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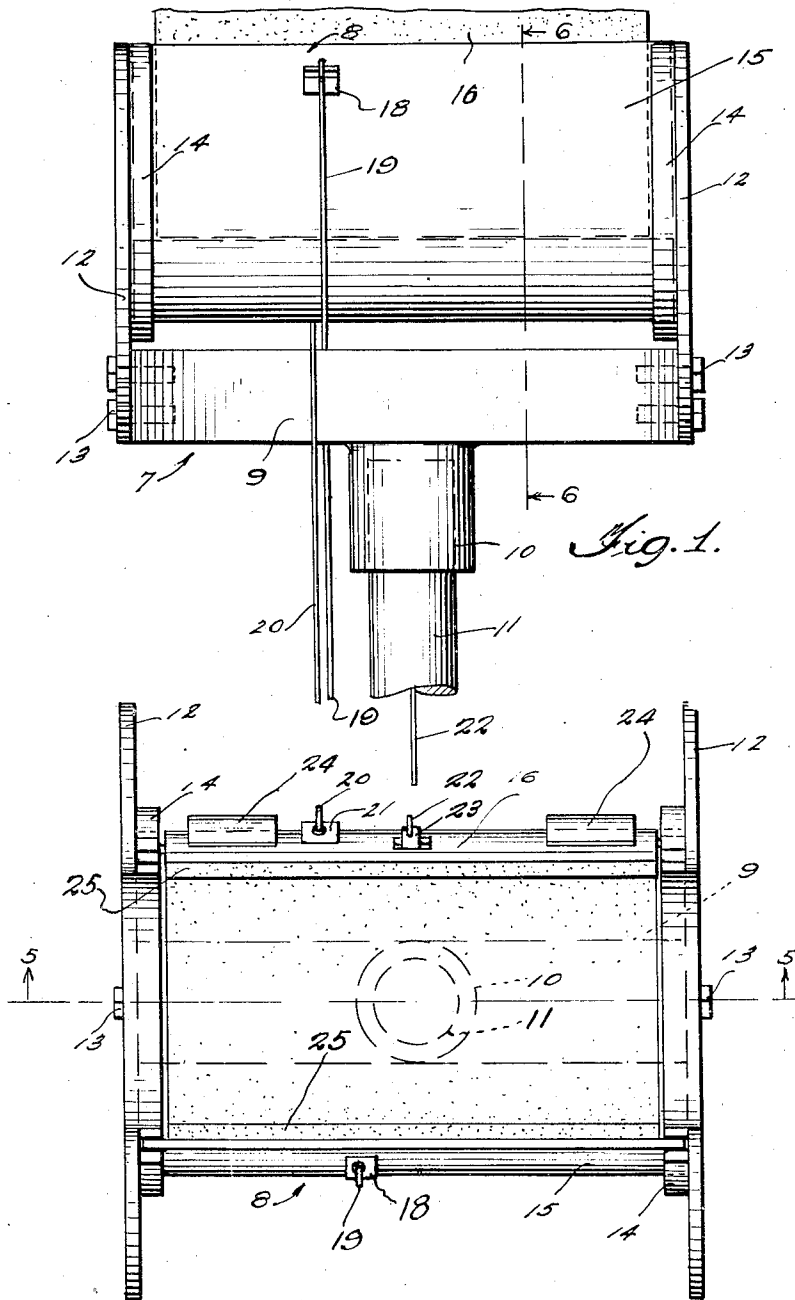
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2,360,396

FLUORESCENT TUBE CHANGER

Filed May 6, 1944

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

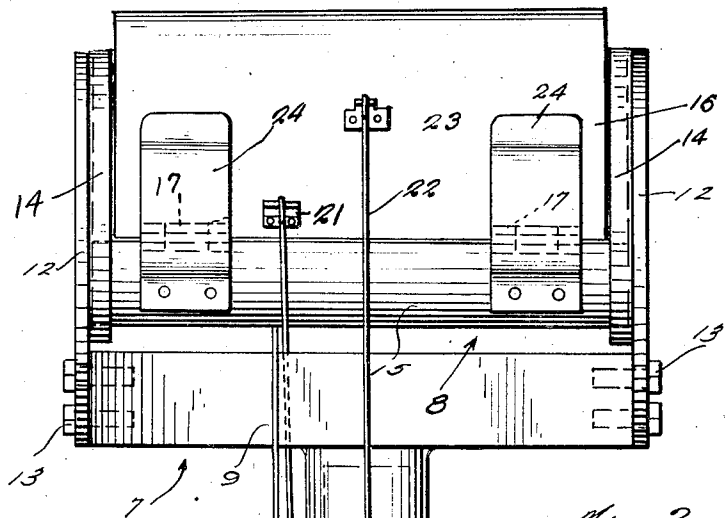


Fig. 3.

