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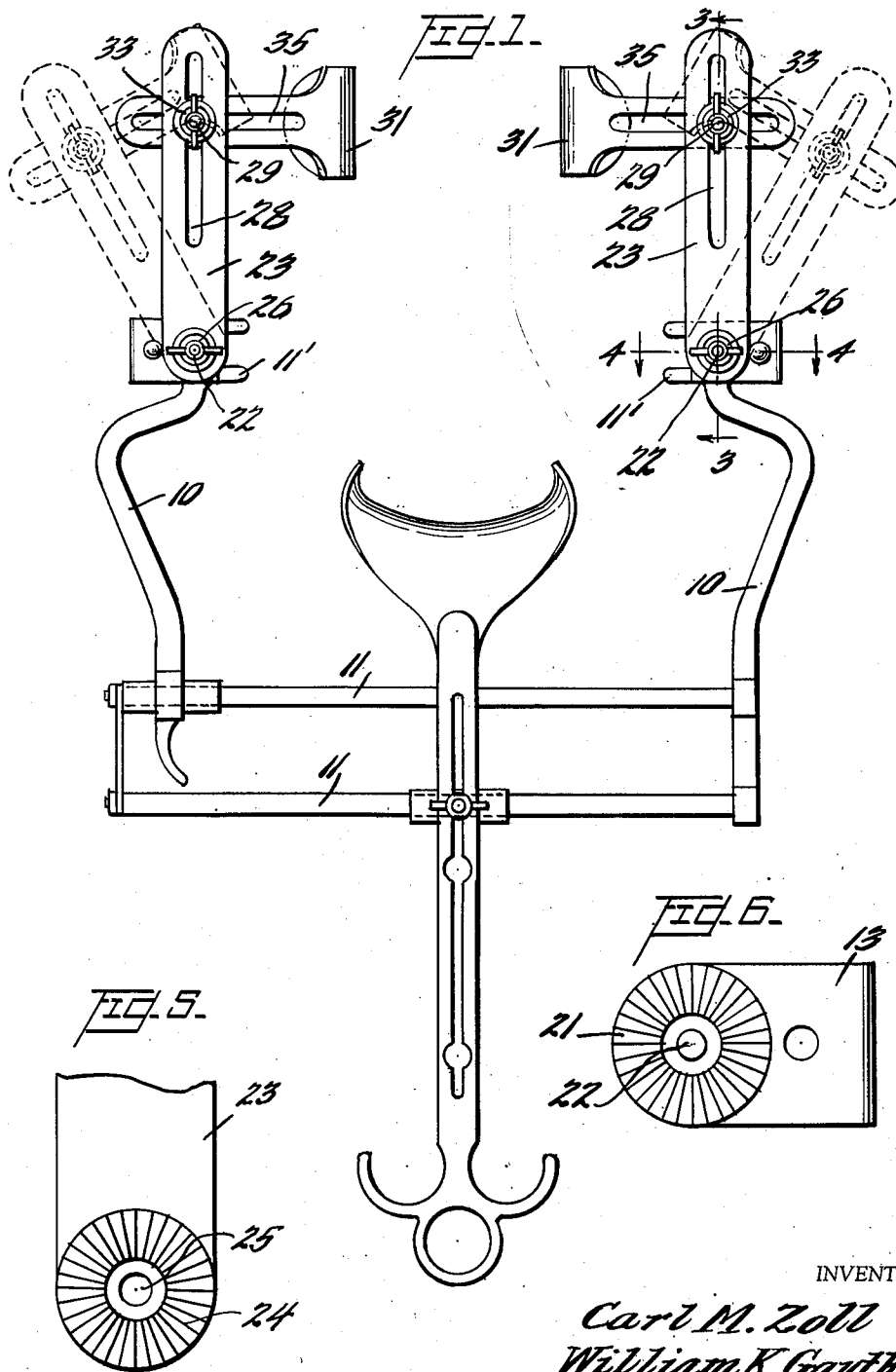
C. M. ZOLL ET AL

