United States Patent [19]

Pennar

[11] **3,813,491**

[45] **May 28, 1974**

[54] **MEANS FOR MOVING A TELEVISION SCREEN**

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[21] Appl. No.: **290,788**

[52] **U.S. Cl.** **178/7.81,** 178/7.8, 178/7.9

[51] **Int. Cl.** **H04n 5/64,** H04n 5/655

[58] **Field of Search** 178/7.81, 7.8, 7.9, 6.5

[56] **References Cited**

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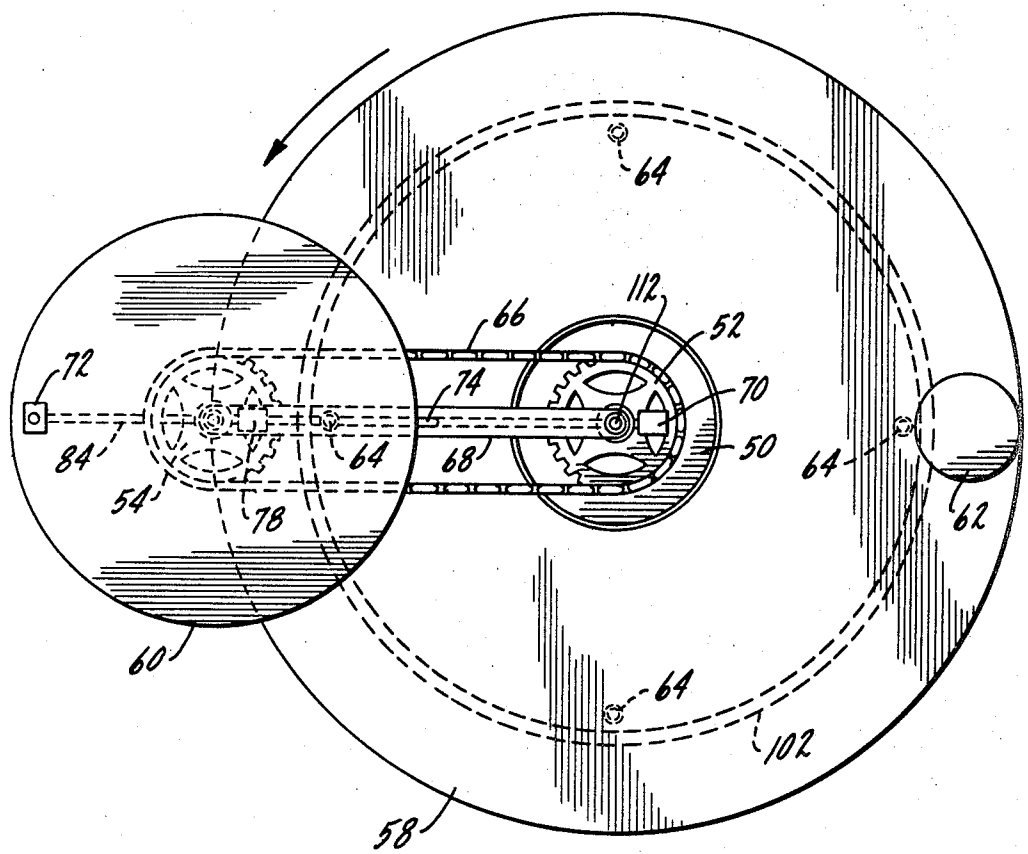
Primary Examiner—Howard W. Britton

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[57] **ABSTRACT**

A transporting device for periodically moving a television screen over a prescribed path while presenting the viewing surface to the observer thereby providing relief of eyestrain.

