United States Patent [19]

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[54] **PROJECTOR TABLE CABINET**

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[52] **U.S. Cl.** **248/11,** 108/147, 280/43.14, 312/312

[51] **Int. Cl.** **F16m 1/00**

[58] **Field of Search** 248/11, 44, 397, 248/422, 132, 149; 312/20, 312, 250; 108/145, 9, 147; 280/43.14

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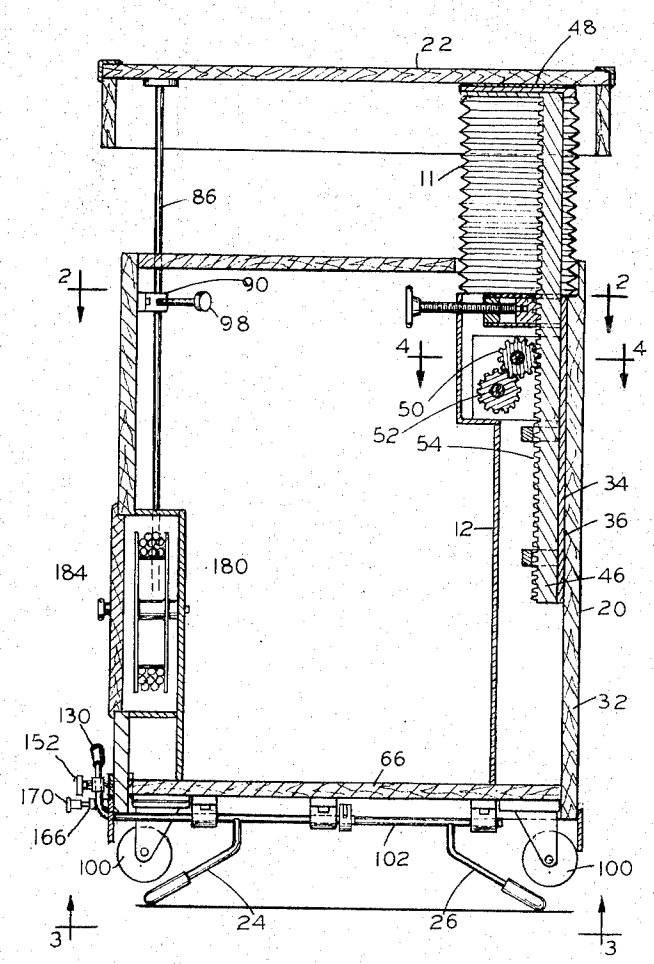
[57] **ABSTRACT**

Projector cabinet stand having a manual rack and pinion elevatable projector platform above the base, with a rack lock and resilient weight balancing extensible columns extending from the underside of the platform to the bottom of the cabinet, support rods are provided for the platform having rod guides affixed to an inside wall of the cabinet, with locking means for the rods, the cabinet also having casters, and retractable legs pivotally mounted upon the underside of the cabinet.