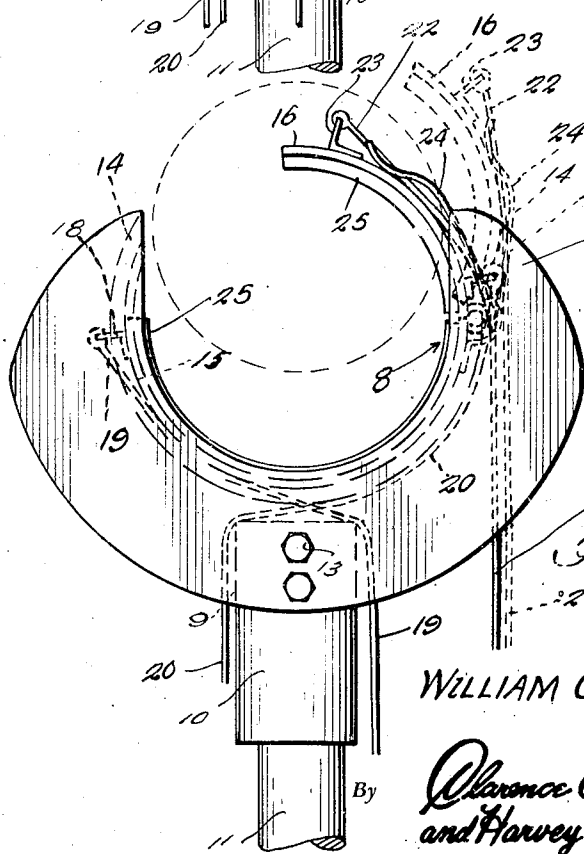


Fig. 4.

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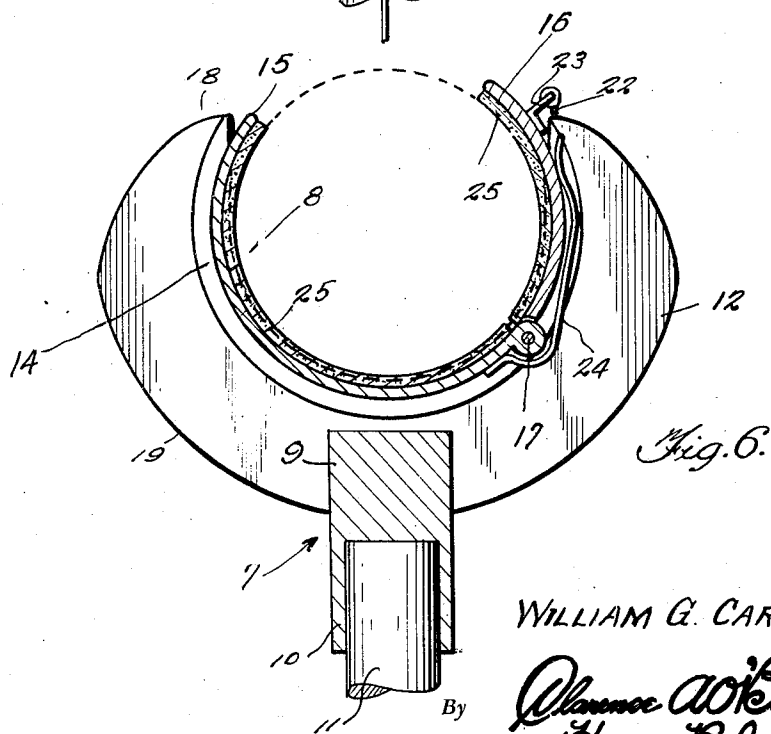
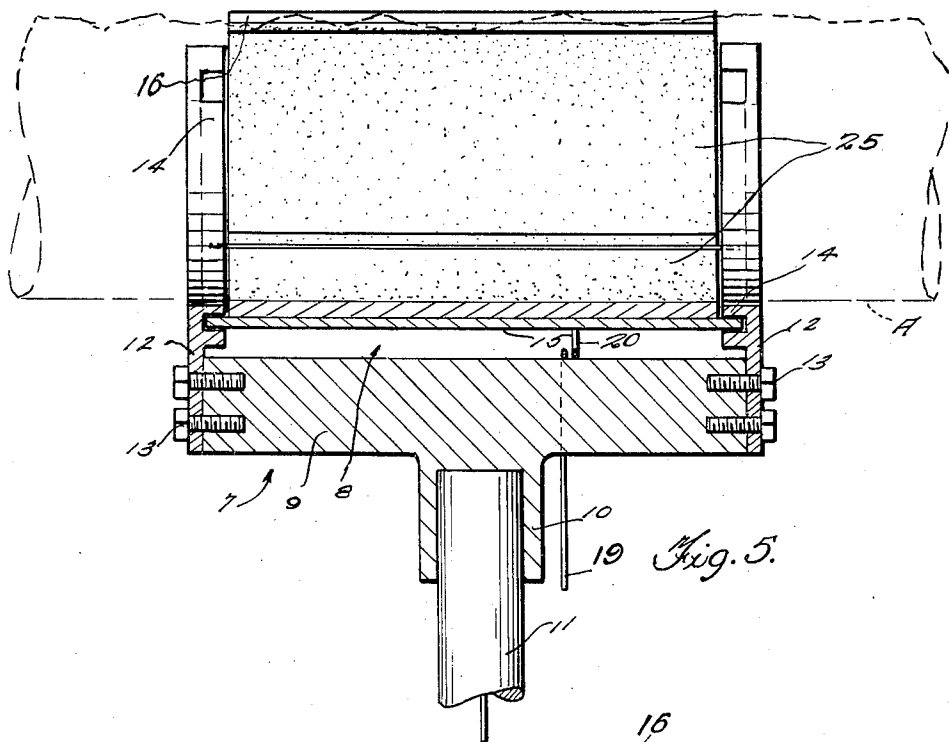
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FLUORESCENT TUBE CHANGER