2,670,731

ABDOMINAL RETRACTOR ATTACHMENT

Filed Feb. 11, 1952

2 Sheets-Sheet 1



INVENTORS

Carl M. Zoll  
William K. Gauthier,

BY

*A. H. Hanson*

ATTORNEY

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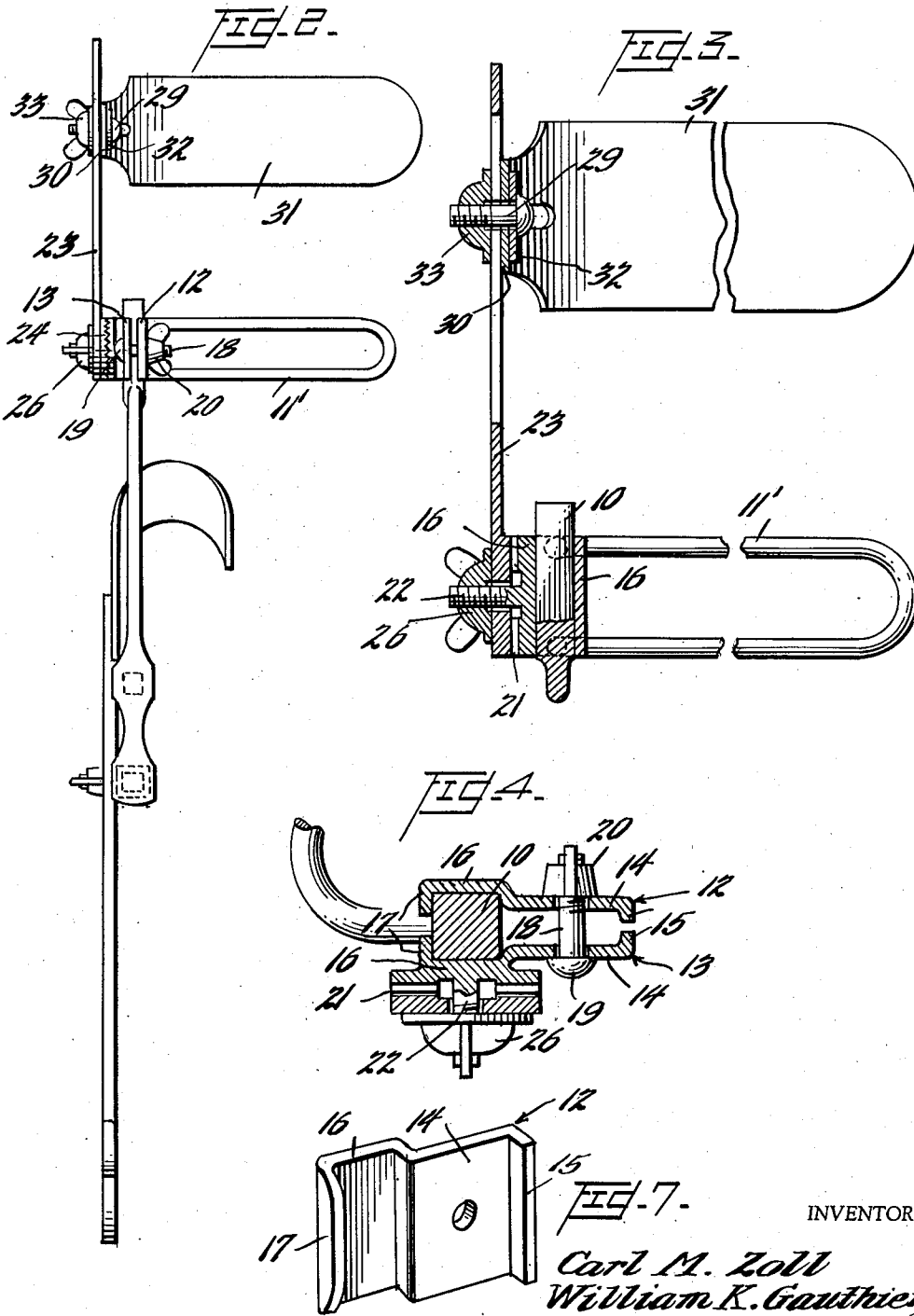
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Carl M. Zoll  
William K. Gauthier,

BY

ATTORNEY

# UNITED STATES PATENT OFFICE

2,670,731

## ABDOMINAL RETRACTOR ATTACHMENT

Carl Michael Zell and William Kohlman  
Gauthier, New Orleans, La.

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7 Claims. (Cl. 128-20)

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This invention relates to surgical appliances and has special reference to an extension device for the arms of abdominal retractors.