11 Claims, 5 Drawing Figures



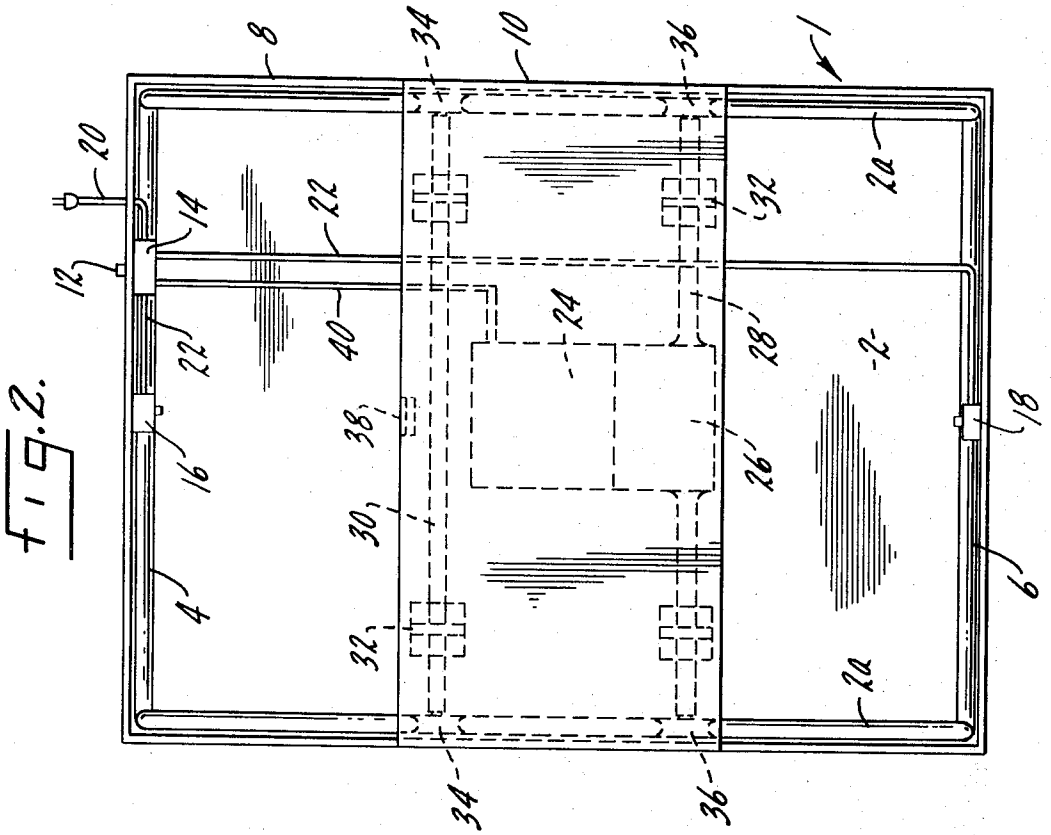


FIG. 2.

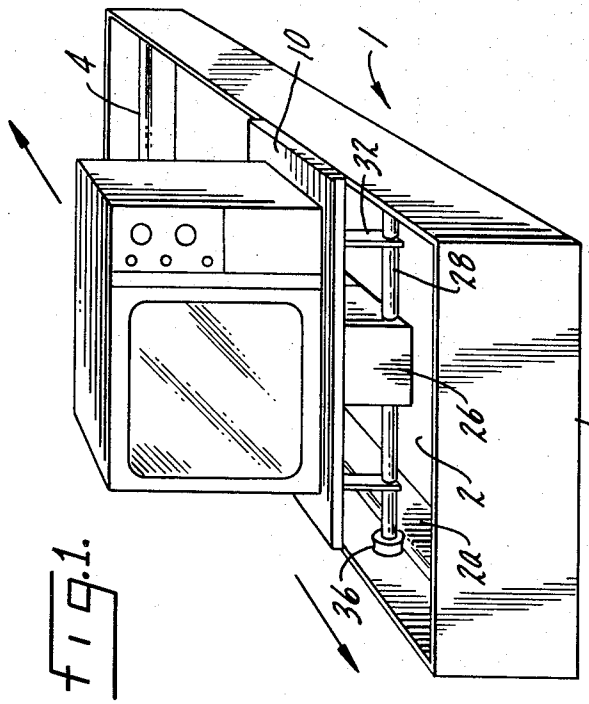


FIG. 1.