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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FLUORESCENT TUBE CHANGER

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6 Claims. (Cl. 294—21)

This invention relates to a novel and improved fluorescent tube changer, that is, a device which is expressly constructed and specifically designed to enable the user thereof to either install or remove a tube.

As is generally well known, a rotary or oscillatory motion of the tube in relation to the end supporting fixtures or brackets is necessary for exchange purposes. Therefore, I have evolved and produced a simple and expedient tube embracing and clamping device, this supported on a reach pole to permit long range usage from the floor without necessitating the use of a ladder.

More specifically, the preferred embodiment of the invention is characterized by a frame structure supported on the remote end of the reach pole, said frame structure being provided with retention and assembling tracks for accommodation of a triple cord controlled clamping unit, the latter including a hinged jaw or grip which is sufficient to hold the tube in the clamping unit and to permit said tube to be rotated to the desired degree for removing or replacing, as the case may be.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view of the fluorescent tube-changer as constructed in accordance with the principles of the present invention observing one face or side of the same.

Figure 2 is a top plan view of the structure seen in Figure 1.

Figure 3 is a side elevation like Figure 1 but observing the opposite side, that is the side opposite to that seen in Figure 1.

Figure 4 is an end elevational view of the structure.

Figure 5 is a central longitudinal sectional view taken approximately on the plane of the line 5—5 of Figure 2, looking in the direction of the arrows.

Figure 6 is a transverse vertical section on the line 6—6 of Figure 1.

The frame structure is denoted, as a unit, by the numeral 7 and the fluorescent tube gripping and clamping device or unit is indicated at 8. The frame comprises a horizontal bar or equivalent part 9 having a centrally disposed socket 10 to accommodate the removable reach-rod or

pole 11. Substantially horseshoe-shaped end frames 12 of duplicate construction are secured by appropriate fastenings 13 to the ends of the frame bar 9, the frame members being at right angles thereto. The inner marginal edge portions of the respective end frames are provided with substantially semi-circular elements 14 which are grooved to provide keeper and assembling tracks for the oscillatory tube clamping unit 8.

The last-named part 8 is of approximate semi-circular cross-sectional form and includes a main sector 15 and a complementary relatively swingable leaf or sector 16. The parts 15 and 16 are hinged together by appropriate hinge means 17. A suitable bracket 18 on the sector 15 is provided with a depending pull-cord 19. This cord 19 serves to shift or oscillate the cradling and clamping unit 8 in one direction, that is, the direction from left to right in Figure 4. A companion pull-cord 20 is on the opposite side and is connected with a bracket 21 mounted on the hinged section 16. It will be noticed that the cord 19, which is attached to the bracket on the left (see Figure 4) passes between the bar 9 and the adjacent portion of the oscillatory or shiftable unit 8. The free end hangs down alongside of the reach pole 11. On the other hand the cord 20, which is attached to the bracket 21 on the hinged clamping leaf or plate 16 passes in the opposite direction, that is in between the bar 9 and the unit 8 and this hangs down along the opposite side of the reach pole 11. Thus, when it is desired to shift the unit 8 from the full line position (see Figure 6) to the dotted line position (see Figure 4) the cord 19 is grasped and pulled down. It follows that the cord 20, pulled in the opposite direction serves to return the parts to their normal full line positions.

