

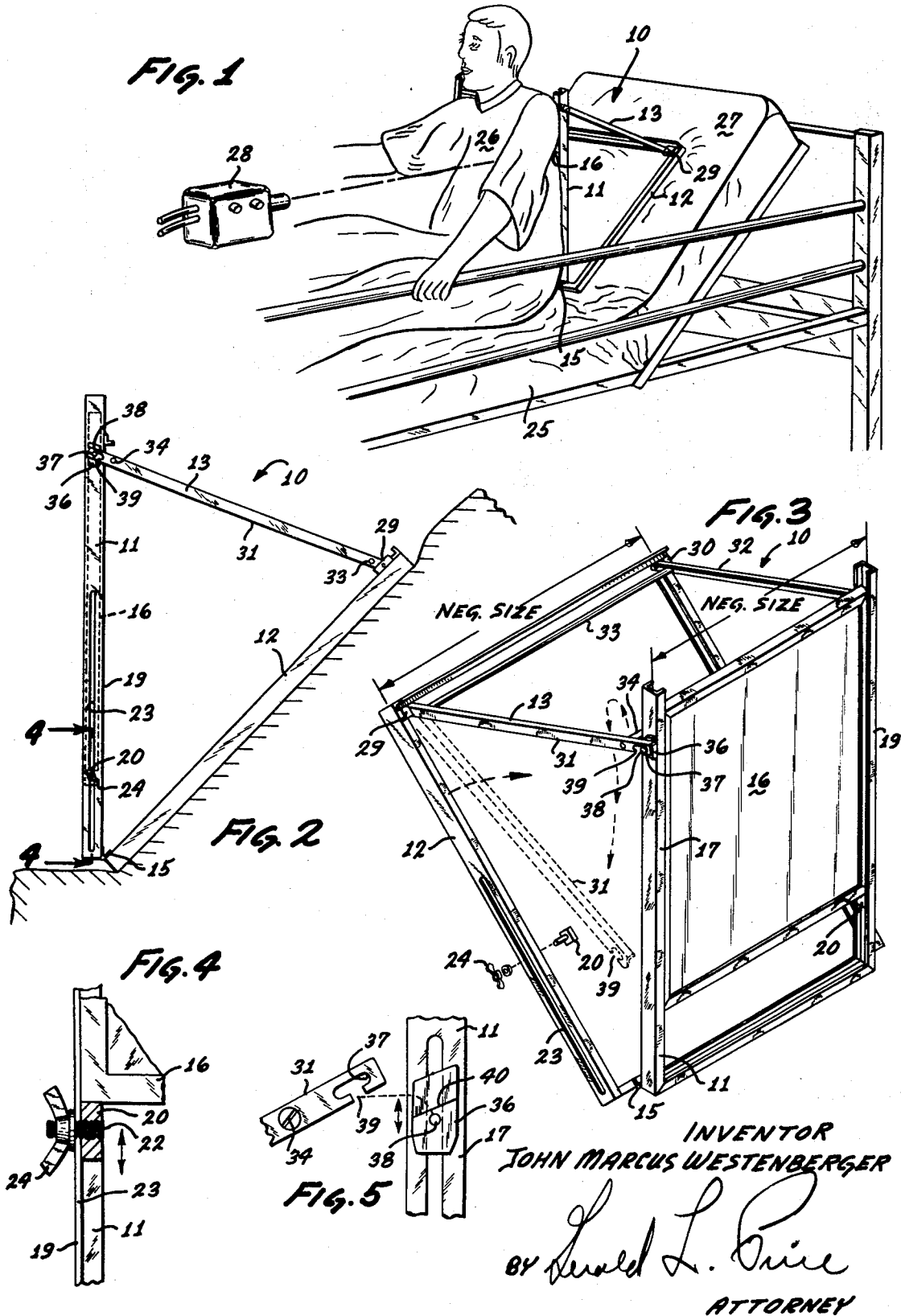
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PORTABLE CASSETTE HOLDER AND PATIENT SUPPORT FOR CHEST X-RAYS

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1

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PORTABLE CASSETTE HOLDER AND PATIENT SUPPORT FOR CHEST X-RAYS

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3 Claims

ABSTRACT OF THE DISCLOSURE

A portable holder for X-ray film cassettes for supporting a bedridden patient in a desired position with respect to the cassette for a chest X-ray. A collapsible frame is provided that holds a cassette in an angular relationship with the bed whereby both the chest of the patient leaning back on the cassette in the frame and the cassette are disposed in parallel plane and substantially perpendicular to the X-ray beam.

BACKGROUND OF THE INVENTION

The present invention relates generally to holders for X-ray film cassettes, and more particularly, to an improved holder which holds the X-ray film cassette in a proper predetermined relationship with the X-ray beam, and also supports a bedridden patient in the desired position for a chest X-ray.

