

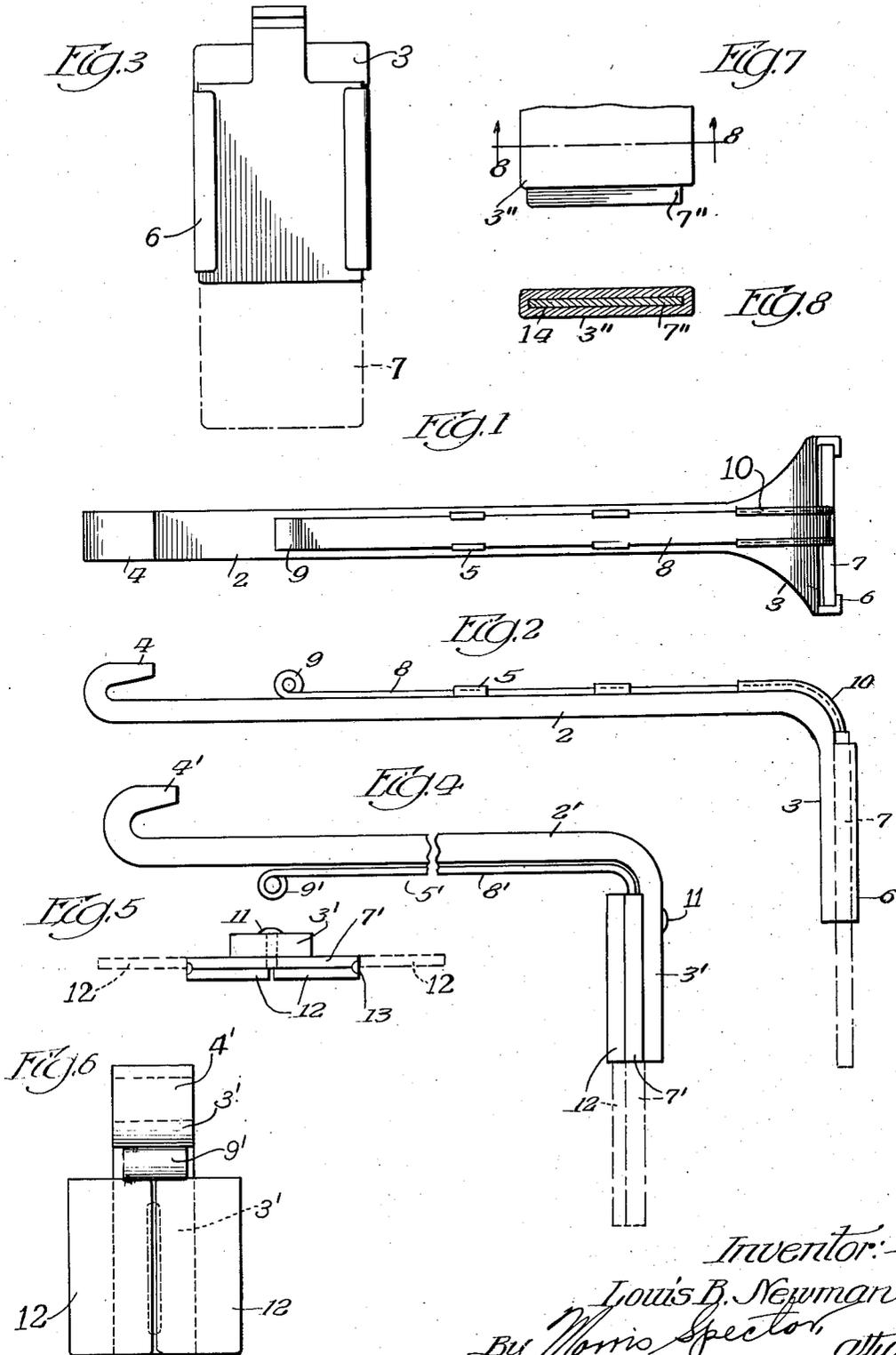
July 5, 1949.

L. B. NEWMAN

2,474,857

ADJUSTABLE RETRACTOR

Filed Jan. 26, 1946



Inventor:-  
Louis B. Newman  
By Morris Spector, atty.

# UNITED STATES PATENT OFFICE

2,474,857

## ADJUSTABLE RETRACTOR

Louis B. Newman, Chicago, Ill.

Application January 26, 1946, Serial No. 643,528

4 Claims. (Cl. 128—20)

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This invention relates to a surgical retractor for holding portions of a patient's body out of the surgeon's way during an operation.

It is well understood that surgical operations are very delicate processes and time often is an essential factor. As soon as the surgeon makes the incision, retractors are inserted into the incision, and the overlying layers of flesh are pulled to either side and held out of the way so that the surgeon can find the particular part needing his attention and perform the required operation as quickly as possible. After the surgeon gets access to the part to be operated on he sometimes finds that the tractor does not go deep enough or is not wide enough to provide sufficient space in which he may work. With ordinary retractors it is necessary to remove the retractor and replace it with one of a more suitable size. This means that after the new retractor is positioned the surgeon has to reach into the opening again to find the part on which he is to operate.

