Dec. 18, 1962 J. SÁZAVSKÝ 3,069,543

TILTABLE WALL OR TABLE AS USED IN X-RAY EXAMINATIONS

Filed Oct. 10, 1960

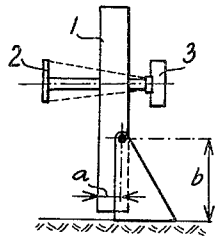


Fig -1

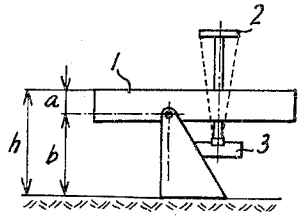


Fig -2

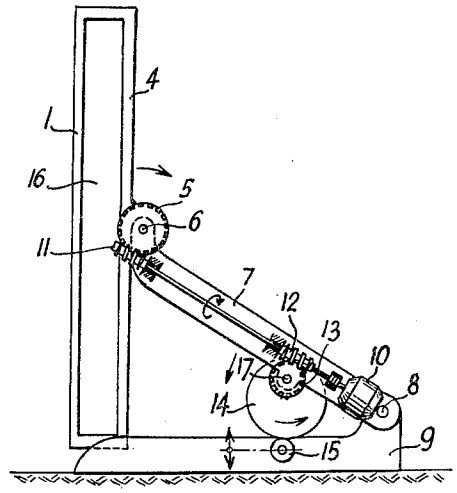


Fig - 3

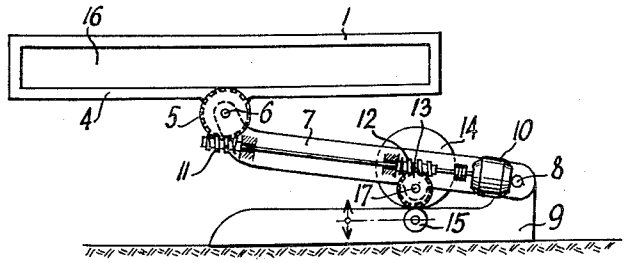


Fig - 4

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United States Patent Office 3,069,543 Patented Dec. 18, 1962

3,069,543

TILTABLE WALL OR TABLE AS USED IN X-RAY EXAMINATIONS

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Filed Oct. 10, 1960, Ser. No. 61,524
10 Claims. (Cl. 250—55)

The present invention relates to a tiltable wall or table as used in X-ray examinations. It is desirable that such tiltable tables comply with the following basic requirements:

(1) An easy tilting of the table to a horizontal position and further as far as the so-called Trendelenburgh position (45° below the horizontal),

(2) The bed plate, when in horizontal position, should not be more than 80 cm. above the floor,

(3) The displacement in longitudinal direction of the X-ray tube and screen should be as large as possible in particular when the table is tilted into horizontal position.

These requirements are fulfilled to a substantial degree by the tiltable table according to the present invention.

According to the main feature of the invention the frame carrying the table top is linked to the base plate by a lever-like supporting structure which is pivoted at its upper end to the frame intermediate its length and at its lower end to the base plate; a driving shaft rotatably mounted on the lever-like supporting structure drives an upper or first gearing and a lower or second gearing, each gearing composed of two components of which one rotates with the shaft; the second component of the first gearing is fixedly mounted on the frame to tilt the same relative to the supporting structure while the second component of the second gearing is fixedly connected to a cam which is rotatably mounted on the lever-like supporting structure, slides on the base plate and support said lever-like structure in differently inclined positions relative to the base plate.

The accompanying drawing shows a heretofore known arrangement of a tiltable X-ray table and an embodiment of an X-ray table according to the invention.

FIGURE 1 is a side view ofa known X-ray table in vertical position.

FIGURE 2 is a side view of the same table in horizontal position.

FIGURE 3 is a diagrammatic side view of the tiltable X-ray table according to the invention in its vertical position and

FIGURE 4 is a similar view of the table in its horizontal position.

FIGS. 1 and 2 illustrate a known tiltable X-ray table. In both FIGURES the reference **1** denotes the frame carrying the table top, **2** the screen, **3** the X-ray tube. It is apparent from the drawing that the height *h* of the table top above the floor equals the sum of the height *b* of the frame pivot above the floor and the thickness *a* of the frame above the axis of the pivot.

The construction of the tiltable X-ray table according to the invention is shown in FIGS. 3 and 4 in vertical and horizontal position, respectively. The table top **1** is carried by a frame **4**, to which wheels **5** are laterally secured (in the projection shown in the drawing one wheel only is visible) carrying pivots **6** which are mounted in arms **7** (in the projection one only is shown), said arms being mounted for swivelling movement about pivots **8** in the base plate **9**.