4 Claims, 8 Drawing Figures



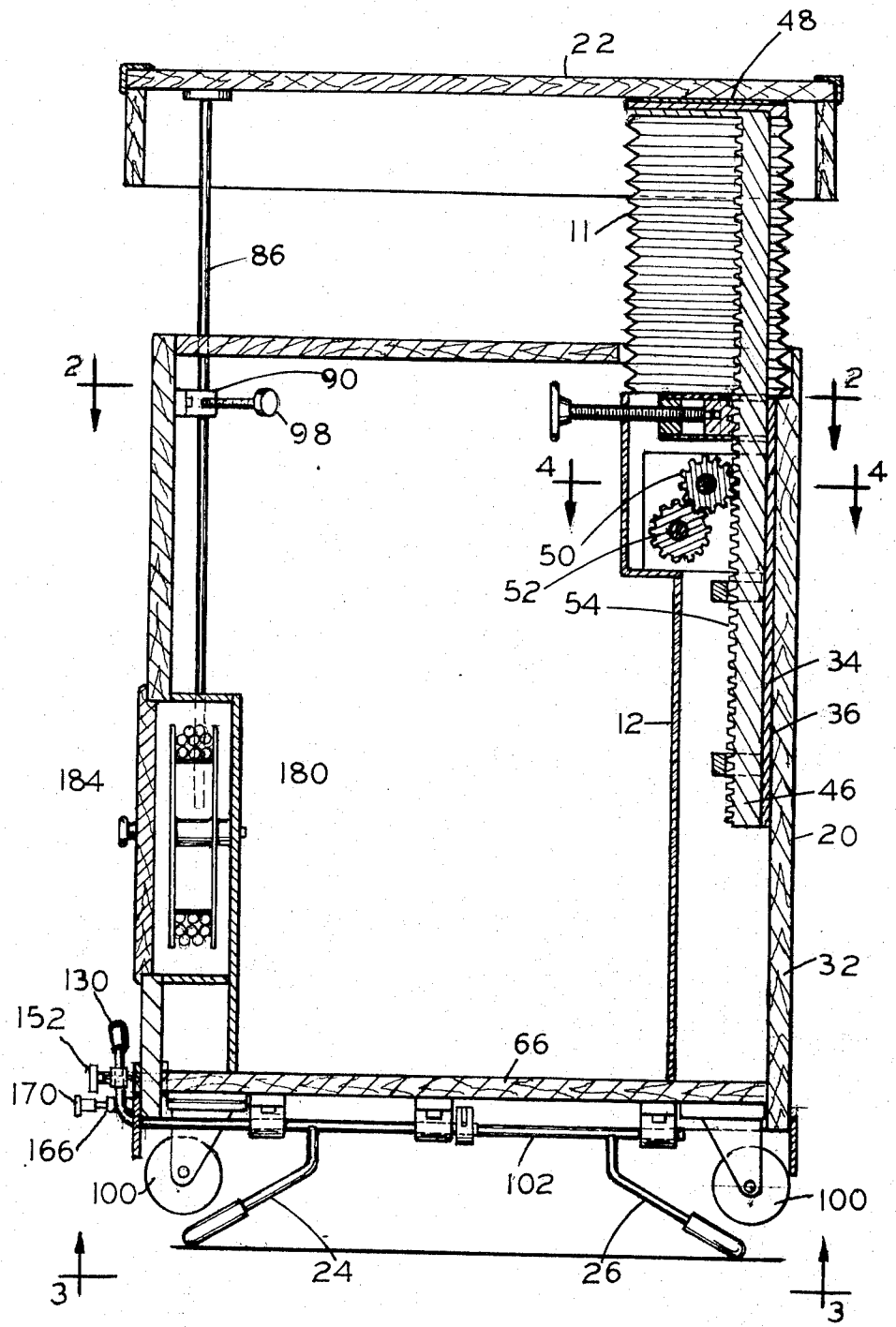


FIG 1

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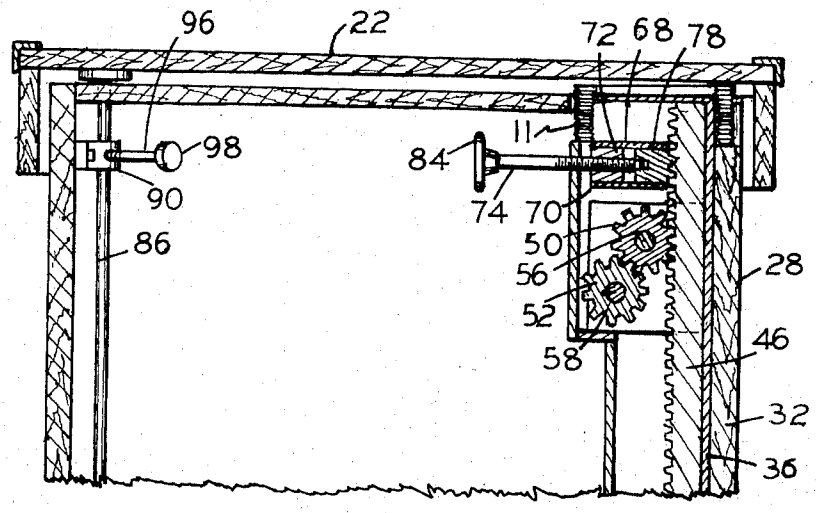

