

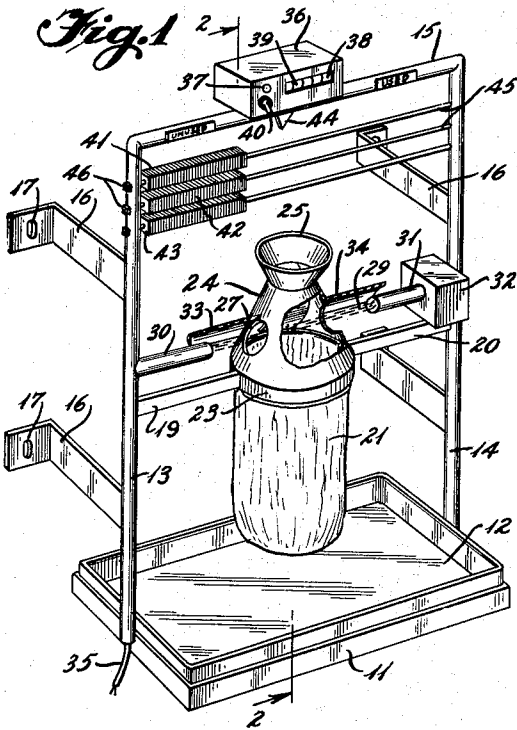
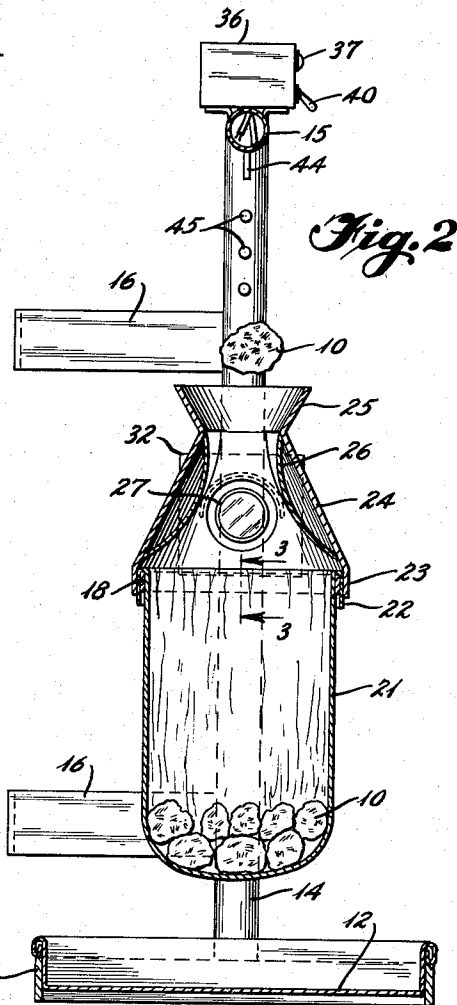
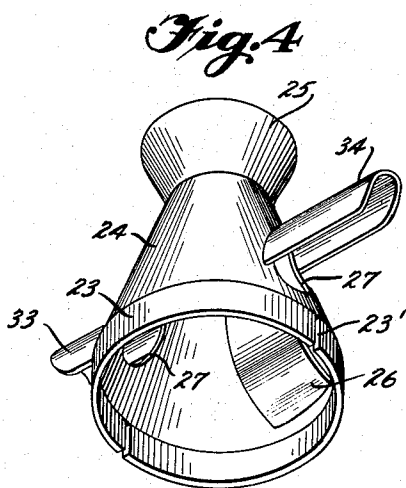
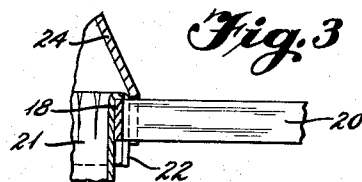
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SPONGE COLLECTOR AND COUNTER

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SPONGE COLLECTOR AND COUNTER

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This invention relates to the practice of medicine internal and other types in which equipment and accessories of various kinds such as implements, sponges and the like are employed in the performance of the many essential functions for the patient.

The invention relates particularly to the manner of the treatment of the human body utilizing sponges for the absorption of fluid during such treatment and the removal of which sponges is imperative to the welfare of the patient.

