

UNITED STATES PATENT OFFICE

2,179,748

MECHANICAL PRESELECTOR

Edward J. Mastney, Berwyn, Ill., assignor to Oak Manufacturing Company, Chicago, Ill., a corporation of Illinois

Application September 24, 1938, Serial No. 231,476

8 Claims. (Cl. 74—10)

This invention relates to a mechanical pre-selector particularly for use in a condenser drive on a radio receiving set although it is of general application. In particular, this is an improvement upon the mechanism disclosed and claimed in the patent to Edward J. Mastney No. 2,161,183, granted June 6, 1939.

Referring to the drawing,

Figure 1 is an elevation, partly in section, of a device embodying the improvement;

Fig. 2 is a detail; and

Fig. 3 is a section on line 3—3 of Fig. 2.

A base 10 has mounted thereon a gang condenser frame 11 supporting stator plates 12. Rotatively mounted on frame 11 is a condenser shaft 13 carrying rotor plates 14 cooperatively associated with the stator plates. This gang condenser is an example of a device which is to be turned to predetermined positions. The mechanism for doing this is mounted upon base 10 and includes a pair of supporting plates 15 and 16 bolted to base 10.

Rotatively mounted in plates 15 and 16 is a shaft 17. One end of shaft 17 is rotatively coupled to condenser shaft 13 by a suitable universal joint means 18. Shaft 17 is provided with sleeves 19 and 20, both alike. As clearly shown, these sleeves have shoulder portions 21 and 22 bearing on the inside faces of plates 15 and 16 and in effect constituting end thrust sleeves. The shoulder ends of these sleeves are preferably so fabricated as to provide a small annular clearance 23 around shaft 17.

Between sleeves 19 and 20 are five identical control units 25—29 inclusive. Referring to unit 29, as an example, there is provided a center washer 30 snugly fitting shaft 17. As shown in the corresponding washer 30' of unit 28, the center washer is provided with a radially extending finger 31'. On opposite sides of center washer 30 are sleeves 32 and 33 having the same general construction as sleeves 19 and 20. Thus sleeve 32 has a cylindrical portion 35 extending to a shoulder 36 and then an enlarged cylindrical portion 37. Enlarged cylindrical portion 37 is so shaped on the interior that an annular region 38 is provided around shaft 17.

Sleeve 33 is the image of sleeve 32 and is provided with the same details carrying corresponding primed numbers. Rotatively mounted on reduced cylindrical portion 35 is a washer 40 having a finger similar to finger 41' on washer 40' of unit 28. As clearly shown in unit 28, finger 41' is bent over to lie in the path of travel of finger 31' of the center washer. Beyond this washer 40

is a gear 42 provided with a finger 43 bent over to lie in the path of travel of finger 41' of the adjacent washer.

Sleeve 33 is similarly provided with a washer and gear, all correspondingly bearing the primed 5 numbers.

Each unit is controlled by a pair of offset racks 50 and 51 (see unit 28) engaging the gears 42 and 42' of each unit and disposed on opposite sides of shaft 17. These two racks are carried by 10 a lever 52. It is clear that upon downward movement of the two racks, the two gears of a unit will be urged in opposite directions. Assuming center washer 30 is fixed relative to shaft 17, then each unit will tend to cause shaft 17 to wave 15 to a predetermined position upon downward movement of the racks. This is more fully explained in the patent referred to herein.

In order to guide each lever and rack means, a top plate 55 is carried by side plates 15 and 20 16 as by ears 56. Plate 55 is slotted to journal lever 52. Additional strengthening members 57 and 58 extend between side plates 15 and 16 to provide a rigid structure. Each lever 52 may have a button 60 fitted thereon.

As is evident, the operation of the device requires that each center washer 30 of a unit be fixed relative to shaft 17. In addition, to pre-select the stopping point for each unit, requires that each center washer be readily adjustable 30 with reference to shaft 17. This is provided in the following manner.

Between sleeve 20 and unit 29 are two large washers 61 and 62 loose on shaft 17. These two washers are separated by a spring washer 63 bent 35 so that this spring washer may be compressed by forcing the two large washers together. Immediately beyond sleeve 20, shaft 17 is mutilated to provide two flats 65 and 66. At a short distance from sleeve 20, shaft 17 is provided with a 40 pin 68 extending perpendicular to the flats 65 and 67. Disposed around shaft 17 is a U-shaped saddle member 69 having sides 70 and 71 each provided with a slot 72. It will be noted that slots 72 register and extend at an angle to the saddle 45 arm length. Pin 68 extends through slots 72. Threaded into the base portion 73 of the saddle is an adjusting screw 74.