FIG. 3

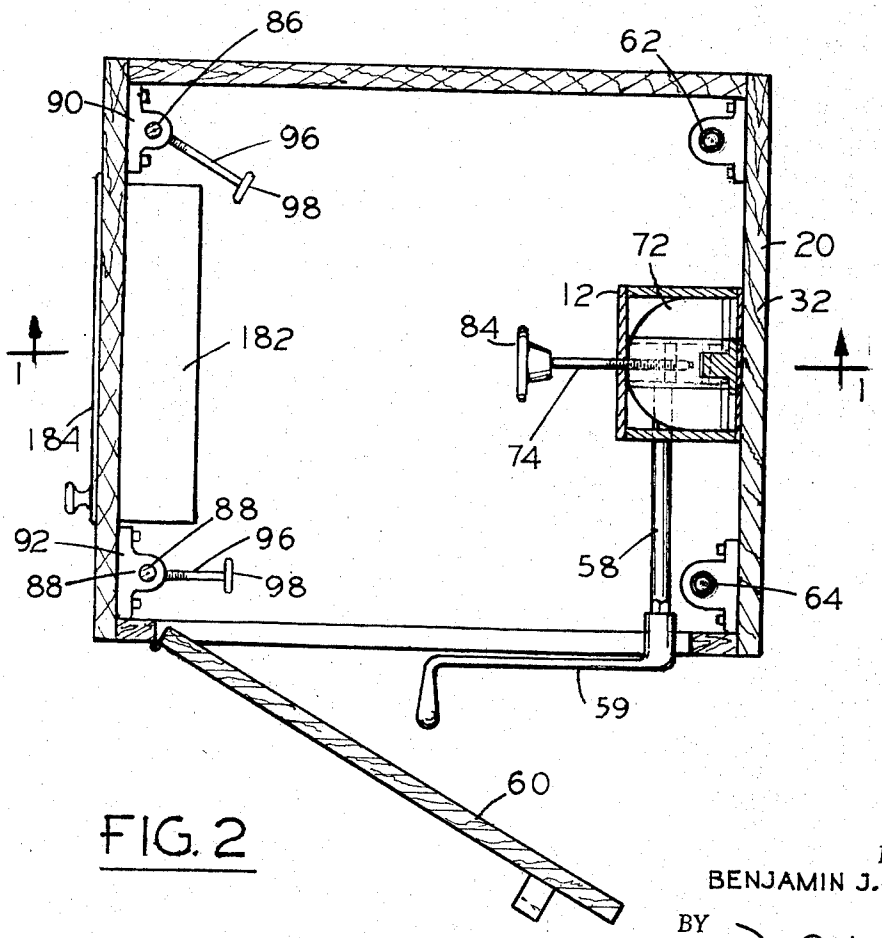

FIG. 2

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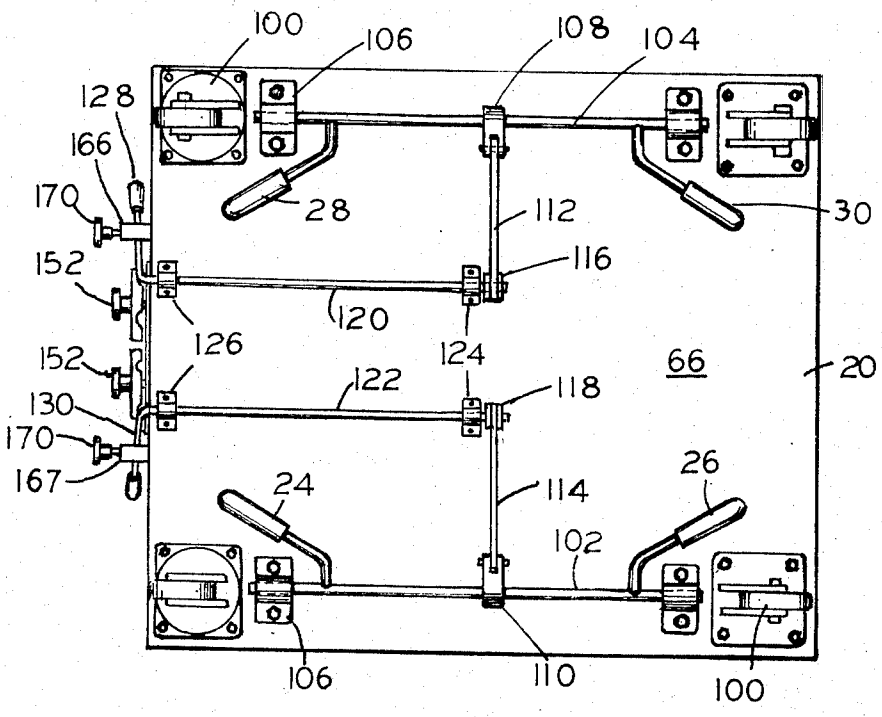