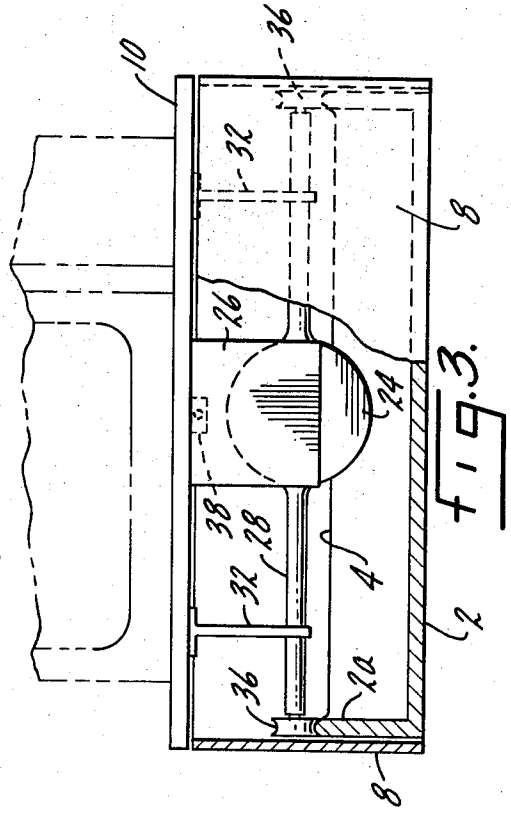
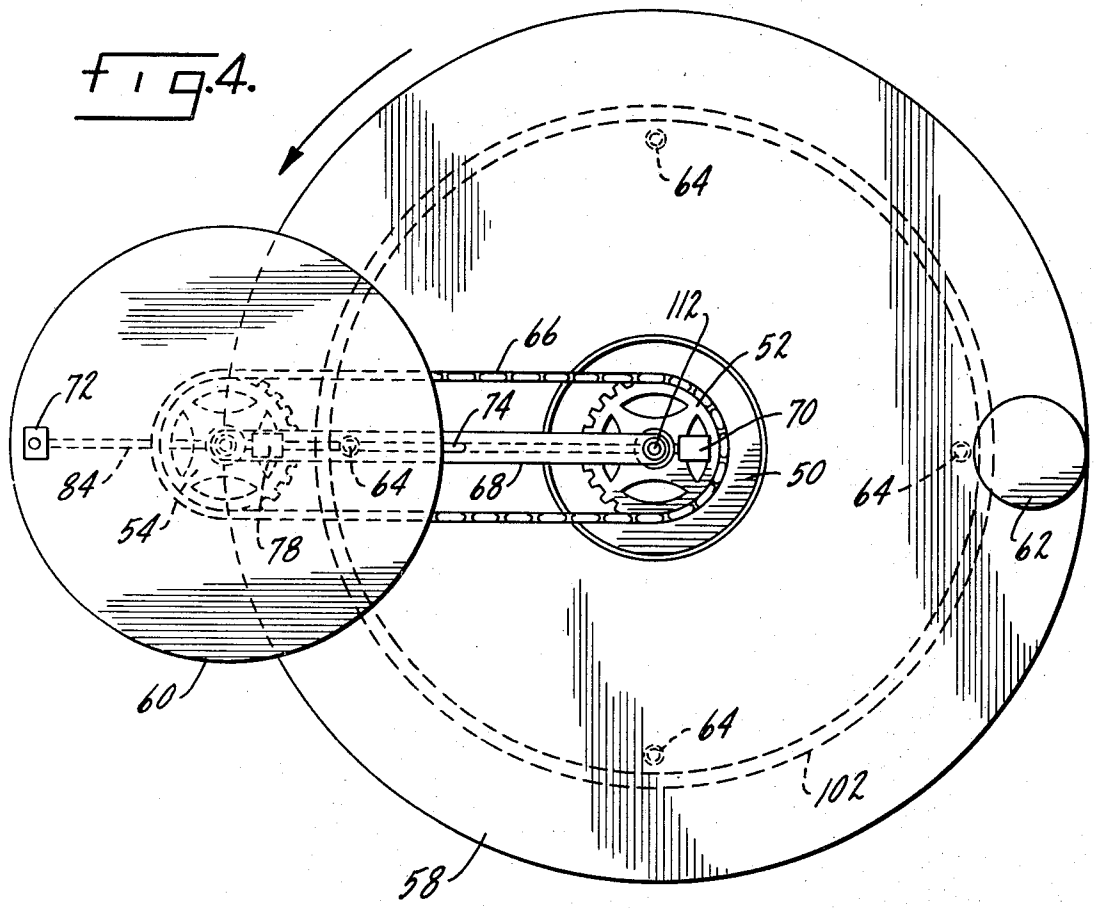


FIG. 3.

