April 1, 1941. L. W. PARKER 2,236,578

TELEVISION APPARATUS

Filed June 18, 1938

Fig. 1.

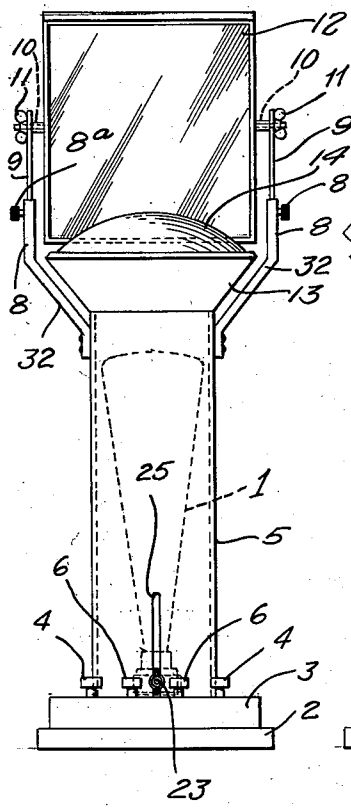



Fig. 2.

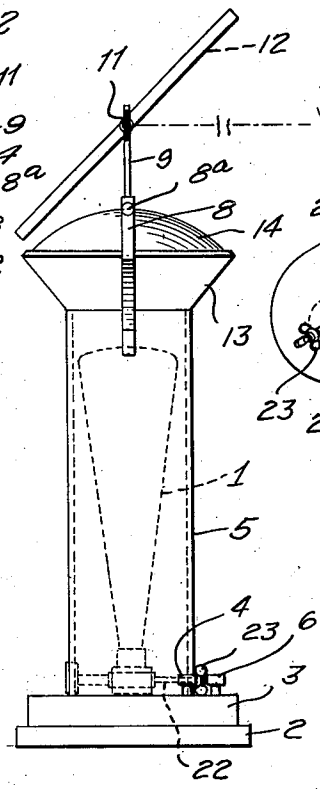



Fig. 3.

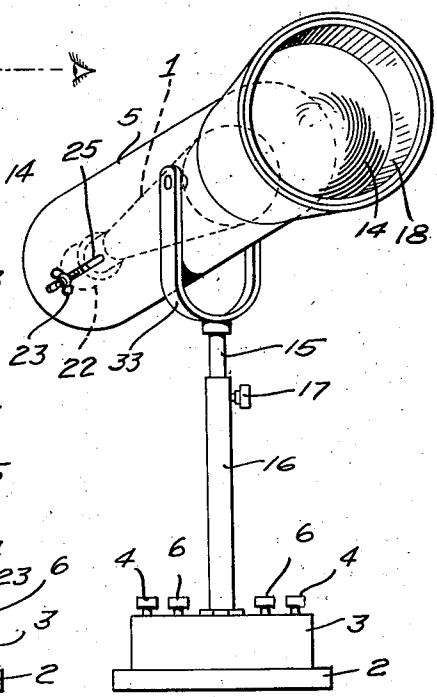
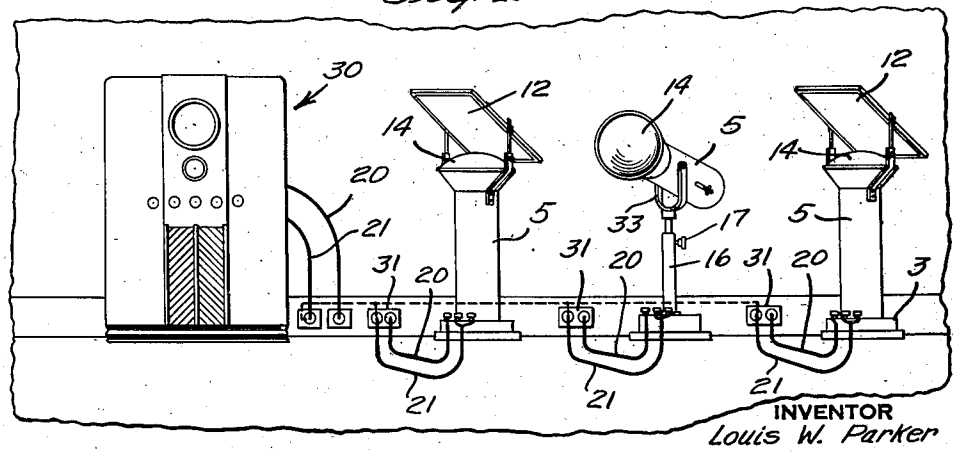



Fig. 4.