FIG. 6

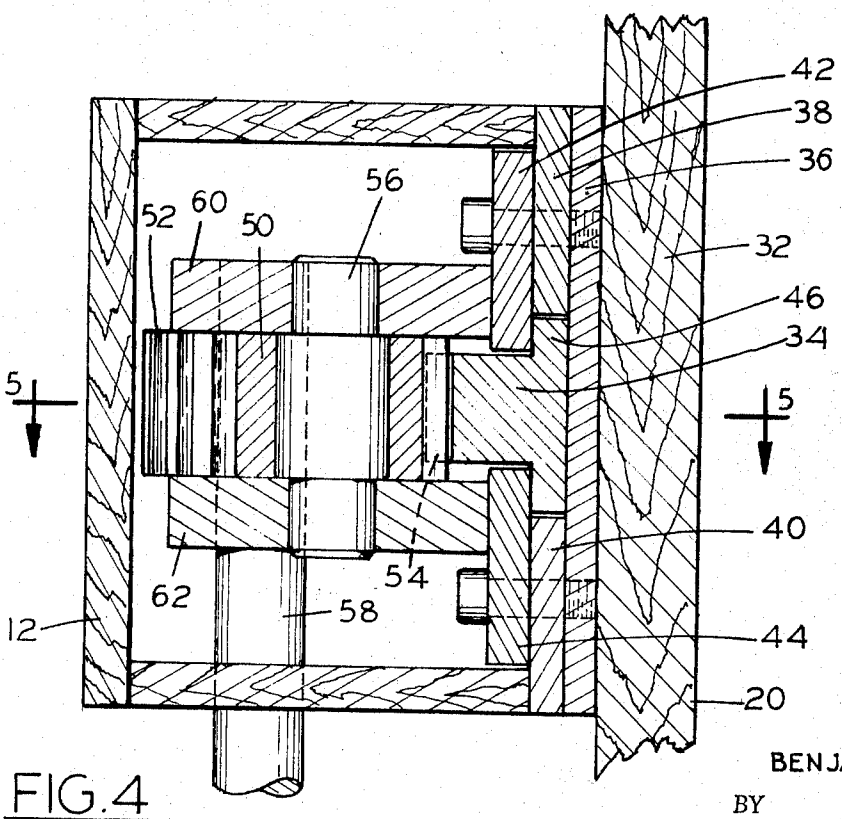

FIG. 4

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