Fig. 4.


64
112
66
52
72
74
70
84
64
68
50
64
54
78
62
60
64
102
58

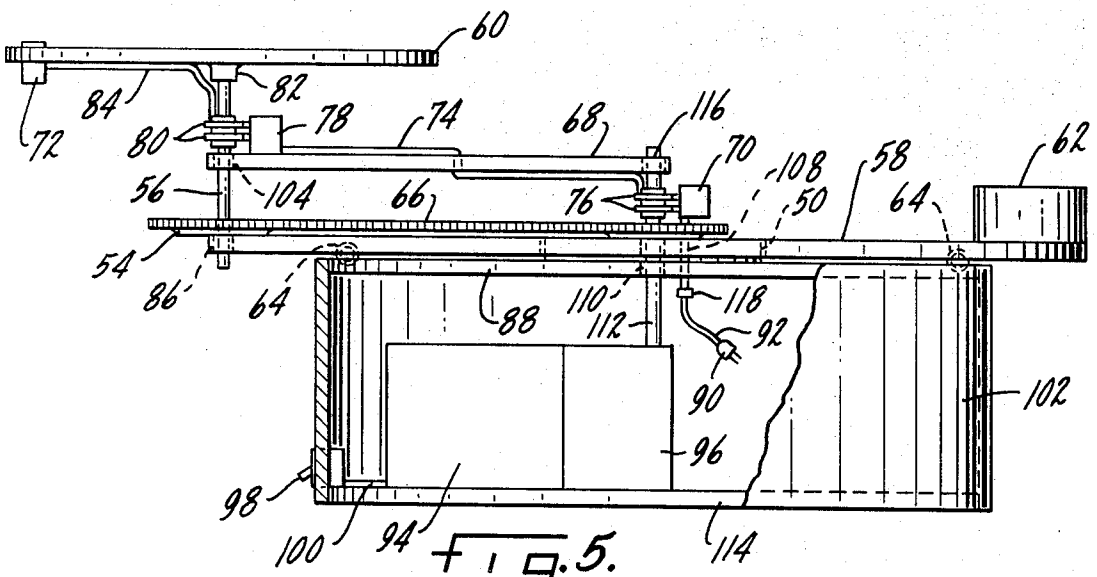

60
84
82
72
80
78
74
68
116
70
108
58
62
56
104
66
76
50
64
54
86
64
88
110
112
118
92
90
102
96
98
100
94
114

Fig. 5.

MEANS FOR MOVING A TELEVISION SCREEN

SUMMARY OF THE INVENTION

This invention is in the field of television and is concerned with means for constantly moving a television screen over a periodic path.

A primary object is a transporting device that provides constant motion for a television screen.

Another object is a transporting device that moves a television set so as to provide the viewer with relief of eyestrain and relief of boredom occasionally caused by watching a stationary television screen.

Another object is a transporting device that maintains the television screen or other desired viewing surface toward the viewer or viewers during its motion.

Another object is a transporting device that provides various viewers with changes in distance and angles of vision of the television screen or viewed object in order to provide the relief mentioned above.

Another object is a transporting device that does not interfere with the television set power cord or, where necessary, does provide power to the television set.