Obviously, as screw 74 is turned down deeper into the saddle, the end thereof will engage shaft 50 17 and tend to pull the saddle out. The cam action of pin 68 on slots 72 will therefore cause the saddle to be displaced toward the left as seen in Fig. 2. This pressure will be exerted on the outer end of sleeve 20 and tend to move the various 55

sleeves toward the other end sleeve 19. Hence the various sleeve units will be tightened with the result that the center washers of each unit will be tightly retained in position.

To adjust the various units, screw 74 is withdrawn just enough to permit the various center washers to turn with respect to shaft 17. Then shaft 17 is manually adjusted to a desired position by knob 75. In this position, the lever for a unit is operated while the operator holds knob 75. Thus the center washer for a unit is turned to the correct position for a certain shaft setting. Thereafter the procedure is repeated for the other units. During this setting, the various adjusted units are kept in their adjustment by the fact that there is enough friction between the center washer for an adjusted unit and the clamping sleeves so that it will not change its position relative to the shaft unless forced.

What is claimed is:

1. In a device of the character described, a shaft, means normally rotatable with respect to said shaft but adapted to be clamped in adjusted position by side thrust, an adjusting member on said shaft engaging said normally rotatable means to exert side thrust thereon, means tending to move said member perpendicular to said shaft axis, and means on said shaft engaging said member forcing said member to move parallel to said shaft during the perpendicular motion thereof.

2. The structure of claim 1 wherein said adjusting member comprises a member disposed perpendicular to the shaft axis and wherein said last named two means comprise cam and follower means on the shaft and member respectively to force said member to travel obliquely to said shaft.

3. In a device of the character described, the combination of a shaft, means normally rotatable with respect to said shaft but adapted to be clamped in adjusted position by side thrust, a U-shaped member engaging said normally rotatable means to exert side thrust thereon, said U-shaped member straddling said shaft, coupling means between said shaft and U-shaped member to force said U-shaped member to travel obliquely to said shaft upon application of a force thereto perpendicular to said shaft.

4. In a device of the character described, the combination of a shaft, means for rotatably mounting said shaft, means on said shaft normally movable with respect thereto, and means for locking said normally movable means to a pre-determined position on said shaft, said means including the following: an abutment at one portion of said shaft against which said normally movable means may be pressed, a cam and cam follower assembly on said shaft on the other side

of said normally movable means, one of said two elements of said assembly being rigid with respect to said shaft and the other of said assembly being movable with respect to said shaft in response to adjustments in a manner to force said movable members against said abutment and lock said movable members in position and means for adjusting said cam and cam follower assembly to move the movable member thereof.

5. In a device of the character described, the combination of a shaft, means for rotatably mounting said shaft, means disposed between two regions of said shaft normally rotatable with respect to said shaft but adapted to be jammed tightly together for determining at least one pre-determined adjustment, and means for jamming said normally rotatable elements, said means including the following: an abutment at one region of said shaft, immovable with respect to said shaft along the axis of said shaft, and a cam and follower assembly at the other region of said shaft and adapted to press said normally rotatable means against said abutment, said assembly including a follower member rigid with respect to said shaft axis, said cam having a cam surface providing a component of motion of said follower along said shaft axis and means for adjusting the relative positions of said cam and follower.

6. The structure of claim 5 wherein said cam follower consists of a pin in said shaft and wherein said cam member consists of a member straddling said shaft and having a cam surface engaged by said pin.

7. In combination, a shaft, means for rotatably mounting said shaft, a control panel mounted parallel to said shaft and spaced therefrom, a plurality of means normally rotatable with respect to said shaft but adapted to be clamped in adjusted position by side thrust, a manual means at said control panel for each of said normally rotatable means engaging the same for turning said normally rotatable means to a pre-determined position and thus to turn said shaft to a pre-determined position, clamping means carried by said shaft and adjustable along said shaft, said means engaging said normally rotatable means to exert side thrust thereon, and means for adjusting said clamping means from a direction perpendicular to said shaft.

8. The structure of claim 7 wherein said clamping means comprises a U-shaped member straddling said shaft and having a cam slot therein and wherein said shaft is provided with a pin engaging said cam slot and wherein a set screw perpendicular to said shaft is carried by said U-shaped member to adjust the same.

EDWARD J. MASTNEY.