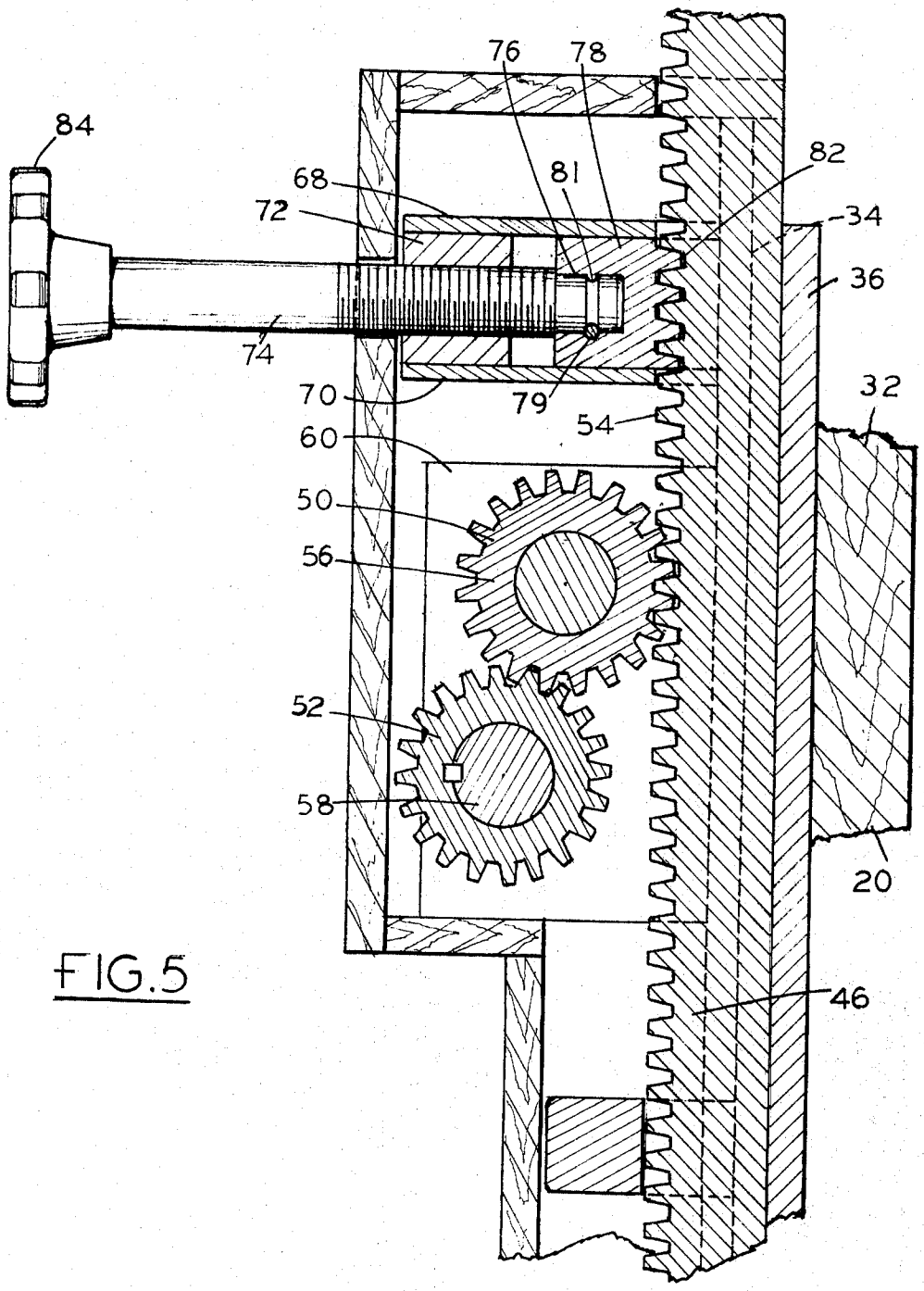

FIG.5

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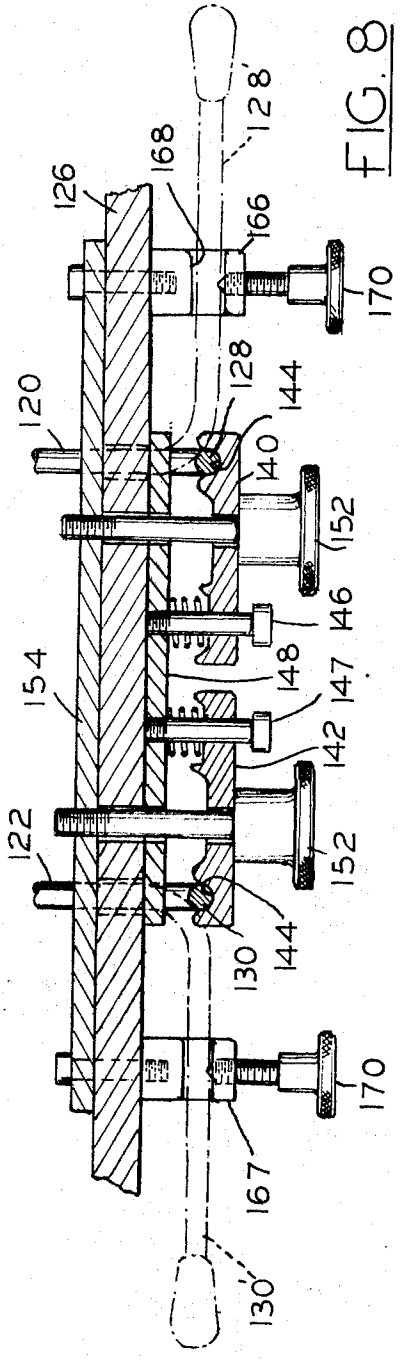