Other objects will appear from time to time in the ensuing specification, drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one embodiment of a transporting device for a television set;

FIG. 2 is a top view of the embodiment of FIG. 1;

FIG. 3 is a front view of the embodiment of FIG. 1 with parts broken away;

FIG. 4 is a top view of a modified embodiment of the invention; and

FIG. 5 is a front view of the embodiment of FIG. 4 with parts broken away.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENTS

Two basic embodiments of a T.V. screen transporting device will be described although the invention should not be limited to the precise structures shown. As shown in FIGS. **1, 2** and **3,** the transporting device includes a movable T.V. platform with a drive mechanism and an enclosure which supports the platform throughout its motion. A television set is shown positioned on the movable platform.

The enclosure **1** includes a front retaining wall **6,** a rear retaining wall **4,** a base **2** with side walls **2***a*. A peripheral outside wall **8** surrounds the various retaining walls. The tops of side walls **2***a* form tracks to support a T.V. platform **10.** The platform is mounted on wheels **34** and **36** which roll along the tracks on the tops of side walls **2***a*. The wheels support the platform throughout its motion.

Mounted within the enclosure are a rear reversal trigger switch **16,** a front reversal trigger switch **18,** a switchbox **14,** a main control switch **12** and various electrical cables explained in detail hereinafter. A power cord **20** enters the enclosure and is routed to the main switch box **14.** Contained on the switchbox is a main power or on-off switch **12.** Electrical cables **22** as shown in FIG. **2** connect the front and rear reversal trigger switches **16** and **18** to the main power switch box **14.** Another electrical cord **40** connects the reversible electric motor **24** to the main switchbox **14.**

The T.V. platform includes moving and supporting means with various parts. As shown in FIGS. **2** and **3** an electric motor **24** and a power transfer box **26** are mounted projecting downward from the bottom of the platform surface into the enclosure. A drive shaft housing **28** extends outward from both sides of the power transfer box **26** spanning the width of the enclosure. The drive shaft housing **28** contains a bearing supported shaft on which drive wheels **36** are connected. T.V. platform brackets **32** are mounted to the bottom of the T.V. platform at one end and rigidly fixed to the drive shaft housing **28** at the other end. To provide support for the back portion of the movable platform a supporting shaft housing **30** also containing a bearing supported shaft is mounted to the platform by additional support brackets **32.** Support wheels **34** are attached to the rear bearing supported shaft and travel along the tracks of side walls **2***a* along with drive wheels **36.** A plate **38** may be located as shown in FIG. **2** on the rear edge of the movable platform to facilitate pressure contact with one of the reversal trigger switches during the motion of the platform.

In operation, the main switch **12** of the device is switched to the "on" position. The switch box **14** delivers electrical power to the reversible electric motor **24** through power cord **40.** A direction of rotation of the reversible motor **24** determined by switch box **14** will be in that direction of rotation exhibited when the device was switched off. Whether the motor **24** starts in one direction of rotation or another is unimportant because the direction of rotation will be changed upon contacting either reversal trigger switch **16** or **18.**

The rotational energy of the electric motor is coupled through power transfer box **26** to the drive shaft within drive shaft housing **28.** The drive wheels **36** will rotate along with the drive shafts since they are directly connected to the shaft. The drive wheels **36** rotate on the tracks of the tops of side walls **2***a*, thereby moving and supporting the T.V. platform. As the drive wheels **36** rotate, they exert rotational force through the platform on support wheels **34** which are free to rotate. The bearing supported shaft to which the support wheels **34** are connected rotates freely within housing **30.** The drive wheels **36** will continue rotating in their present direction, for example, carrying the T.V. platform **10** forward toward front retaining wall **6** until the edge of the platform contacts reversal trigger switch **18.**

Upon contact with switch **18,** the switch contact closing will cause switch box **14** to reverse the direction of electric motor **24.** Through the transfer box and drive shaft coupling, the rotation of the drive wheels **36** will be reversed also carrying the platform **10** backwards. The drive wheels will now continue rotating carrying the platform rearward until the back edge surface of the platform contacts reversal trigger switch **16.** A pressure contact plate **38** may be used to facilitate proper pressure contact with the reversal switch. When the reversal trigger switch **16** is contacted, switch box **14** will reverse rotation of the electric motor once again providing rotation of drive wheels **36** in a direction which causes the platform **10** to again travel in the forward direction. This forward to rearward travel and reversal of direction will continue as long as the main switch **12** is in the "on" position.

