reception of said fastening means for adjustably securing said plates together.

11. A surgical retractor comprising a pair of substantially semi-circular plates pivotally connected at one end for swinging movement into overlapping engagement at the opposite end and forming therebetween an adjustable bone-receiving opening without the separation of the ends of the plates, fastening means carried by the free end of one plate, the free end of the other plate having a curved slot for the reception of said fastening means for adjustably securing said plates together, and a handle carried by each of said plates between and spaced from the pivoted and free ends thereof.

12. A surgical retractor comprising a pair of substantially semicircular plates pivotally connected at one end for swinging movement into overlapping engagement at the opposite end and forming therebetween an adjustable bone-receiving opening without the separation of the ends of the plates, fastening means carried by the free end of one plate, the free end of the other plate having a curved slot for the reception of said fastening means for adjustably securing said plates together, and a handle carried by each of said plates between and spaced from the pivoted and free ends thereof and comprising a loop-formed resilient member.

13. A surgical retractor comprising a pair of substantially U-shaped plates pivotally connected together at one end for swinging movement into overlapping relation at the opposite end thereby to form an adjustable bone-receiving opening therebetween with-

out the separation of the ends of the plates, and means for detachably and adjustably connecting said overlapping ends and comprising a pair of projections carried by one
5 of said plates and a slot carried by the other plate for the reception of said projections.

14. A surgical retractor comprising a pair of concaved plates pivoted together at
10 one end for swinging movement into meeting engagement at the opposite end and forming therebetween an adjustable bone-receiving opening, means for manipulating the plates, and means independent of said
15 manipulating means for adjustably and

positively securing the plates in different fixed positions to vary the size of the opening.

15. A surgical retractor comprising a pair of limb-embracing plates, means for pivotally connecting the plates together at one end
20 for swinging movement into overlapping position at the opposite end, and means located away from the overlapping ends of the plates for manipulating said plates to
23 shift the same relatively to the bone to retract the flesh.

Signed at New York, New York, this 4th day of April 1924.

EDWARD NEWTON TURKUS.