I now direct attention to a third cord 22 which also hangs down and is attached at its upper end to a bracket 23 on the upper median portion of the hinged clamping leaf 16. The purpose of this cord is to actuate the part 16 which then functions as a clamping jaw, as is obvious. Coacting with this pull cord are flat leaf springs 24, which springs are secured at one end to the stationary part 15 and bridge the hinged joint and have their free ends pressing against the median area of the clamping leaf or section 16.

When the cord 19 is pulled upon and the entire unit is rocked around to the position seen in Figure 4, the springs 24 press the clamping leaf 16 against the tube. In order to release

this leaf or jaw, as it may be called, the cord 22 is pulled. This alternate operation of the jaw leaf 16 is shown in full and dotted line positions in Figure 4.

Under normal circumstances the sectional clamping unit 8 occupies the full line position in the tracks 14 as shown. That is to say, the open top is normally positioned so that unit 8 constitutes a suitable receptacle which may be placed in a position to embrace the fluorescent tube A. The device is, of course, placed in position by the user standing on the floor and employing the reach-pole 11 somewhat in the manner of similarly functioning electric bulb "snatching" and changing devices. With the device well up and around the fluorescent tube as shown for example in Figure 6, the user catches hold of the depending cord 19 and exerts a downward pull thereon. This shifts or oscillates the entire unit 8 in a direction from left to right. At a certain point of rotation the spring-pressed hinged section 16 projects outwardly beyond the adjacent end of the track, whereupon the spring means comes into play to break the hinge joint and to force the section 16 against the fluorescent tube. The tube is thus bound between this part which then acts as a jaw, and the seating or receptacle portion 15. The two parts together clamp the tube with sufficient of a grip to turn it to a degree to either detach it from the supporting fixtures (not shown) or to replace it in the fixtures. In practice, I have found it expedient and practicable to provide the sections 15 and 16 with appropriate felt or equivalent linings 25 and these facilitate obtaining the desired frictional gripping action.

Thus, and briefly, we have a reach-pole and a frame structure on the reach-pole and the clamping device which is shiftably mounted in the frame structure, the clamping device being so constructed as to embrace and receive the fluorescent tube. Hence and by appropriate handling the user can apply and remove tubes which would otherwise be inaccessible even if a ladder were handy. A structure of this type is useful in offices, factories and other places of business using elevated ceiling type fluorescent tubes.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of in-

vention claimed may be resorted to in actual practice, if desired.

Having described the invention, what is claimed as new is:

1. In a fluorescent tube-changer of the class described, a reach-pole, a frame structure including a substantially semi-circular receptacle unit for the reception of a conventional fluorescent tube attached to the upper maneuverable end thereof, and clamping means including a hinged portion of said receptacle mounted in said frame, and means including successively actuated control cords to actuate said clamping means.

2. In a fluorescent tube-changer of the class described, a substantially semi-circular receptacle unit for reception of a conventional fluorescent tube, said receptacle comprising a main relatively stationary part and an auxiliary hinged part, and supporting and operating means for said receptacle.

3. A fluorescent tube-changer of the class described comprising a reach-pole, a frame structure on the upper end thereof, an oscillatory clamping device including a substantially semi-circular receptacle having a hinged portion adapted to encircle a fluorescent tube in said frame structure, and pull-cords attached to said clamping device for shifting it into and out of functioning positions.

4. In a fluorescent tube-changer of the class described, a reach-pole, a frame structure thereon including a pair of parallel end frames having semi-circular tracks, and a substantially semi-circular fluorescent tube embracing and clamping device shiftably mounted in said tracks.

5. In a fluorescent tube-changer of the class described, a reach-pole, a frame structure thereon including a pair of parallel end frames having semi-circular tracks, and a substantially semi-circular fluorescent tube embracing and clamping device shiftably mounted in said tracks, and cords for operating said device.

6. In a fluorescent tube-changer of the class described, a reach-pole, a frame structure thereon including a pair of parallel end frames having semi-circular tracks, and a substantially semi-circular fluorescent tube embracing and clamping device shiftably mounted in said tracks, and cords for operating said device, said device comprising a stationary section and a hinged section carried thereby, and spring means engaging the hinged section to permit it to function in the manner and for the purposes described.

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