In conventional hospital and infirmary practice, it often becomes necessary to take chest X-rays of a bedridden patient utilizing portable X-ray equipment. In order to take the conventional chest X-ray, the upper portion of the patient's body must be substantially vertical with the X-ray film disposed parallel to the chest of the patient and rearwardly thereof while the X-ray film is exposed.

In order to accomplish a portable chest X-ray of a bedridden patient, the conventional method employed by X-ray technicians is to raise the hospital bed to its maximum height, usually forty to fifty degrees with the horizontal and stuff or cram pillows or the like between the mattress of the bed and the X-ray film cassette in order to maintain the cassette in a vertical position against which the patient leans during the X-ray exposure.

While this conventional method is expedient, it results in many portable chest X-rays having to be taken over. The reason for this is that often when the patient leans against the film cassette, the cassette is moved backwards compressing the pillow thereby removing it from a vertical position and out of parallel with the chest of the patient. Furthermore, when the exposure is made the patient is required to take a big breath which also often results in dislocating the X-ray film cassette from its proper vertical plane thereby necessitating a retake at a later time.

SUMMARY OF THE INVENTION

Accordingly, it is the general aim of the present invention to provide a new and improved X-ray cassette holder that may be quickly and simply positioned behind a bedridden patient so as to maintain both the patient and the film cassette in a vertical and substantially parallel relationship.

It is another object of the invention to provide a device of the instant type which is relatively low in cost, lightweight and portable and which can be readily adjusted to meet a wide range of varying conditions such as for example different cassette sizes, i.e., cassettes of different widths, and different types of hospital beds both adjustable and nonadjustable.

BRIEF DESCRIPTION OF THE DRAWINGS

The above stated and other objects and advantages of

2

the instant invention will readily appear from the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a partial perspective view, of an exemplary X-ray cassette holder embodying the features of the present invention depicted in use during the exposure of a chest X-ray of a bedridden patient;

FIG. 2 is a side view of the exemplary device depicted in FIG. 1, and indicating the X-ray film cassette in dotted lines;

FIG. 3 is a perspective view of the exemplary device of FIG. 1 and additionally depicting the cassette positioning stop in an exploded manner, and in broken lines, the manner of collapsing or folding the exemplary device for carrying or storage;

FIG. 4 is a fragmentary sectional view taken substantially along the line 4—4 of FIG. 2; and

FIG. 5 is an enlarged fragmentary section of the connecting structure for maintaining the exemplary device in its operative position.

While the present invention is susceptible of various modifications and alternative constructions, the illustrative embodiments shown in the drawings will herein be described in detail. It should be understood, however, that it is not intended to limit the invention to the particular forms disclosed, but, on the contrary, the intention is to cover all modifications, equivalents, and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. 2 and 3, an exemplary device for holding a film cassette and supporting a patient for a portable chest X-ray, generally indicated at 10, is illustrated, the device including a first cassette receiving frame 11, a second cassette receiving frame 12 and a third frame 13 for maintaining said first and second cassette receiving frames 11 and 12 in a predetermined angular relationship with each other. Cassette receiving frames 11 and 12 are hingeably attached to each other by hinge 15 (FIG. 2) of, for example, the piano hinge type which extends the entire width of frame 11.

In accordance with one of the important aspects of the present invention, both cassette receiving frames 11 and 12 are provided to readily and simply receive a conventional X-ray film holding cassette. Such cassettes are generally standard as to the available outside dimensions, and are manufactured by such firms as the Wolf X-Ray Products Inc. of New York. As illustrated in FIGS. 2 and 3, this is accomplished by fabricating frames 11 and 12 in a three-sided configuration with each said side being of a inwardly opening channel shaped cross section whereby a standard X-ray film holding cassette can be readily received by the frame. This is depicted in FIG. 3 wherein cassette 16 has been received in the opposing channels of sides 17 and 19 of frame 11.

In order to increase the versatility of the instant cassette holder, frames 11 and 12 are provided in different widths each corresponding to that of a conventional X-ray film cassette thereby having to only provide one of the instant devices for the two most common used sizes of X-ray film cassettes.

In order to maintain a cassette at the desired height within either frame 11 or 12, an adjustable stop is provided within the channel of at least one side of each frame 11 and 12. Referring collectively to FIGS. 2, 3 and 4, the adjustable stop comprises an abutment 20 sized to slide in the cassette receiving channels of frames 11 and 12 with a threaded shaft 22 extending therefrom and through an elongated slot 23 in the side of said cassette receiving frames, and selectively secured at any position

3

along said slot by a nut 24 being run up on the threaded shaft 22 in a manner whereby said abutment 20 is securely maintained at the desired position. Preferably a wing-nut is utilized thereby eliminating the necessity for tools to use the instant device.