FIG. 8

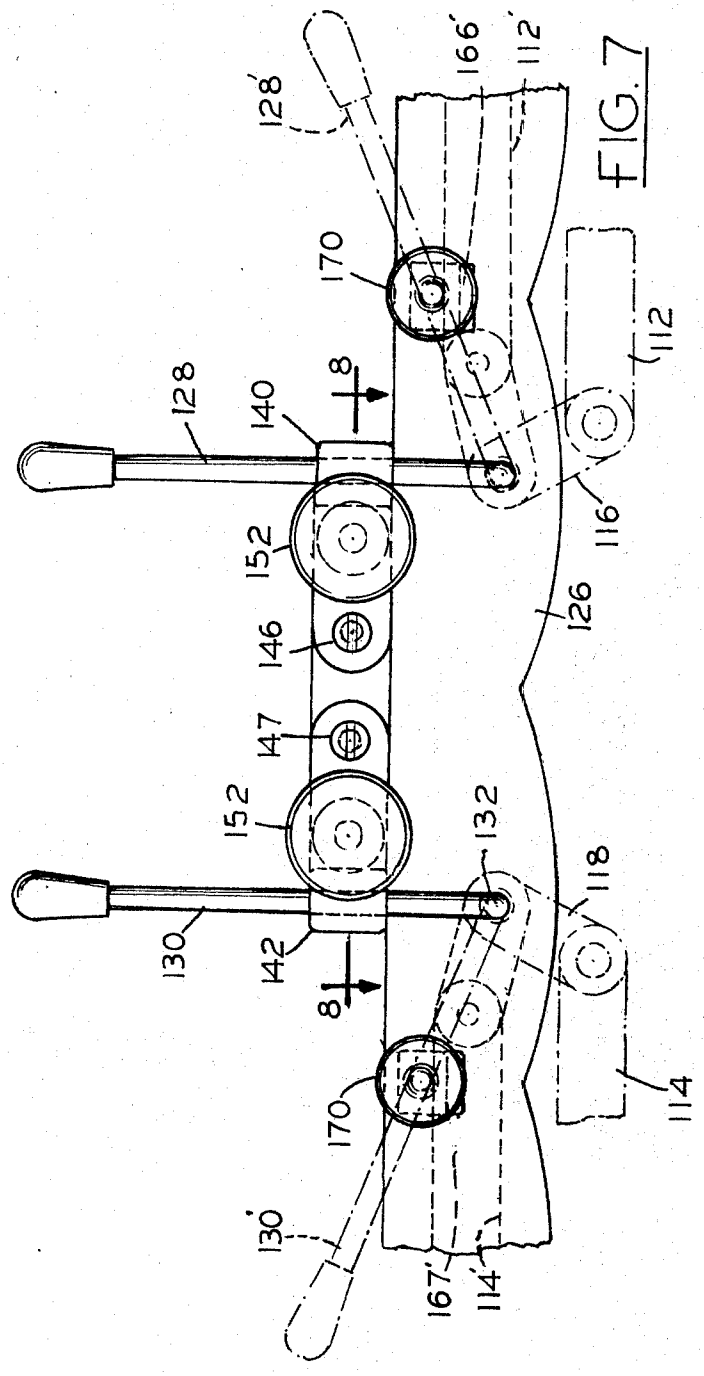

FIG. 7

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PROJECTOR TABLE CABINET

This invention relates to a projection table for use in projecting still or moving pictures upon a screen.

The invention particularly comprises a portable table having provision for rolling the same into position and having retractable legs for supporting the cabinet in a selected position. Further the invention comprises a elevatable platform to facilitate the projection of pictures in horizontal direction centrally with respect to a vertical screen to thereby avoid projecting on an angle which results in a non-rectangular projected pictures that may be poorly focussed as a result. The invention further has to do with a construction which is easily operated and when set in a particular position will rigidly hold the projection apparatus.