Whenever the rear reversal trigger switch **16** is contacted, the switch box **14** causes the electric motor to rotate in a direction that carries the platform **10** for-

ward. Conversely, whenever the platform **10** contacts reversal trigger switch **18,** the switch box **14** causes the motor to rotate in a reverse direction, carrying the platform rearwards towards the back surface. The T.V. platform can then be seen from FIG. **1** to be travelling over a periodic path with its end point excursions determined by the front and rear retaining walls of the device. A television set placed on the platform as shown in FIG. **1** will also exhibit the same periodic motion.

Since the viewer is stationary, the position of the television screen will be constantly changing, causing a continuous change in distance from the viewer to the television screen. If the television viewer is not positioned directly in front of the device, there will also be a continuous change in the angle of vision of the television viewer.

The transporting means of the device may be constructed so as to allow the observer to select different rates of periodic motion of the T.V. platform and therefore the television screen. For example, a selection of rates of travel from one to ten complete periods per minute might be selected to provide the desired relief for the individual. As the television viewer follows the television screen with his eyes, his focus is continuously changing, thereby providing the desired relief of eye-strain.

A second embodiment of a television transporting device is shown in FIGS. **4** and **5.** The transporting device shown includes a cylindrical enclosure **102** with base **114,** a drive means contained in the cylindrical base portion, a large rotating turntable **58,** a small T.V. platform turntable **60,** and various drive couplings and bearings described in detail hereinafter.

The cylindrical base portion, which is the stationary enclosure for the drive means, has a base portion **114,** a retaining wall **102** and a fixed table surface **88,** all shown in FIG. **5.** The drive means includes an electric motor **94** and a power transfer box **96** which couples the rotational energy of the motor to a suitable drive shaft **112.** The drive shaft **112** extends through the fixed table surface **88** through a bearing **110.** The large turntable **58** is supported on top of the fixed table surface by several bearings shown as **64.** The bearings allow the large turntable **58** to rotate freely. The center of the large turntable **58** has a central circular portion cut away. In this circular hole the fixed disc **50** is attached to the fixed table surface **88.** Attached to the fixed disc **50** is a toothed sprocket **52.** The drive shaft **112** which also passes through the fixed disc and sprocket wheel rotates independently of the fixed disc and sprocket due to bearing **110.**

A T.V. platform turntable **60** in FIGS. **4** and **5** is supported at the outside of the large turntable **58** by bearing **86** and gripping shaft axle **56.** The bearing **86** supports the weight of the T.V. platform turntable through axle **56,** but allows the axle to rotate. A toothed sprocket wheel **54** which is identical to **52** is attached to the axle shaft **56.** The two toothed sprockets **52** and **54** are mounted such that they are in the same plane as shown in FIG. **5.** The sprocket wheels are connected by a positive drive chain **66,** whose function will be explained in detail hereinafter. The sprocket **54** and the T.V. platform turntable **60** rotate together because they are directly attached by drive shaft axle **56.**

The drive shaft **112** extends beyond the fixed disc **50** and is connected to a drive arm **68** at **116.** The driving arm extends from the drive shaft on a radius out to the gripping shaft axle **56** where it is free to turn in bearing **104.** The driving arm **68** exerts forces at bearings **104** and **86,** causing the rotation of large turntable **58** as drive shaft **112** rotates. The T.V. platform turntable **60** moves with the larger turntable since it is fastened to the edge of the large turntable.

On a diameter opposite the T.V. platform, a counterweight **62** is located on the large turntable surface **58.** The counterweight serves to balance the device by offsetting the weight of the T.V. platform turntable **60** and the television set placed on the T.V. platform. The counterweight **62** may be constructed so as to allow weights to be added or deleted to balance various loads.