INVENTOR
Louis W. Parker

BY
Clyde G. Norton
ATTORNEY

Patented Apr. 1, 1941

2,236,578

# UNITED STATES PATENT OFFICE

2,236,578

## TELEVISION APPARATUS

Louis W. Parker, New York, N. Y., assignor, by mesne assignments, to C. T. Allen, New York, N. Y.

Application June 18, 1938, Serial No. 214,420

2 Claims. (Cl. 178—7.5)

This invention relates to television reception, and more particularly to improved arrangements for housing the kinescope or cathode ray tube used to produce the image.

In television receivers of the kinescope type, the cathode ray tube is considerably larger in size than the tube customarily employed in radio receiving apparatus. It has been proposed to mount this tube with the screen end flush with the front of the cabinet which houses the radio receiver.

This leads to an uneconomical construction, because cathode ray tubes are extremely sensitive to magnetic fields and must be kept at a distance from the component parts of the radio and power supply apparatus so that the cabinet must be very bulky, or the same must be very carefully and thoroughly shielded.

This arrangement has the further disadvantage, that when the tube is so mounted, it is difficult for a number of people to view the image simultaneously, and it is practically impossible to locate a television receiver of such construction, in a living room, for example, so that the screen is visible in various parts of the room where chairs may be located. With the small size cathode ray tubes, such, for example, as those having a 5'' diameter screen, the image is too small to be comfortably observed, unless the observer is only a short distance from the receiver, and it will be clear that only a very small number of people can comfortably arrange themselves in such a position simultaneously.

It is an object of this invention to provide means whereby any desired number of observers may view the picture simultaneously without the necessity of crowding together in front of the receiver.

It is a further object of my invention to provide means whereby the necessary radio and television receivers themselves may be economically incorporated in a cabinet without waste of space and without excessive shielding.

Still a further object of my invention is to provide means whereby the size of the image is magnified optically.

Still a further object of my invention is to provide a simple, compact, easily portable housing for the cathode ray tube and the power pack required for its operation, so that the observer may sit or recline in whatever position he desires and may adjust the apparatus so that the image is produced in a comfortable viewing position.

Still other objects and advantages of my invention will be apparent from the specification.

In this application I have particularly pointed out and distinctly claimed the part, improvement or combination which I claim as my invention or discovery, and I have explained the principles thereof and the best mode in which I have contemplated applying those principles so as to distinguish my invention from other inventions.

In the drawing—

Fig. 1 is a front elevation of a portable kinescope stand, in accordance with my invention.

Fig. 2 is a side elevation thereof.

Fig. 3 is a perspective view of a modified form of a kinescope stand, in accordance with my invention.

Fig. 4 is a view showing the manner of use of the kinescope stand, in accordance with my invention.

Referring now more particularly to Fig. 1, the cathode ray tube or kinescope 1 is shown in dotted lines within a hollow pedestal 5, mounted upon a suitable base 2. 3 indicates a container, preferably metallic, within which I prefer to provide the power pack for providing the kinescope with all of the necessary operating voltages, except the signal voltage and the vertical and horizontal sweep voltages. Alternately, however, I may provide the sweep generators with their controls on the stand, in which case only the modulating (signal) voltage will be supplied from the receiver.

The stand preferably also is provided with the necessary operating controls for the power pack to control the space position of the picture on the screen and for controlling the brilliancy and focusing of the picture. In the embodiment here shown, controls numbered 4 may be the picture position controls, and 6 may be the brilliancy and focus controls.

Since these controls are well known in the art and their operation per se forms no part of the present invention, they are not described in detail, except that it will be noted that the observer seated in front of the kinescope stand may conveniently reach out and perform whatever adjustment may be needed to keep the picture to his satisfaction, once it has been properly tuned in.

At the upper end of the column 5 I may provide bracket arms 32 secured to column 5 and extended outwardly at an angle and continuing upward in hollow portions 8. Slidable within the hollow portions 8 I may provide arms 9 carrying shaft 10, on which there may be mounted a mirror 12, preferably, although not necessarily, a plane mirror. It may be a concave mirror, and

may supply the desired magnification, in which case the lens described later may be omitted. Suitable means may be provided for permitting the tilting and clamping of the mirror at the desired angle, the same being diagrammatically illustrated as wing nuts 11, and clamping nuts 8—*a* may be provided in the upper ends of arms 8 to permit the mirror to be raised and lowered.