The above and other novel features of the invention will appear more fully hereinafter from the following detailed description when taken in conjunction with the accompanying drawings. It is expressly understood that the drawings are employed for purposes of illustration only and are not designed as a definition of the limits of the invention, reference being had for this purpose to the appended claims.

In the drawings wherein like reference numerals indicate like parts:

FIG. 1 is a longitudinal sectional view through the projection cabinet;

FIG. 2 is a sectional view taken substantially on the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary view similar to FIG. 1 of the upper portion of the cabinet showing the projection table retracted;

FIG. 4 is a transverse section taken through the rack and gear mechanism for elevating the platform;

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 4;

FIG. 6 is a view from below the cabinet showing its retractable legs and rollers;

FIG. 7 is a fragmentary rear view of the lower portion of the cabinet showing the manual controls for the contractable legs; and

FIG. 8 is a view taken substantially on the line 8—8 of FIG. 7.

Referring to FIG. 1 of the drawings there will be seen a cabinet 20 having an elevatable platform 22, the cabinet being shown supported on two of four legs 24 and 26 which are in operative support position. The other pair of legs being indicated in FIG. 6 at 28 and 30 where all the legs are shown in retracted position.

Against the front wall 32 of the cabinet is mounted a rack elevating mechanism for the platform 22. Such mechanism comprises a rack 34 which is vertically slideable in a "T" shape slot formed by a mounting plate 36 secured to the front wall 32, and guide plates 38, 40, 42 and 44 bolted to the plate 36 in stepped formation to a slot to accommodate the "T" cross section 46 seen in FIG. 4 in respect of the rack 34. The upper end of the rack is securely affixed to a plate 48 attached to the underside of the platform 22.

The rack is elevated by a pair of pinions 50 and 52 the former of which meshes with the teeth 54 of the rack 34. Both pinions 50 and 52 are journaled on shafts 56 and 58 extending through suitable bearing apertures in the heavy support plates 60 and 62 which are bolted to the mounting and guide plate structure referred to. The shaft 58 is extended to the side of the cabinet and the end thereof may be squared to receive a removable crank. Access to the end of the shaft may be had through a side door 60 in the side wall of the cabinet.

In order to counterbalance the weight of the table 22, and projection apparatus which may be mounted thereon, helical coil spring balancing devices employing telescopic tubes 62 and 64, one of which rotates helically with respect to the other, extend from the cabinet base 66 to the underside of the platform 22.

To secure the platform in any selected elevated position which may be effected by manual cranking of the shaft 58 through the detachable crank 59, a rack lock is provided, having members secured to the mounting plate 36 and guide plate assembly and disposed over the rack 34, above the elevating gearing before referred to. Such lock comprises plates 68 and 70 between which is disposed a U shaped heavy block 72 having a threaded aperture for a hand screw 74 threaded therein. The end of the hand screw is provided with a reduced diameter portion 76 projecting into a cylindrical recess 78 in the backside of a locking block 80 having locking teeth 82. It will be seen in FIG. 5, that the block 78 may be retracted to permit free movement of the rack as desired and when the projection platform has been brought to a suitable height, the block 78 and teeth 82 of the block are moved into engagement with the teeth of the rack 34 by manipulation of the handle 84 and the platform is thereby locked at the selected height. A pin 79 extending through a groove 81 in the end of the handscrew provides for retraction.

In order to steady the platform at any particular height there are provided two rods 86 and 88, the upper ends of which are rigidly secured to the underside of the platform 22. Such rods project into the cabinet adjacent the rear corners thereof and are adapted to slide through apertured clamp members 90 and 92 having threaded clamps 96 accessible for manual operation through the door 60 by reason of the knobs 98 on the clamp screw ends. When the platform is at a preferred elevation the clamp screws 96 are tightened against the rods 86 and 88 to secure the rods rigidly in position and provide rigid support for the platform 22.

Referring to FIG. 1 and 6 of the drawings, it will be seen that the cabinet base 66 is provided on the underside with corner rollers 100 which may be of a swivel variety to facilitate manipulation of the cabinet from a place of storage to a suitable location in reference to a projection screen.