Electrical switch **98** shown in FIG. **5** controls the power to the motor **94** through cord **100.** An external power source is connected to the electrical switch **98.** An electrical power outlet **72** is provided on the T.V. platform to deliver power to the television set. Electrical power is routed to the power outlet by electrical cords **84, 74** and **92** and also through several slip-ring and brush arrangements where required at the axle **56** and the drive shaft **112.** The brush units are shown as **70** and **78** in FIG. **5.** The associated slip-ring devices are shown as **76** and **80.** An external power cord **92** and electrical plug **90** are provided to carry power from an outside power source to the brush unit **70.** A conduit **108** and conduit cap **118** may be provided for the power cable **92.** The various cords carrying power to the T.V. platform through the slip-rings and brush arrangements are necessary to avoid entangling the television set power cable in the apparatus of the device.

When the electrical power switch **98** is in the on position, the electric motor **94** through power transfer box **96** causes the drive shaft **112** to rotate. The rotation of the drive shaft **112** causes the attached driving arm **68** to move in a periodic path sweeping out a circle. As the driving arm **68** begins to rotate, it exerts force on the gripping shaft axle **56** at bearing **104** which causes the gripping shaft axle to move in a circular path around the circular base enclosure **102.** The force exerted on the axle **56** also causes a rotational circular force at bearing **86** causing the large turntable **58** to rotate. The direction of rotation of the large turntable is shown in FIG. **4.** The rotation could be counter-clockwise or clockwise, depending on the arrangement of the drive mechanism and electric motor. The electric motor may be reversible to enable the viewer to select the direction of rotation. In this case, the arrangement is such that the large turntable rotates in a counterclockwise direction. Since the gripping shaft axle **56** is connected to the T.V. platform turntable **60** through the turntable support **82,** the T.V. platform is also carried on a circular path around the stationary enclosure. The driving arm **68** and the T.V. platform turntable **60** sweep out a path similar to the hand of a clock where the clock face would be the stationary table surface **88.** The large turntable **58** rotates freely because of its support bearings **64.**

As the T.V. platform turntable moves around its circular path, it also rotates clockwise around its own center as shown in FIG. **4** due to sprockets **52, 54** and the drive chain **66.** The net effect of the rotation of the sprocket **54** about is own center and its rotational motion in a path that is the circumference of the base enclosure is to keep the sprocket **54** in identical orienta-

tion to sprocket **52.** For example, at any position of travel during its periodic path, the sprocket **54** will exhibit no net rotational or angle change from that of sprocket **52.** If positions of a 12 hour clock face were assigned on the sprockets **52** and **54,** the 12:00 o'clock and all other positions would always be in the same orientation for sprocket **54** as well as the fixed sprocket **52.** This orientation is also true of the T.V. platform turntable **60** since it is directly attached to the sprocket **54.**

The purpose of this orientation may be understood by imagining a television set placed on T.V. platform turntable **60.** As the T.V. platform sweeps around the circumference in a counterclockwise direction and rotates about its own center clockwise, the same face of the television set will always be in view no matter where the observer is positioned around the circumference of the base enclosure. In FIG. **4** the net effect of the combined rotations appears as though the T.V. platform is sliding around the circumference of the large turntable **58** with no apparent rotation or change in orientation from a fixed reference point. As the television set placed on the T.V. platform travels in its circular periodic path, the observer can see the television screen in all positions of its movements. This is true as long as the television screen faces the observer before rotation has started. As the T.V. platform turntable sweeps through its periodic path, the stationary observer must change the focus of his eyes as the television set changes its distance and angle of vision from the observer. This constantly changing distance and angle of reference to the observer provides relief from eyestrain as opposed to the stationary television set. The electric motor **94** and power transfer box **96** may be constructed so as to allow variable speeds to be selected by the individual viewer to provide maximum eye relief. The various speeds might be in the range of one to ten complete revolutions per minute.

Whereas the preferred forms of the invention have been shown and described herein, it should be realized that there may be many modifications, alterations and substitutions thereto.

I claim:

1. A device for supporting and continuously moving a television screen, a stationary enclosure having a generally rectangular shape, a platform including a plurality of wheels for supporting a television screen, tracks along two sides of said enclosure extending from front to rear providing support for said moveable platform, said wheels rolling along said tracks, means positioned within said enclosure for reciprocally moving said platform in a linear path so as to place a television screen positioned on the platform at different angles and distances from the eye of the viewer at different intervals of time, said wheels being rotated by said moving means.