In accordance with another important aspect of the present invention, provision is made for firmly maintaining both the chest of the bedridden patient and the X-ray film cassette in a substantially vertical position and perpendicular to the beam emitted by the X-ray machine. This general arrangement is figuratively depicted in FIG. 1 wherein a hospital bed 25 of the general type, is elevated to a predetermined position whereby upon inserting the instant cassette holder 10 between the sitting up patient 26 and the elevated portion of the bed 27 as shown, the patient 26 will be firmly supported with his chest in a vertical disposition and the cassette in frame 11 will also be similarly disposed. Accordingly, the beam diagrammatically depicted by broken line 27 emitted by a portable X-ray machine 28 will be substantially perpendicular with the chest of the patient 26 and the cassette in frame 11, immediately behind the chest of said patient.

In order to maintain frames 11 and 12 of the exemplary cassette holder in the proper predetermined relationship with each other so as to maintain the cassette and patient in a generally vertical position as shown in FIG. 1, a frame 13 hingeably attached to cassette receiving frame 12, and removably attachable to cassette receiving frame 11 is provided. As best seen in FIGS. 2 and 3, frame 13 is hingeably pinned to cassette receiving frame 12 at hinge blocks 29 and 30 affixed to the outer portion of frame 12 so as not to interfere with the receiving or removing of a film cassette. The frame 13 comprises a pair of struts 31 and 32 of equal length and cross rods 33 and 34 so as to impart rigidity. The struts 31 and 32 are of a length whereby when they are secured at their non-hinged ends to frame 11 at the attachment structure provided on frame 11 therefor, the exemplary cassette holder 10 is rigidly maintained in a predetermined relationship so as to insure the patient and the cassette being disposed in the intended manner as heretofore discussed.

Referring to FIGS. 2, 3 and 5 with particular emphasis on FIG. 5, struts 31 and 32 are removably attached to frame 11 by means of a pair of abutments 36 and 37 each provided with a pin 38 extending therefrom at the side of each strut 31 and 32 at the non-hinged ends thereof, there is provided an opening 39 which is sized so as to receive pin 38 and then permit the strut to linearly move with the pin 38 riding therein until said pin abuts the end of the elongated portion of hole 39. Furthermore, abutments 36 and 37 each have an abutting surface 40 for receiving the upper portion of struts 31 and 32 immediately above opening 39 as best seen in FIG. 3.

Accordingly, frame 13 can be readily attached to frame 11 in a manner heretofore described, thereby positioning the instant exemplary device for use as depicted in FIG. 1, while also being capable of being readily and simply detached thereby allowing the entire exemplary device to be folded generally flat for storage and carrying in keeping with one of the objects of the instant inven-

4

tion heretofore discussed. The collapsing or folding of the exemplary cassette holder is depicted in FIG. 3 by broken lines.

As illustrated in FIG. 5, it will be readily apparent to those skilled in the instant art that abutments 36 and 37 if desired could be provided so as to be selectively moveable and positionable along the length of sides 17 and 19 of frame 11 so that the instant exemplary device could also accommodate non-standard or non-adjustable hospital beds.

What is claimed is:

1. In combination an X-ray film cassette holder and back support for positioning the back of a bedridden patient and a film cassette in a juxtaposed generally vertical plane comprising a first cassette holder frame means for securely holding and positioning an X-ray film cassette of a first width, a second cassette holder frame means for securely holding an X-ray cassette of a different second width, said first and said second frame means each comprising a three sided open ended rectangular frame having at least two opposing sides thereof of an inwardly directed channel shaped cross section substantially separated from each other by the respective widths of the cassettes, hinge means for pivotally securing said first and second cassette holder frame means to each other along sides thereof opposite the open ends of the two frame means, means for maintaining said first and second cassette holder frame means in a predetermined angular relationship with each other for positioning the back of a bedridden patient perpendicular to a generally horizontal X-ray beam, stop means adjustably mounted on at least one of said two opposing sides of each of said frame means for securing an X-ray cassette at a selected position within its course of slidable travel thereby providing a stop to maintain an X-ray film cassette slideably received by the respective frame means at a desired vertical position within said frame means.

2. The combination as set forth in claim 1 wherein said means for maintaining said first and second frame means in a predetermined angular relationship includes a second hinge means attached at one end to one of said frame means and the other of said frame means includes means for releasably securing the opposite end of said means for maintaining said predetermined angular relationship.

3. The combination as set forth in claim 2 wherein said means for maintaining said predetermined angular relationship includes means for selectively securing said first and second frame means in varying angular relationships.

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