When a cabinet is located as desired, the retractable legs 24, 26, 28 and 30 previously referred to, may be moved into operative position as indicated in FIG. 1 to lift the cabinet with its rollers from the floor and to provide rigid immovable support for the cabinet. The retractable legs 24 and 26 and 28 and 30 will be seen to be rigid extensions of rock shafts 102 and 104, the ends of which shafts are journaled in bearing brackets 106. Each of the rock shafts 102 and 104 is provided with a crank arm 108 or 110 respectively, which in turn is connected by links 112 or 114 to cranks 116 and 118 affixed to the ends of manually operated crank shafts 120 and 122. Such shafts are rigidly mounted in bearing brackets 124 and 126 and project to the rear of the cabinet and through the cabinet skirting such as 126. The ends of the shafts 120 and 122 are provided with manual levers 128 and 130 which may be integral extensions of the rock shafts 120 and 122 by reason of

sharp right angle bends as indicated at **132.** It will be seen that the cranks **116** and **118** rotate from a depending position to a laterally extending position as the legs are moved from their retracted position to the extended position, thereby incurring a toggle effect to increase the mechanical advantage as the legs are moved into their support position.

In order to securely hold the feet in extended position, locks for the lever arms **128** and **130** are provided with a groove **144** to seat over a lever arm such as **128.** The other end is provided with an aperture mounted on the ends of studs **146** and **147** threaded into the mounting plate **148.** A heavy coil spring **150** urges the member **140** away from the cabinet. A handscrew **152** threaded into a plate **154** on the inside of the cabinet back wall securely locks the members **140** and **142** over their respective lever arms **128** and **130.** To hold the lever arms in leg retracted positions as at **128'** and **130'**, posts **166** and **167** having a slot **168** in the side to receive the arms **128** and **130** are provided. In each post there is provided a locking screw **170** having a conical end **172** to hold its respective lever in retracted position.

It will be seen that the stand or table may be provided with an electric connecting cable reel **180,** in a compartment **182** closed by a door **184** and suitable convenience receptacles may be provided as desired. Further the cabinet may provide suitable storage space for slides and reels, or projector as desired. The apparatus is readily moved about on its castor wheels and when suitably positioned, the legs are moved into supporting position. Thereafter the projector platform may be raised to the desired height as to project in direction normal to the screen. The stand may be varied to have inclined walls, and be decorated to suit. The upper end of the rack may be housed in an accordian like bellows **11** at the upper end and any suitable housing **12** within the cabinet.

While a single form of the invention has been illustrated and described, it is to be understood that the invention is not limited thereto. As various changes in the construction and arrangement may be made without departing from the spirit of the invention, as will be apparent to those skilled in the art, reference will be had to the appended claims for a definition of the limits of the invention.

What is claimed is:

1. An adjustable film projector stand comprising, in combination:

a. a cabinet base having rectangular upper and lower walls;

b. means for selectively raising and lowering said upper wall while maintaining the upper surface thereof in a horizontal plane;

c. a caster affixed to the under side of said lower wall adjacent each of the four corners thereof;

d. two pairs of legs extending respectively from two spaced rack shafts pivotally mounted along opposite sides of said under side of said lower wall;

e. a pair of manually operable shafts mounted along said under side of said lower wall and extending substantially parallel to one another and to said rack shafts;

f. a toggle linkage connecting each of said rack shafts to a respective one of said manually operable shafts; and

g. an operating lever extending from each of said manually operable shafts and selectively movable to transmit motion through said toggle linkages to said rack shafts to move said legs between an extended position, wherein said cabinet is supported on said legs, and a retracted position, wherein said cabinet is supported on said casters.

2. The invention according to claim **1** wherein said raising and lowering means comprises a rack depending from the under side of said upper wall, gear means engaged with said rack and rotatable to effect vertical movement thereof, and both means selectively engageable with said rack to maintain the latter in any desired position.

3. The invention according to claim **2** and further including support rods depending from said under side of said upper wall on the side opposite said rack, and means for locking said rods in any desired vertical position, thereby assisting said rack in maintaining said upper surface of said upper wall in a horizontal plane.

4. The invention according to claim **2** and further including resilient weight balancing extensible column devices on either side of said rack and extending between said upper and lower walls.

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