In the practice of internal medicine where surgical implements are employed and sponges are packed into the cavities for absorbing fluid and which sponges or packings require removal to permit the particular area of the patient to heal, a sponge sometimes has been left and has caused ill and distressing effects and in some instances the death of the patient and the possibility of leaving a sponge has been the concern or cause of anxiety to the patient and to all others involved.

It is an object of the invention to provide a device for holding a disposable transparent bag for receiving discarded sponges or packings and with both automatic and manual means provided for counting the number of such sponges in order that there be none left in a patient and the minds of those concerned be relieved of any cause for worry.

An object of the invention is to provide operative procedure whereby discarded sponges can be conveniently deposited in a disposable container and counted both automatically and manually by the individual.

A further object of the invention is to provide a device capable of being attached to a wall or supported on a horizontal surface and which device includes a base including an open top receptacle and centrally above which is mounted a holder for a disposable transparent bag with an inlet or mouth for facilitating the receipt of sponges thrown into and with an electric eye or photoelectric cell which actuates a count for the sponges deposited.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective illustrating one application of the invention;

FIG. 2 is an enlarged vertical section on the line 2—2 of FIG. 1;

FIG. 3 is an enlarged fragmentary detail section on the line 3—3 of FIG. 2; and

FIG. 4 is an enlarged perspective of the inlet shell or housing.

Briefly stated the invention comprises a frame with a relatively large pan in its base for holding implements and other articles for convenient availability and to serve subsequently as a catch all. Centrally above the base is mounted a holding ring for receiving and supporting the outwardly turned open end of an inexpensive disposable container in which discarded sponges or packings are dropped through a tapered inlet throat in the form of a shell or cone having a restricted passage for the discarded sponges and with openings in the opposite sides of said inlet shell or cone and an electric eye or photoelectric cell which actuates a counter on the upper portion of the device for automatically indicating the number of sponges discarded and with manual means for making a second count thereof.

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With continued reference to the drawings, the present invention is designed to receive sponges, some of which contain an excess of blood or fluid. In order to receive the sponges 10 the device of the present invention includes a generally rectangular base composed of a hollow frame 11 in which is removably received a pan 12 of generally similar configuration.

Along the middle of the ends of the rectangular frame 11 are mounted upright posts 13 and 14, the upper ends of which are connected by a cross bar 15, and attached to and extending rearwardly from the posts are mounting brackets 16 having openings 17 for the reception of fasteners (not shown) for mounting the posts on a wall.

Centrally above the generally U-shaped frame formed by the posts 13 and 14 and the cross bar 15 and substantially midway the height of the frame is mounted a bag or receptacle retaining ring 18 having oppositely disposed supporting arms 19 and 20 the remote ends of which are connected to the posts 13 and 14 with the bag retaining ring 18 located in substantially horizontal position centrally over the pan 12.

Within the ring 18 is adapted to be placed a disposable bag or receptacle 21 with the open end or mouth portion 22 of such bag located outwardly and downwardly over the ring 18 so that the bag will be held conveniently for the deposit of sponges therein. The pan 12 serves to conveniently hold for ready use implements and accessories and subsequently as a catch basin. Also if the bag should break, the contents thereof will fall into the pan.

Upon the outwardly and downwardly folded portion of the bag is placed a retainer for the bag including the lower end 23 of a frusto-conical throat member or shell 24 having a flared mouth or inlet 25 in which the sponges 10 are adapted to be dropped, such lower end 23 having opposed slots 23' for the reception of the arms 19 and 20. The member 24 has a pair of guides or baffles 26 to provide a narrowed or restricted area for the passage of the sponges and a pair of opposed aligned openings 27 at right angles to the baffles 26. The opposed openings 27 permit a beam of light 29 from a source within a tube 30 attached to the post 13 to pass through the member 24 and a tube 31 to focus on a photo relay 32. A pair of shields 33 and 34 extend outwardly from the member 24 in alignment with the beam of light and partially encircling the same to prevent the accidental interruption of the beam of light by light from above. Energy is supplied to the light source within the tube 30 by means of a conductor 35 which likewise supplies current to an electromechanical counter 36 having an indicator light 37 to indicate when the current is on or off.