It is an object of this invention to provide a surgical retractor with simple and efficient means for varying either the depth or width of the holding blade while the retractor is in position. Other objects of this invention will become apparent upon reading the following specification, taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

Figure 1 is a top elevation illustrating one embodiment of my invention;

Figure 2 is a side elevation;

Figure 3 is an end elevation;

Figure 4 is a view similar to Figure 1, illustrating a modified embodiment of the invention;

Figure 5 is a bottom view of the retractor blades;

Figure 6 is an end elevation of the embodiment shown in Figures 4 and 5;

Figure 7 is a fragmentary elevation showing another embodiment of the invention; and

Figure 8 is a cross sectional view taken along the line 8—8 of Figure 7.

In the drawing reference numeral 2 indicates a shank which terminates at one end in a holding blade 3 and at the other end in a curved finger piece 4. The shank is provided with a plurality of longitudinal flanges 5 which may be integral with the shank 2 or may be welded thereto. The holding blade 3 is provided with flanges 6. A second holding blade 7, having a shank 8, is mounted adjacent the blade 3 and shank 2 and is retained in position by the flanges

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5 which lie over the shank 8 and the flanges 6 which overlap the edges of the blade 7. The shank 8 is provided at one end with a finger piece 9 to facilitate movement of the shank 8 and blade 7.

The shank 8 is made of a flexible metal so that when it is slid to the right (looking at Figure 2) it may follow the curvature of the shank 2 and blade 3 where they are joined. Preferably the curved area of the shank 2 is provided with a pair of continuous flanges 10 to hold the shank 8 when it is slid to the right. Such sliding movement of the shank 8 causes the blade 7 to move downwardly.

In the embodiment illustrated in Figures 4, 5 and 6 the structure of the shank 2', blade 3' and finger piece 4' is substantially the same as that previously described. However, in this embodiment the shank 8' is mounted on the inner side of the shank 2. When the finger piece 9' is moved to the right the blade 7' moves downwardly to increase the effective depth of the retractor. The blades 3' and 7' are held together by means of a rivet or stud 11 which passes through an aperture (not shown) in each blade. The aperture in the blade 7' is circular, to fit the rivet, and is an elongated slot in the blade 3' to permit the blade 7' to slide relative to the blade 3'.

The blade 7' is preferably provided with a pair of extensions 12 hinged thereto, as indicated at 13. When the hinged extensions 12 are opened out they substantially double the effective width of the holding blade. It is obvious that if desired one hinged extension may be opened and the other closed to provide an increased width of approximately half the width of the holding blade 7'. The extensions 12 are hinged in such a manner that the pressure of the body parts against the retractor is effective to hold them in open position.

In the modified embodiment, illustrated in Figures 7 and 8, the blade 3'' is made in flattened tubular form. In this embodiment the adjustable blade 7'' fits inside the blade 3'' and slides downwardly through the opening 14.

Although I have described a few preferred embodiments of my invention in detail, it will be understood that the description thereof is illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. Accordingly, I do not desire to be restricted to the exact details of construction described, except as limited by the appended claims.

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I claim:

1. In a retractor, a holding blade, a shank secured to said blade substantially at right angles thereto and joining the blade along smooth curves, said shank having a plurality of longitudinally extending flanges, a second shank of flexible metal slidably secured to said first shank by said flanges and extending around the right angle bend leading to the blade, a holding blade carried by said second mentioned shank, and means for holding said blades in sliding relationship relative to each other.

2. In a surgical retractor, a pair of holding blades, one of said blades having a circular aperture and said other blade having an elongated aperture, a rivet passing through said apertures and holding said blades in sliding relationship relative to each other, whereby the effective depth of said holding blades may be varied, one of said holding blades having a pair of hinged extensions whereby the effective width of said holding blade may be varied, a shank secured to each of said holding blades and extending at right angles thereto, longitudinal flanges on one of said shanks overlying the edges of said other shank to hold said shanks in juxtaposition, and a finger piece on said second mentioned shank to facilitate sliding movement of said shank relative to said first mentioned shank.

3. A surgical retractor comprising a retractor blade, a holding shank for the blade rigid therewith and extending at a substantial angle thereto and merging therewith along a smooth curve, a second retractor blade juxtaposed over the first blade and slidable along the surface thereof to project variable amounts beyond an edge thereof to increase the holding surface area of the retractor, said second blade having a holding shank extending along the holding shank of the first blade and along the curved merging portion between the first shank and the first

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blade, said second shank being slidable along the first shank in a direction towards and from the curved portion and being sufficiently resilient to permit flexing of the second shank as it slides along the curved portion to advance and withdraw the second blade, and means for holding the second shank to the curved portion of the first shank as the second shank is moved along the first shank.

4. A surgical retractor comprising a retractor blade, a holding shank for the blade rigid therewith and extending at a substantial angle thereto and merging therewith along a smooth curve, a second retractor blade juxtaposed over the first blade and slidable along the surface thereof to project variable amounts beyond an edge thereof to increase the holding surface area of the retractor, said second blade having a holding shank extending along the holding shank of the first blade and along the curved merging portion between the first shank and the first blade, said second shank being slidable along the first shank in a direction towards and from the curved portion and being sufficiently resilient to permit flexing of the second shank as it slides along the curved portion to advance and withdraw the second blade.

LOUIS B. NEWMAN.

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