Common forms of abdominal retractors are well known and a number of varieties of such forms are to be found in the art wherein a suitable pair of retractor arms each provided with a finger are arranged to move toward and from each other and there be held. When such forms are used, an incision is made along the median line of the abdomen, the retractor's fingers are brought close together and inserted through this incision so as to engage the skin and the muscles lying closely thereunder. The arms are then separated, thus opening the abdomen so that the surgeon has full access thereto. Certain of these forms are provided with a third retractor to spread the lower part of the incision. In certain operations, the upper part of the incision cannot be sufficiently spread and it is the principal object of the present invention to provide attachments for the arms of such a retractor as is above described, the attachment being so arranged as to provide means for spreading the upper part of the incision as may be desired.

A second important object of the invention is to provide a device for this purpose which may be readily attached to and detached from the most frequently used abdominal retractors.

A third important object of the invention is to provide an attachment for the purpose described wherein retractor fingers, forming a part of the attachment, are so arranged that they may be positioned at various places along the length of the incision and there held.

A fourth important object of the invention is to provide an attachment of this kind wherein the retractor fingers of the attachment can be shifted to produce traction in any particular desired direction so that the engaged tissues can be drawn apart and in the desired directions.

A fifth important object of the invention is to provide a retractor attachment wherein retractor fingers of different widths may be used, such fingers being readily detachable from and attachable to the remainder of the device.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views and:

Fig. 1 is an elevation of a common form of

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abdominal retractor having the novel attachment applied thereto, the latter being shown by full and broken lines in several positions.

Fig. 2 is a side elevation of the device as shown in Fig. 1.

Fig. 3 is a section on the line 3-3 of Fig. 1.

Fig. 4 is an enlarged section on the line 4-4 of Fig. 1.

Fig. 5 is a detailed view of one end of a certain extension arm used herein.

Fig. 6 is a detailed view of one of the jaws or clamping members used herein.

Fig. 7 is a perspective view of one of the clamp members taken from the side opposite Fig. 6.

The attachment forming the present invention has been shown in connection with the retractor covered by the patent to H. M. Brix, No. 1,311,313 of July 29, 1919. However, other abdominal retractors are in use and it is not to be understood, because of the showing of the Brix retractor, that the present invention is in any way restricted to any particular abdominal retractor but is intended to be used with all such retractors as are most commonly used in hospitals and by surgeons. The type of retractor for which the present invention is best adapted for use is the type which has a pair of arms 10 movable toward and from each other as along supporting bars 11, each of the arms having at its free end a curved retractor finger 11' here shown as formed from a loop of wire.

The present invention includes a clamp having a pair of similar jaws 12 and 13. This clamp has a body portion 14 provided at its end with a lip 15, its other end having clamped jaws provided with portions 16 offset away from each other and provided with lips 17. This arrangement enables the free end of one of the arms 10 to be grasped between the jaws of the clamp. A bolt 18 extends through the portions 14 of this clamp and is provided with a head 19 on one end and threaded on its other end to receive a wing nut 20. Thus the clamp may be tightly attached to the arm. The clamp 13 has on one face of the portion 16 a serrated boss 21 and is provided with a stud or pivot 22 extending centrally from the boss 21. Each of the extensions used in this invention has also an extension arm of flat, elongated form as shown at 23, and on the end of this arm is a serrated boss 24 provided with an opening 25 centrally thereof. The pivot 22 extends through the opening 25 and on the threaded end of this pivot is mounted a butterfly nut 26. By means of this arrangement the arm 23 can be set at any desired angle to the

arm 10 and there securely locked, the serrations at 21 and 24 providing against slipping out of place while the device is in use and thus preventing injury being done to the patient by sudden slipping of the parts while the surgeon is operating.

Each of the arms 23 is provided with a longitudinally extending slot 28 wherethrough extends a headed bolt 29, the bolt being thus slidable toward and from the pivot 22. It is to be understood that the arms 23 may be of any desired width and thickness and also may be of any desired length found best adapted for use.