When the beam of light 29 is broken by the dropping of a sponge 10 through the mouth 25, the photo relay will send an impulse through conductors (not shown) to the counter 36 to advance the numerical counter indicator 38 which can be viewed through the windows 39. One digit is advanced each time the ray of light 29 is broken by the dropping of a sponge. A control switch 40 is provided by which the electrical energy can be supplied or interrupted.

If desired, a double check or manual count may be incorporated to insure a correct count by the electromechanical counter. This may be accomplished by a series of counter beads 41, 42 and 43 located at one side of the frame and adapted to be moved manually by the operator past a central point such as an indicator 44 to the opposite side of the frame. The counters are supported on a series of transverse rods 45 extending from the post 13 to the post 14 and mounted thereon by having threaded ends engaged by nuts 46.

As each sponge is dropped into the mouth 25 of the member 24 by the operator a bead is manually moved

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past the indicator 44. When the final sponge count is called for by the attending surgeon, the number of beads in the used position on the frames are compared with the number shown by the electromechanical counter to insure the correct count. Any discrepancy must be dissolved before the operation is completed.

If desired, a color code may be used in conjunction with the beads. The greater number of beads 41 may have a silver color and every fifth bead 42 is preferably of a different color such as black so that the beads may be counted as quickly as possible. The thirtieth bead 43 may be of red color to signify the amount of blood lost by the patient during the operation. It is an accepted theory of surgeons that for every 30 sponges used the patient loses a pint of blood and a glance at the beads by the surgeon or his assistants will give him an indication of the amount of blood that has been lost.

In operation, the device is mounted in close proximity to an operating table and during the course of an operation the sponges used by the surgeon are dropped into the mouth 25 of a frusto-conical member 24. The sponges fall between guides 26 and interrupt a beam of light to a photo relay 32 which transmits one impulse to an automatic counter. A manual counter is employed as a double check on the automatic counter and preferably comprises a series of colored beads 41, 42 and 43 which may be quickly checked against the count of the automatic counter.

It will be obvious to one skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A device for receiving and counting sponges removed from a patient as a part of an operative process comprising supporting structure including a pan holding base, uprights operatively associated with said base, a support for a disposable receptacle of sheet material mounted above said base on and between said uprights and adapted to have said receptacle applied thereto and be folded thereover, structure defining a restricted inlet throat for said receptacle and constructed to bear against said support for securing said disposable receptacle in place, actuating mechanism associated with said throat and adapted to operate upon the movement of objects through said throat, and counting mechanism operated by said actuating mechanism to count such objects, said actuating mechanism including a photoelectric cell.

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2. A device for receiving and counting sponges removed from a patient as a part of an operative process comprising supporting structure including a pan holding base, uprights operatively associated with said base, a support for a disposable receptacle of sheet material mounted above said base on and between said uprights and adapted to have said receptacle applied thereto and be folded thereover, structure defining a restricted inlet throat for said receptacle and constructed to bear against said support for securing said disposable receptacle in place, actuating mechanism associated with said throat and adapted to operate upon the movement of objects through said throat, and counting mechanism operated by said actuating mechanism to count such objects.

3. A portable receptacle constructed to be mounted on a supporting surface disposed either in generally horizontal or upright position for receiving and counting sponges used in a surgical operation comprising the combination of a generally horizontal base, spaced uprights mounted on said base, a receptacle retaining ring located centrally of said spaced uprights and supported thereby and of a construction to have the open end of a disposable receptacle folded thereover, a frusto-conical throat member having a lower portion of a size and construction cooperatively to engage the folded over portion of the receptacle and said ring to retain the receptacle thereon, baffle means in said frusto-conical throat member, said baffle means including curved strips having spaced convex surfaces providing a restricted passage, a photo relay mounted on one of said uprights, a source of light mounted on the other upright and having a beam directed on said photo relay, said frusto-conical member having opposed openings in the restricted passage permitting the beam of light to pass therethrough, an inverted U-shaped light shield mounted on each side of said frusto-conical throat member about the openings therein to prevent the passage of outside light into said openings, an electromechanical counter supported by said uprights, electrical means connecting said counter and said photo relay whereby when the beam of light is interrupted the counter will be energized.

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