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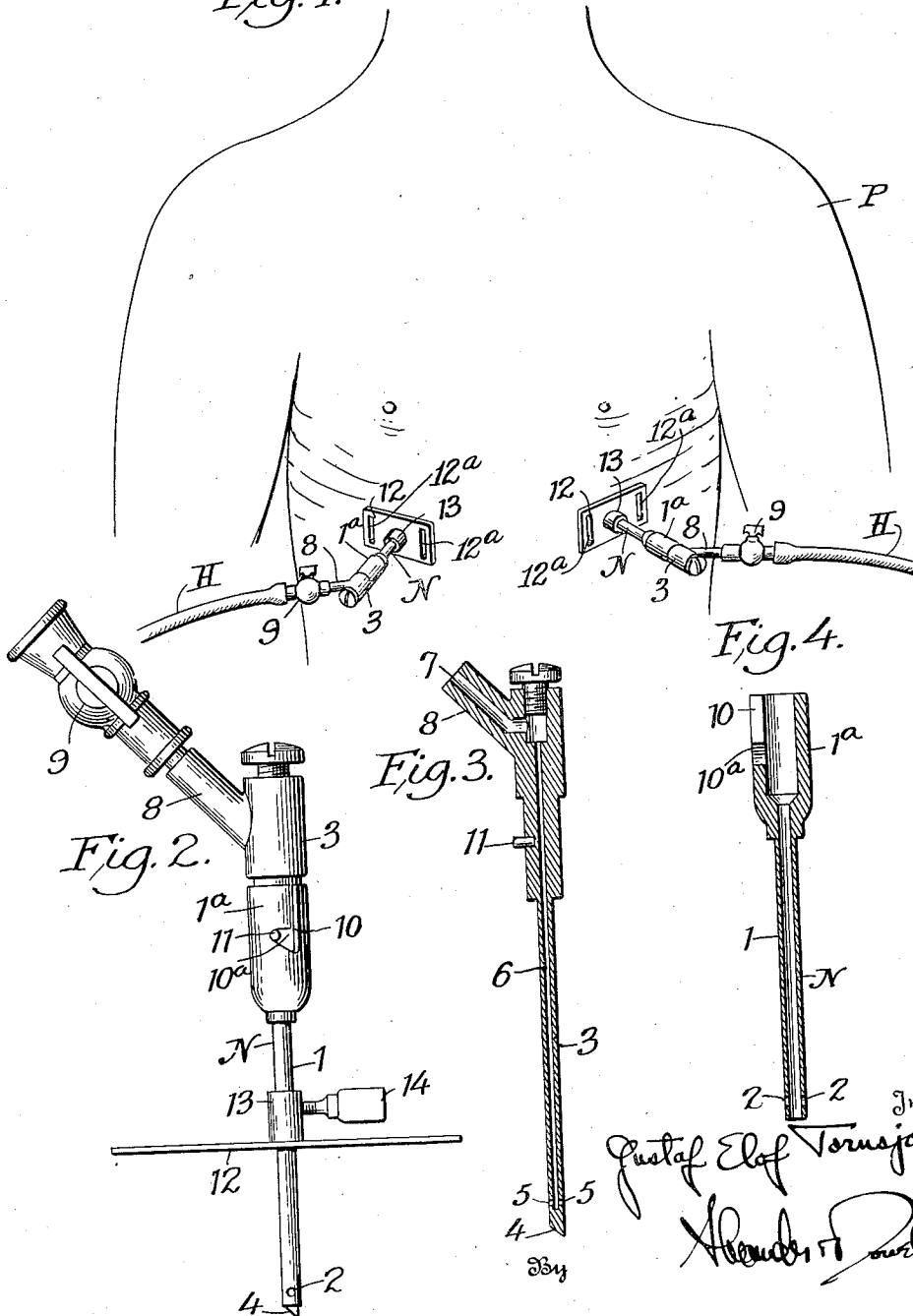
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SURGICAL NEEDLE

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Fig. 1.



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UNITED STATES PATENT OFFICE

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SURGICAL NEEDLE

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4 Claims. (Cl. 128—347)

This invention is a novel improvement in surgical needles particularly adapted for taking the internal pressures of the intra-pleural or other cavities of a patient, the needle having means for cutting through the flesh and means operable to open a passage through the needle to a suitable pressure recording apparatus, whereby by using two such needles, injected into the respective intra-pleural cavities between the lungs and the chest walls at both sides of a patient, the pressures in both cavities may be recorded.

The needles may be connected by rubber tubing with the apparatus for graphically recording such pressures for determining the differences in pressures. Also the needles may be used in determining the pressures in cavities other than the intra-pleural cavities of a patient.