To provide for optical enlargement of the image formed on the kinescope screen, the upper end of the column 5 may be given an outward flare, as at 13, and in the outer end I may provide a lens 14. This may be any type of lens desired, but I have found that particularly satisfactory results are obtained with a plano-convex lens of relatively short focus length, the kinescope being mounted behind the plane side of the lens with the screen well inside the focal point.

I have found that by the employment of my invention I am able to utilize a kinescope having a 5'' diameter screen, producing therewith approximately a 9'' picture as viewed, without annoying distortion.

Referring now more particularly to Fig. 3, I have shown a modified form of stand in which the mirror may be dispensed with, the column 5 containing the kinescope being pivoted in the upper end of a yoke 33 having a column portion 15 slidable within the hollow column 16 and clamped in position by set screw 17. In this case again the upper end of column 5 may be flared outwardly as before and lens 14 may be mounted at the outer end of the flared portion. In this instance I have also shown an annular projection 18 extending forward beyond the lens a short distance, this producing a shadow box effect, enhancing the visibility of the image.

If desired, the column 15 and the yoke arms 33 may be made hollow to accommodate the wiring from the power pack 3 to the kinescope, so as to avoid exposed wiring. Preferably, also, although not necessarily, the kinescope 1 is mounted on a mounting 22 secured to the column 5, for example, by nuts 23, and column 5 may have slots 25 so that the kinescope may be moved longitudinally of the column and secured in the best position. Ordinarily, this adjustment will be used only when it is necessary to replace the cathode ray tube.

Referring now more particularly to Fig. 4, I may provide a number of kinescope stands, each operated from the same television receiver 30 through connection 21 which supplies the signal voltage from the receiver to the kinescope, and each kinescope stand having its own connection 20 to the power supply for operating its individual power pack. The signal voltage circuit 21 of each individual kinescope may be in parallel with all the others, since this circuit draws practically zero current.

The connection 21 may be permanently or semi-permanently installed in the building and provided with outlet sockets 31. If the receiver is supplying signal and sweep voltages, the conductor 21 will preferably be a four-conductor cable terminating in four-contact plugs, and the outlet may be a four-contact socket. If the individual stands are generating their own sweep voltages as previously described, conductor 21 may be a two-conductor cable and the outlet sockets 31 may be two-contact sockets.

I have diagrammatically indicated a kinescope 23 in the receiver in conventional position, which may be used initially by the listener in tuning the receiver to the desired station, and this kinescope may be a relatively small tube, such, for example, as one having a 1'' screen, since its primary purpose is not for continued observation, but merely for tuning in and monitoring the signal. In the operation of my system, any convenient number of kinescope stands may be provided, either in the same room or in various rooms, as may be desired, and they may be arranged to suit the taste of the observer. Preferably they should be made light in weight so that they may be easily moved from place to place if desired. It will be noted that while in Figs. 1 and 2 the adjustment to the best viewing position is made by moving the mirror and in Fig. 3 by moving the tube itself, nevertheless, in either case, the viewing position of the image is adjusted to the optimum place for the observer.

While I have shown and described certain preferred embodiments of my invention, it will be apparent that modifications and changes may be made without departing from the spirit and scope of my invention, as will be clear to those skilled in the art.

I claim:

1. Viewing apparatus for television reception comprising, in combination, a base, a column mounted on said base, means for adjusting the height of said column, a hollow housing mounted on said column and adjustable about a horizontal axis, a kinescope tube positioned within said casing, said kinescope tube having a screen end upon which there is produced by the impinging of the cathode ray beam upon the screen a visible image adapted to be viewed by the observer, and electrical means on said base for controlling the position, focus and brilliance of the image; whereby said screen may be easily and quickly adjusted to optimum viewing position and the image thereon quickly and easily adjusted to optimum seeing conditions.

2. Viewing apparatus for television reception comprising, in combination, a base, a housing mounted on said base, a kinescope tube mounted within said housing, said kinescope tube having a screen end upon which there is produced by the impinging of the cathode ray beam upon the screen a visible image adapted to be viewed by the observer, mechanical means for adjusting the distance of the image from the observer's eye while maintaining said base fixed in position, mechanical means for adjusting the angle of the plane of said image, and electrical means mounted on said base for controlling the position, focus and brilliance of the image, whereby said screen may be easily and quickly adjusted to optimum viewing position and the image thereon easily and quickly adjusted to optimum seeing conditions.

LOUIS W. PARKER.