A motor **10** is adapted to rotate worms **11** and **12**, which drive the worm wheels **5** and **13**. The wheel **5** is rigidly connected to the frame **4**, while the wheel **13**

is connected to a cam **14**, suitably shaped and supported against a roller **15**, which is rotatably mounted in the base plate **9**.

When the frame **4** is being tilted, the cam **14** rotates about an eccentric pivot **17**, with the result that the distance of the pivot **17** and thus also of the arms **7** from the roller **15** i.e. from the base plate or floor is altered. The arms **7** are tilted and the pivot **6** travels along a circular path, the centre of which is formed by the pivot **8**. At the same time the frame **4** rotates around the pivot **6** in clockwise direction until it reaches the horizontal position shown in FIG. 3. The shape of the cam **14** is chosen such that the height of the pivot **6** above floor should at any time be as advantageous as possible in relation to the momentary position of the frame **4** or of the table top **1**. With such an arrangement of the new device the dimension *a* (see FIGS. 1 and 2) can be chosen so that a sufficiently large excision **16** can be provided in the frame **4** to permit for the passage of the screen carrier and of the high voltage cables for the X-ray tube.

The excision **16** permits any required displacement of the X-ray tube and of the screen without any limitation of their longitudinal displacement. In addition, the roller **15** may be mounted displaceably in vertical direction in the base plate **9**, and thereby the height *h* (see FIGS. 1 and 2) can be chosen as momentarily desired.

While one embodiment of the invention has been shown and described by way of illustration, it will be well understood that it may be constructed in various other embodiments which come within the scope of the appended claims.

What I claim as my invention is:

1. A tiltable X-ray table comprising in combination
(*a*) a base plate;
(*b*) a frame carrying a table top;
(*c*) a lever-like supporting structure tiltably holding said frame; said structure pivoted at its upper end to the frame intermediate its length and at its lower end to the base plate;
(*d*) a driving shaft rotatably mounted on said supporting structure and extending from the upper end towards the lower end thereof;
(*e*) a first gearing comprising two cooperating components; one component rotating with said shaft and the other component fixedly mounted on the frame, said gearing adapted to tilt the frame relative to the supporting structure;
(*f*) cam means pivoted to said supporting structure and sliding on said base plate to support said structure in differently inclined positons relative to the base plate;
(*g*) a second gearing comprising two cooperating components; one component rotating with said shaft and the other component fixedly connected to said cam means to rotatably drive the same and thus effect the said differently inclined positions of the supporting structure;
(*h*) and driving means for said shaft actuating said first and second gearing whereby the pivoted upper end of the supporting structure is lowered and raised, respectively, relative to the base plate while the frame is being tilted between vertical and horizontal positions.

2. A tiltable X-ray table comprising in combination
(*a*) a base plate;
(*b*) a frame carrying a table top;
(*c*) not more than two supporting arms tiltably holding the frame; each arm pivoted at its upper end to one of opposing sides of the frame intermediate its length and at it slower end to the base plate;

(*d*) a driving shaft rotatably mounted on at least one arm and extending from the upper end towards the lower end thereof;

(*e*) a first gearing comprising two cooperating components; one component rotating with said shaft and the other component fixedly mounted on the frame, said gearing adapted to tilt the frame relative to the arms;

(*f*) cam means pivoted to said at least one arm and sliding on the base plate to support such arm in differently inclined positions relative to the base plate;

(*g*) a second gearing comprising two cooperating components; one component rotating with said shaft and the other component fixedly connected to said cam means to rotatably drive the same and thus effect the said differently inclined positions of said arms;

(*h*) and driving means for said at least one shaft actuating said first and said second gearing whereby the pivoted upper end of said arms is lowered and raised, respectively, relative to the base plate while the frame is being tilted between vertical and horizontal positions.

3. A tiltable X-ray table according to claim 1 comprising roller means rotatably mounted in the base plate to support said cam means.

4. A tiltable X-ray table according to claim 1 comprising roller means rotatably and in vertical direction adjustably mounted in the base plate to support said cam means.

5. A tiltable X-ray table according to claim 2 comprising roller means rotatably mounted in the base plate to support said cam means.

6. A tiltable X-ray table according to claim 2 comprising roller means rotatably and in vertical direction adjustably mounted in the base plate to support said cam means.

7. A tiltable X-ray table according to claim 1 wherein said first gearing comprises a worm rotating with said shaft and a worm wheel fixedly mounted on the frame.

8. A tiltable X-ray table according to claim 1 wherein said second gearing comprises a worm rotating with said shaft and a worm wheel fixedly connected to the cam means.

9. A tiltable X-ray table according to claim 2 wherein said first gearing comprises a worm rotating with said shaft and a worm wheel fixedly mounted on the frame.

10. A tiltable X-ray table according to claim 1 wherein said second gearing comprises a worm rotating with said shaft and a worm wheel fixedly connected to the cam means.

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