2. The structure of claim **1** further characterized in that said means for moving said platform includes a reversible electric motor, a power transfer box and a bearing supported shaft, said power transfer box converting rotational energy of said electric motor to rotation of said bearing supported shaft, said bearing supported shaft connected to said wheels, said wheels rotated by said bearing supported shaft, said wheels moving said platform along said tracks.

3. The structure of claim **1** further characterized in that the enclosure includes reversal trigger switches, said reversal trigger switches mounted on the front and back inside surfaces of said enclosure and determining the direction of rotation of the means for moving said platform.

4. A device for supporting and continuously moving a television screen including a platform for supporting a television screen, means for moving said platform in a circular periodic path, means for maintaining the orientation of the TV screen positioned on the platform essentially in a single direction, irrespective of movement of the platform, as the platform is moved in said circular periodic path, whereby a viewer, in a stationary position, can view the TV screen as it is moved in said path.

5. The structure of claim **4** further characterized by and including a stationary enclosure, means on said enclosure providing support for said movable platform, the means for moving said platform being positioned within said enclosure.

6. The structure of claim **4** further characterized in that the said enclosure is a generally cylindrical shape, said enclosure on its top surface supporting a large turntable, said large turntable being free to rotate and whose diameter is larger than the diameter of said enclosure.

7. The structure of claim **6** further characterized in that said large turntable supports at its outer edge and above its surface a platform, said platform rotates freely about its own axis and supports the television screen, said platform supported by a gripping shaft axle, said gripping shaft axle mounted in said large turntable but free to rotate.

8. The structure of claim **7** further characterized in that said large turntable includes means for counterbalancing the weight of said platform and a T.V. set positioned on said platform, said means for counterbalancing including a counterweight, said counterweight mounted on said large turntable diametrically opposed to the mounting of said gripping shaft axle of said platform.

9. The structure of claim **7** further characterized in that said means for moving said platform includes an electric motor, a power transfer box connected to said electric motor, a drive shaft connected to said power transfer box and a drive arm connected to said drive shaft, said power transfer box converting the rotational energy of said electric motor to rotation of said drive shaft, said drive shaft rotation converted to angular motion of said drive arm around the outer edge of said cylindrical enclosure, said drive arm causing said gripping shaft axle to move around the outer edge of said cylindrical enclosure, said gripping shaft axle moving said platform around the outer edge of said cylindrical enclosure.

10. The structure of claim **9** further characterized in that said platform is rotated about its own axis by said gripping shaft axle, said gripping shaft axle being rotated by sprocket means, said sprocket means including a first sprocket attached to said gripping shaft axle, a second sprocket mounted to the fixed surface of the top of said enclosure at the center of said enclosure and a continuous chain connecting said first and second sprockets, said sprocket means maintaining a fixed angular orientation of said platform with respect to the original axis of said platform as the platform travels about the outside edge of said enclosure.

11. The structure of claim 10 further characterized in that said enclosure includes an electrical power outlet and means for supplying electrical power to a T.V. screen positioned on said platform, said electrical power outlet mounted on said platform, said means for supplying electrical power including two pairs of slip-rings and brushes, a plurality of electrical cords, and a plug, said first pair of slip-rings and brushes located at the junction of the said driving arm and said gripping shaft axle, a first piece of said electrical cord routed between said first slip-ring and said electrical power outlet, said second pair of slip-rings and brushes located at the junction of said drive arm and said drive shaft, and a second piece of electrical cord routed between said second slip-ring and said first brush, a third piece of electrical cord routed from the said second brush to the outside of the device, said third piece of electrical cord connected to a plug, said plug suitable for connecting to external power means.

* * * * *

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,813,491 Dated May 28, 1974

Inventor(s) Leonard J. Penar

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On page 1 (two occurrences), the inventor's surname should be changed to "Penar".

Signed and sealed this 24th day of September 1974.

(SEAL)
Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents