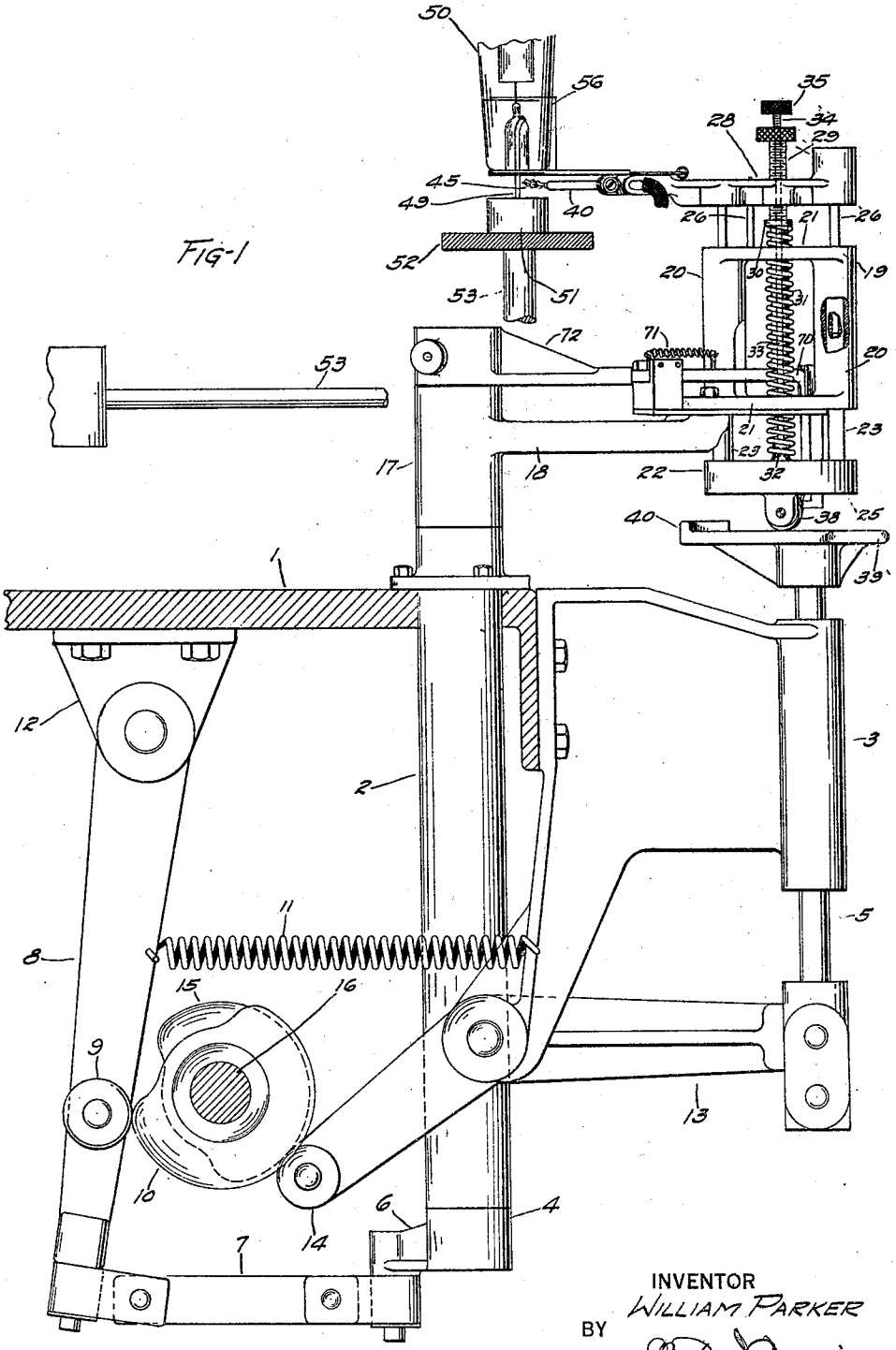
Nov. 1, 1932. W. PARKER 1,885,758

RADIO APPARATUS

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FIG-1



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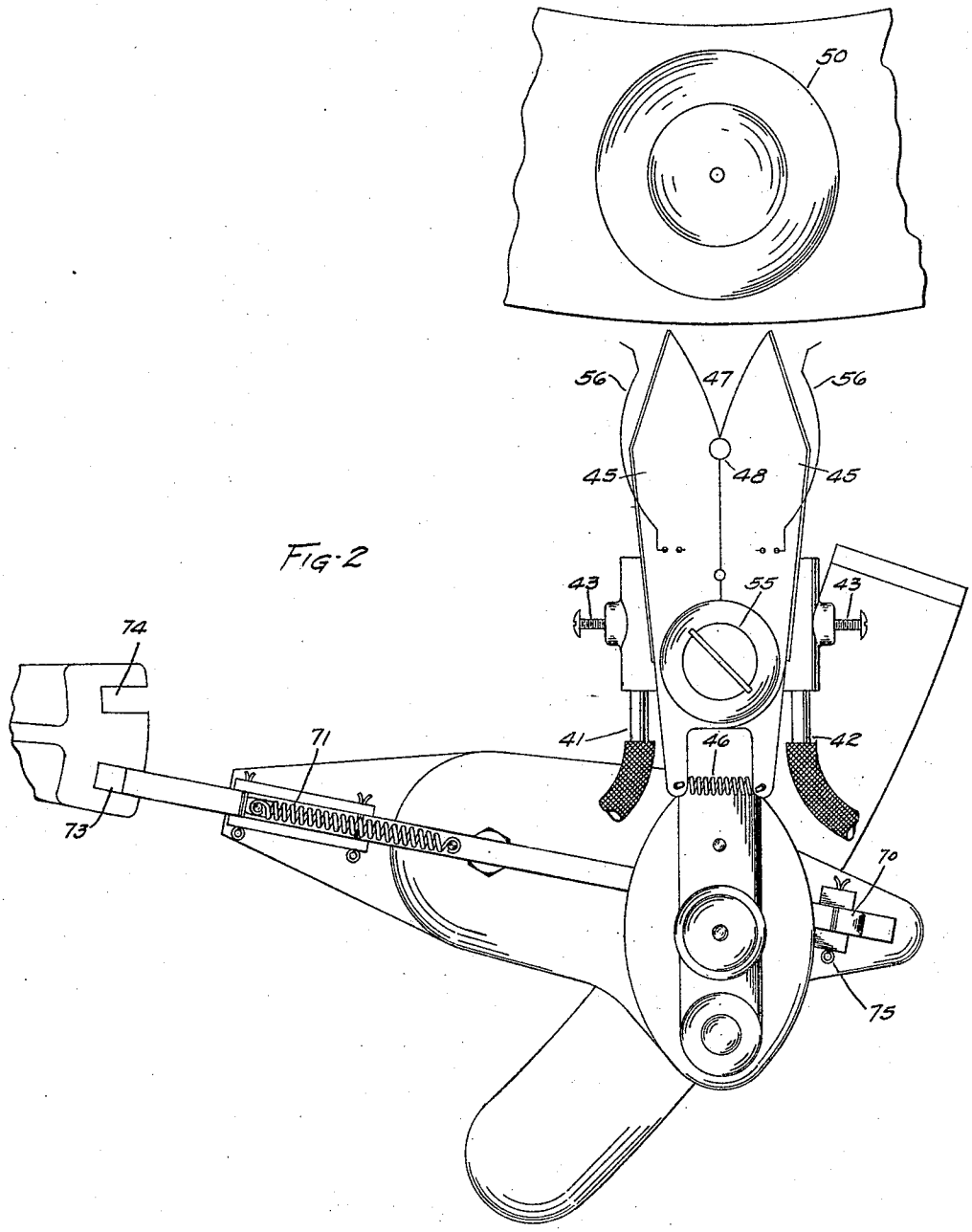


FIG. 2

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1,885,758

UNITED STATES PATENT OFFICE

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RADIO APPARATUS

Application filed February 1, 1930. Serial No. 425,244.

This invention relates to automatic mechanism for the manufacture of radio apparatus and particularly to a tipping off mechanism for use on an exhaust machine. In machines of this character, it is customary to dispose the device to be exhausted, such as a vacuum tube with its tubulation, in a port on an intermittently moving turret. Upon movement of the turret, the tube or other article to be exhausted, moves through various positions and is successively brought under the influence of an oven for removing adsorbed gases, and then high-frequency coils for the heating of electrodes. In the final position, it is customary to have an automatic tipping off mechanism which seals the exhausted tube and removes it from the turret.

An object of this invention is to devise such a mechanism which is simple, positive in its operation and which may be adapted for any type of machine.

In the drawings:

Figure 1 is an elevation view partly in section of my improved tipping off mechanism.

Figure 2 is a view looking down upon the mechanism.

Carried by a base 1, of an exhaust machine are two parallel supporting journals 2 and 3. Within each journal are mounted shafts 4 and 5, respectively. Shaft 4 is adapted to be oscillated by means of crank 6, link 7, and lever 8, carrying a cam follower 9, pressed by spring 11 against a cam 10. Lever 8 is mounted in a journal 12, which is rigidly supported by base 1.

Shaft 5 is adapted to be reciprocated by bell crank lever 13, carrying a cam follower 14, adapted to cooperate with cam 15. Both cams 10 and 15, are mounted on a shaft 16, which may be rotated by suitable actuating mechanism, not shown.

The top of shaft 4 carries a sleeve 17 loosely journaled thereon and bearing an arm 18 which rigidly supports a frame 19. The very end of shaft 4 has rigidly attached thereto an arm 72 provided with slots 73 anl 74 for a purpose to be later described. This frame consists of two posts 20, joined at the top and bottom by yokes 21. Telescopically mounted within frame 20, is a spring biased mounting structure, generally designated by 22. This structure comprises two posts 23, sliding in suitable channels within posts 20 of the frame. Posts 23 are rigidly joined together by a yoke 25. Two posts 26 are adapted to slide in channels within posts 23, and, as is evident from the drawing, are disposed on the other side of frame 20.

Posts 26 are rigidly joined together by a yoke 28, into which is threaded an adjusting screw 29. The bottom of the adjusting screw terminates in a collar 30, which engages a coil spring 31, whose bottom end bears against a boss 32, in yoke 25. Centrally disposed of coil spring 31 is a pin 33 having its upper portion 34, threaded and terminating in a knurled head 35. This pin is rigidly fastened to yoke 25.

It is clear that by adjusting screw 29, the tension of spring 31, may be varied. In this way the spring bias of yokes 25 and 28, may be suitably adjusted.

Yoke 25 carries a roller 38 which is adapted to cooperate with a table 39, having a ledge 40 carried by the free end of shaft 5. In this way it is evident that upon rotation of cams 10 and 15, shaft 5 will be reciprocated and impart suitable impulses to yoke 25.

Carried by yoke 28, is a torch 40 having air and gas supply pipes 41 and 42, provided with adjusting means 43, to control the flame 45. A bulb retaining assembly is also carried by yoke 28, and consists of two jaws 45 having their ends connected by a spring 46. The forward ends of the jaws are cut to provide a tapering notched space 47, and a circular space 48, having approximately the same dimensions as tubulation 49 of a vacuum tube 50. As shown, the vacuum tube has its tubu-

lation 49 inserted into port 51 of turret 52, of the usual exhaust machine. The exhaust connections 53, lead to suitable valve structure, not shown, and thence to pumps in the usual manner.

Jaws 45, of the bulb retaining assembly are suitably pivoted at 55, and carry light springs 56, adapted to engage the glass portion of tube 50.

In Figure 1, the device is shown as engaging a tube with a flame 45, impinging on tubulation 49. It is evident that when the entire mechanism is swung inwardly toward vacuum tube 50, tubulation 49 enters portion 47 and forces jaws 45 apart in order to enter space 48. The jaws then spring together and embrace tubulation 49. In the meantime, shaft 5 which has been traveling upwardly, forces roller 38 and yoke 25 up. The tension of spring 31 is so adjusted that there is no tendency for tubulation 49, to be pulled out of port 51. This results in yoke 28 maintaining its vertical position upon the first movement of yoke 25.

The motion of yoke 25 upwardly is taken up by the sliding of posts 26 in 23, and 23 in 20, resulting in compression of spring 31. Upon the softening of the glass in tubulation 49, spring 31 relieves its compression by forcing yoke 28 and the entire torch and bulb retainer assembly upwardly. Tube 50 which is retained by jaws 45 and springs 56, is carried upwardly with the mechanism. Upon the completion of this cycle the entire mechanism is turned away from turret 52, and depressed to the height shown in Figure 1.

It is evident that vertical adjustment of flame 45, with respect to tubulation 49, is necessary in order that a desirable seal be made. This is accomplished by turning knurled head 35 and threaded member 34 relatively to screw 29, into which it is threaded. By suitably adjusting screw 29 with relation to yoke 28 and screw 34, it is possible to adjust the tension of the coil spring 31, and the height of torch 45, independently of each other.

It may be desirable to have the exhaust machine operate without having the tipping off mechanism operate at the same time. In order to render the tipping off mechanism inoperative, a lever 70 suitably pivoted at 75 and biased by spring 71, is provided to cooperate with slots 73 and 74 of arm 72. The mechanism is shown in Figure 2 as being in the inoperative position so that while the mechanism is oscillated it does not approach the tubes close enough to seal them. By operating lever 70 the end engaging the slot may be raised clear and the entire mechanism swung inwardly so that lever 70 engages slot 74, in that case the mechanism in its oscillations will seal the tubes and withdraw them from the machine.

I claim:

1. A tipping off mechanism for exhaust machines comprising two parallel supporting journals, shafts mounted therein, means for oscillating one shaft and reciprocating the other shaft, a torch and bulb retaining assembly supported on one shaft, and means whereby the remaining shaft operates on said assembly.

2. A tipping off mechanism for exhaust machines comprising two parallel supporting journals, a shaft mounted in each of said journals, means for oscillating one shaft and reciprocating the other shaft, a torch and bulb retaining assembly supported by said reciprocating shaft, and means for operatively associating said oscillating shaft and said assembly.

3. A tipping off mechanism for exhaust machines comprising two parallel supporting journals, a shaft mounted in each of said journals, means for oscillating one shaft and reciprocating the other shaft, a frame supported by one shaft, a torch and bulb retaining assembly resiliently mounted in said frame and capable of vertical movement, and means operatively connecting the other shaft and assembly.

4. A tipping off mechanism for an exhaust machine comprising two parallel supporting journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on said oscillatory shaft, a torch and bulb retainer assembly resiliently mounted on said frame, and means whereby said other shaft reciprocates said assembly in said frame.

5. A tipping off mechanism for an exhaust machine comprising two parallel supporting journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other, a frame mounted on said oscillatory shaft, a torch and bulb retainer assembly resiliently mounted in said frame, a table carried by said reciprocating shaft, and means operatively associating said table and assembly.

6. A tipping off mechanism for an exhaust machine comprising two parallel supporting journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other, a frame mounted on said oscillating shaft, a torch and bulb retainer assembly, vertically compressible means for resiliently mounting said assembly on said frame, and means for operatively associating said reciprocating shaft and said mounting means.

7. A tipping off mechanism for exhaust machines comprising two parallel supporting journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other, a frame supported by said oscillating shaft, a torch or bulb retainer assembly, spring biased means for mounting said assembly on said frame, means for ad-

justing said spring bias, and means for transmitting impulses from said reciprocating shaft to said compressible means.

8. A tipping off mechanism comprising two parallel supporting journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other, a frame mounted on said oscillating shaft, a torch and bulb retainer assembly, spring biased means for mounting said assembly on said frame, a table carried by said reciprocating shaft, and means for transmitting impulses from said table to said mounting means.

9. A tipping off mechanism for exhaust machines, comprising two parallel journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly, telescoping spring biased means for supporting said assembly on said frame, and means for operatively associating the other shaft and said assembly.

10. A tipping off mechanism for exhaust machines comprising two parallel journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly, telescoping spring biased means for supporting said assembly on said frame, and means for transmitting operational impulses from the other shaft to said telescoping mounting means.

11. A tipping off mechanism for exhaust machines comprising two parallel journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly, vertically compressible resilient telescoping means for mounting said assembly on said frame and means for transmitting impulses from the other shaft to said mounting means.

12. A tipping off mechanism for exhaust machines comprising two parallel journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly, spring biased mounting means for retaining said assembly on said frame, said mounting means having independent telescoping connections with said frame and said assembly.

13. A tipping off mechanism for exhaust machines comprising two parallel journals, a shaft mounted in each journal, means for oscillating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly, spring biased means for mounting said assembly on said frame, said mounting means including telescoping connections with said frame and assembly respectively, and sliding contact means for transmitting impulses from the other shaft to said mounting means.

14. A tipping off mechanism for exhaust machines comprising two parallel journals, a shaft mounted in each journal, means for operating one shaft and reciprocating the other shaft, a frame mounted on one shaft, a torch and bulb retainer assembly carried by said frame and means for locking said frame on said shaft in either an operative or an inoperative position.

In testimony whereof he affixes his signature.

WILLIAM PARKER.