Each of the extension arms 23 carries a retractor finger preferably having one end flat as at 30 to fit against an arm 23, the other end of the retractor finger being curved as at 31 in a manner corresponding with the curvature of such retractor fingers as are shown at 11'. The retractor fingers 31 may be of any desired width and each of the devices of this invention, when ready for use, may be provided with two or more such fingers as 31 having different widths. Between the head of the bolt 29 and the flat portion 30 of the retractor fingers, there is interposed a washer 32. Fitted on the threaded end of the bolt 29 is a butterfly nut 33. The flat portion of the retractor finger has a slot 35 through which the bolt 29 passes. This arrangement of the slots 28 and 35 in connection with the bolt 29 and butterfly nut 33 enables the retractor finger end 31 to be shifted inwardly or outwardly from the opposite retractor finger and also to be held at any desired position on the pivot bolt 29.

It will now be obvious that the present attachment may be quickly fitted to or removed from such an abdominal retractor as is shown in Fig. 1 and that a wide range of adjustments may be made in the form and relationship of the fingers 31 to enable the surgeon to have access to any parts of the exposed portion of the abdomen that may be necessary to enable an operation to be properly performed without danger of any slippage causing unwanted movement of the surgeon's hand or instrument and danger to the patient.

What is claimed is:

1. The combination with a retractor for abdominal operations, said retractor having a pair of inflexible arms each having a free end provided with a retractor finger; of extension members each detachably and pivotally mounted on the free end of one of said arms, retractor fingers each slidably and pivotally attached to a respective extension member and adjustable longitudinally, transversely and angular with respect thereto, and a single means to secure said last fingers in adjusted positions.

2. The combination with a retractor for abdominal operations, said retractor having a pair of inflexible arms each having a free end provided with a retractor finger; of extension members on said arms, a clamp securing each said member and adapted for detachable engagement with a respective arm, said members being pivotally mounted on said clamps and having angular adjustments with respect to said arms, means to secure said members in adjusted positions, and retractor fingers attached to said members.

3. The combination with a retractor for abdominal operations, said retractor having a pair of inflexible arms each having a free end provided with a retractor finger; of extension mem-

bers on said arms, a clamp securing each said member and adapted for detachable engagement with a respective arm, said members being pivotally mounted on said clamps and having angular adjustments with respect to said arms, means to secure said members in adjusted positions, and retractor fingers attached to said members and slidably adjustable therealong, and means to secure said fingers in adjusted positions.

4. The combination with a retractor for abdominal operations, said retractor having a pair of inflexible arms each having a free end provided with a retractor finger; of extension members on said arms, a clamp securing each said member and adapted for detachable engagement with a respective arm, said members being pivotally mounted on said clamps and having angular adjustments with respect to said arms, means to secure said members in adjusted positions, and retractor fingers attached to said members and pivotally adjustable thereon and slidably adjustable therealong, and means to secure said fingers in adjusted positions.

5. In an attachment for abdominal retractors having a pair of rigid arms, a pair of clamps each having a pair of jaws grasping the respective retractor arm, screw means to draw said arms toward each other, an extension arm having one end pivoted on a respective jaw, means to secure said extension arms in desired pivoted positions, retractor fingers adjustably mounted on respective extension arms, and means to secure the fingers in adjusted positions on the arms.

6. In an attachment for abdominal retractors having a pair of rigid arms, a pair of clamps each having a pair of jaws grasping the respective retractor arm, screw means to draw said arms toward each other, an extension arm having one end pivoted on a respective jaw, means to secure said extension arms in desired pivoted positions, retractor fingers adjustably mounted on respective extension arms, said extension arms each having a longitudinal slot, pivot bolts slidable in said slots and having said fingers mounted thereon, and a nut on each of said bolts to secure the respective fingers in adjusted positions on the arms.

7. In an attachment for abdominal retractors having a pair of rigid arms, a pair of clamps each having a pair of jaws grasping the respective retractor arm, screw means to draw said arms toward each other, an extension arm having one end pivoted on a respective jaw, means to secure said extension arms in desired pivoted positions, retractor fingers adjustably mounted on respective extension arms, said extension arms each having a longitudinal slot, pivot bolts slidable in said slots and having said fingers mounted thereon, said fingers having longitudinal slots through which said pivot bolts pass, and a nut on each of said bolts to secure the respective fingers in adjusted positions on the arms.

CARL MICHAEL ZOLL.  
WILLIAM KOHLMAN GAUTHIER.

References Cited in the file of this patent  
UNITED STATES PATENTS

Number	Name	Date
1,311,313	Brix	July 29, 1919
1,727,879	Hodlick et al.	Sept. 10, 1929
1,747,799	Strauss	Feb. 18, 1930
2,473,266	Wexler	June 14, 1949