Other minor objects of the invention will be hereinafter set forth.

I will explain the invention with reference to the accompanying drawing which illustrates one practical embodiment thereof to enable others familiar with the art to adopt and use the same; and will summarize in the claims the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawing:

Fig. 1 is a view showing needles applied to both intra-pleural cavities of a patient.

Fig. 2 is an enlarged elevation of a needle detached.

Fig. 3 is a section through the inner member of the needle.

Fig. 4 is a section through the outer member of the needle.

As shown in Fig. 1 the needles N forming the subject matter of the present application are shown applied to the intra-pleural cavities between the lungs and chest walls at both sides of the patient P. In practice the needles would be connected around the back of the patient by an inelastic strap, and connected across the chest of the patient by an elastic strap to allow for chest expansion and retraction of the patient while breathing without changing the positions of the needles.

The needles N are connected by hose sections H to a recording apparatus (not shown) of any desired type.

Each needle (Figs. 2, 3, 4) preferably comprises a slender tubular outer member 1 having apertures 2 adjacent its outer end, and being open at its outer end. Within the outer member 1 is an inner member 3 closed at its outer end

but said end being beveled and sharpened as at 4 to pierce the flesh. The inner member 3 has a transverse opening 5 therethrough adapted to register with the perforations 2 in the outer member 1 in one position. The inner member 3 carrying the skin piercing point 4 projects beyond the end of the outer member 1 while piercing the flesh, and when so projected the holes 5 and 2 in the two members are cut off register. When however the needle has been injected into the patient the inner member 3 is adjusted as hereinafter described to retract the sharp end 4 within the outer member 1, to prevent injury to the patient, and to bring the perforations 5 and 2 into register, the inner member 3 having a bore 6 extending from the perforations 5 to the inner end thereof and leading into a duct 7 in a lateral extension 8 to which is connected a combined valve and hose coupling member 9 connected with hose H (Fig. 1). Preferably the inner end of the outer member 1 is enlarged as at 1a and has a bayonet slot 10 therein adapted to receive a bayonet lug 11 on the inner member 3, the slot 10 being of such length that when the bayonet lug 11 is at the inner end of the slot 10 the cutting point 4 will be projected beyond the outer member 1 the proper amount. The bayonet slot 10 has a lateral branch 10a receiving the lug 11, inset from the end of the slot permitting rotation of the inner member 3 within the outer member 1 to retract the cutting end 4, and bring the perforations 5 and 2 into register, and establish communication to the combined valve and hose connecting member 9. On the outer member 1 is an adjustable depth gauge consisting of a plate 12 having a hub 13 provided with a set screw 14 whereby the penetrating depth of the needle N can be adjusted, said plate 12 having slots 12a at each end for attachment of the straps which hold the needle to the patient.

In use the hose sections H connected to the pressure recorder and carrying the needles N are inserted into the intra-pleural spaces in the patient at each side of his chest, and held in place by means of suitable straps having means to allow for alternate expansion and retraction of the chest during breathing without shifting the position of the needles. The pressures need only be recorded for a few minutes, and during the interval in which the pressures are being recorded any pressure fluctuations in the intra-pleural spaces in the patient will be recorded; also any fluctuations in pressure after introduc-

tion of any substance, such as fluid into the spaces.

I claim:—

1. A surgical needle, comprising an outer
5 tubular member having a perforation; an inner
tubular member having a flesh cutting knife
and having a perforation adapted to register
with that in the outer member when the knife is
retracted within the outer member.
- 10 2. A surgical needle, comprising an outer
tubular member having a perforation; an inner
tubular member having a flesh cutting knife
and having a perforation adapted to register
with that in the outer member; and means for
15 causing the perforations to come into and out of
register.
3. A surgical needle, comprising an outer
tubular member having a perforation; an inner
tubular member having a flesh cutting knife and
20 having a perforation adapted to register with
that in the outer member; means whereby in
one position of the inner member the knife will
project beyond the outer member and the per-
forations will be out of register, and in another
position of the inner member the knife will be
retracted within the outer member and the per-
forations will register.
4. A surgical needle, comprising an outer
tubular member having a perforation; an inner
tubular member having a flesh cutting knife
10 and having a perforation adapted to register
with that in the outer member; a bayonet pin
on the inner member engaging a bayonet slot
in the outer member whereby in one position
of the pin in the slot the knife will project be-
15 yond the outer member and the perforations
will be out of register, and in another position
the knife will be retracted within the outer
member and the perforations will register.

GUSTAF ELOF TORNSJO. 20