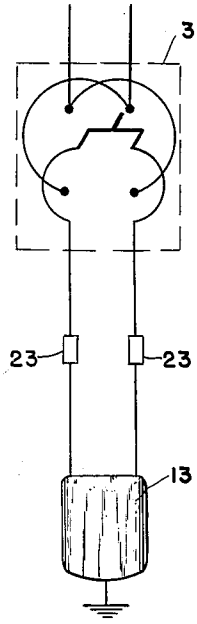
Jan. 24, 1961 J. KILYK 2,969,436

MICROPHONE STAND

Filed July 23, 1959

FIG. 1



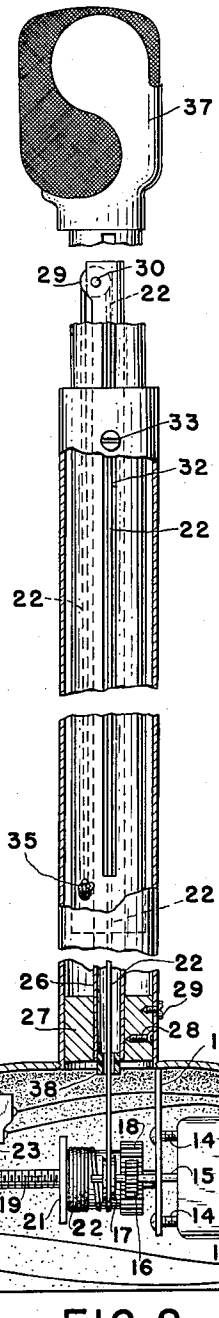


FIG. 2

FIG. 3

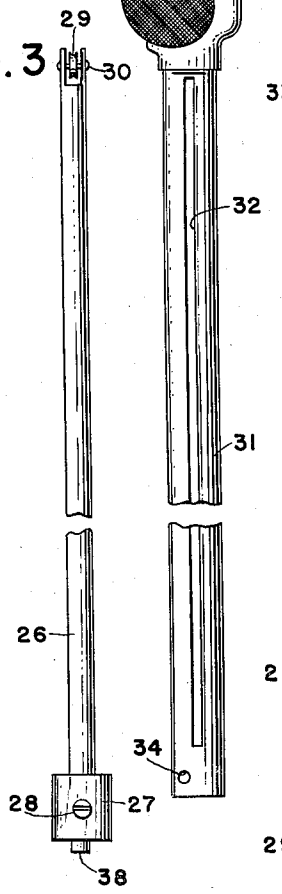
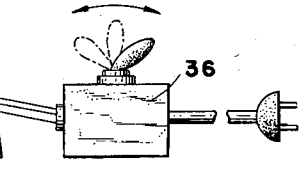


FIG. 4

FIG. 5



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MICROPHONE STAND

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6 Claims. (Cl. 179—148)

My invention relates generally to remote control microphones and more particularly to power operated retractable and extendable microphones with a height control located at a distance from the microphone stand.

It is among the objects of my invention to provide a remote control microphone which has its elevation, with respect to the one addressing the microphone, controlled by a person at a remote point.

It is a further object of my invention to eliminate the need for the person addressing the microphone to adjust its height.

A still further object of my invention is to provide a microphone which rapidly and easily is retracted and extended to adjust itself to the height of the person addressing the microphone.

Yet a further object of my invention is to provide a remote control microphone having an improved drive mechanism that is simple, relatively inexpensive and durable.

These objects and advantages as well as other objects and advantages may be achieved by the device shown by way of illustration of my invention in the drawings in which:

Figure 1 shows a control and limiter circuit suitable for use with my remote control microphone;

Figure 2 is a vertical sectional view of my remote control microphone;

Figure 3 is an elevational view of the inner fixed tube thereof;

Figure 4 is an elevational view of the middle movable tube thereof; and

Figure 5 is an elevational view of the outer fixed tube thereof.

Referring now to the drawings in detail my remote control microphone provides a housing, base or pedestal **11**, which is generally dome-shaped and contains the driving mechanism. A mounting plate **12** extends downwardly from the top of the pedestal. On this mounting plate a reversible motor **13** is attached by bolts **14**, **14**. The motor shaft **15** extends through the mounting plate **12** and rotates a gear **16** attached thereto. The end of the shaft **15** carries a pulley **17** which is not attached to the shaft, but freely rotates thereon, irrespective of the movement of the shaft **15**. The gear **16** engages another gear **18** which is mounted on a second shaft **19**. The shaft **19** is rotatably mounted at one end on the mounting plate **12** and at the other end on another mounting plate **20**. The shaft **19** carries a spool **21** upon which a lifting cable **22** is wrapped. A pair of normally closed limiting switches **23**, **23** are mounted on the interior of the housing **11**. These limiting switches have arms **24**, **24** which ride the threads of the shaft **19**. Each limiter switch is connected in series with one winding of the reversible motor **13** and is adjusted on the threaded shaft **19** so that when the entire cable is wound up, or the entire cable **22** is unwound, the switch will open the circuit by the movement of an arm **24** in cooperation with the threaded shaft **19** so as to stop

the reversible motor to prevent further movement of the spool. Then, the only way in which the motor can be turned on is to operate it in the opposite direction, for which the other limiting switch **23** is still normally closed; the motor **13** is thereby stopped when the cord **22** is either fully wrapped on the spool **21** or completely unwound from the spool **21**, and the microphone **37** is fully extended or retracted.

An outer tube **25** is attached at its lower end to the pedestal **11** in a central top opening therein. An inner tube **26** is positioned within the outer tube **25**. A collar **27** surrounds the lower end of the inner tube **26** and is attached thereto by the set screw **28**. The screw **29** attaches the outer tube **25** to the collar **27**. Inside of the inner tube **26** and protruding from its lower end there is attached a tubular sleeve **38** that serves as a guide for the cable **22**. Mounted at the top of the inner tube **26**, there is a pulley **29** on the axle **30**.

A tubular middle tube **31** slidably surrounds the inner rod **26** and is positioned slidably inside the outer tube **25**. The middle tube **31** has a keyway or slot **32** to keep it from rotating within the outer tube **25**. A key in the form of the screw **33** mounted on the outer tube **25** enters the keyway **32**. The middle tube **31** is kept suspended in the outer tube **25** by the cable **22**. The cable **22** is wound on the spool **21**, passes over the pulley **17**, up the inner tube **26**, over the pulley **29**, down outside the inner tube **26** and inside the middle tube **31**, to the aperture **34** in the middle rod **31**. The cord **22** passes through this aperture **34** and is provided with a knot **35** at its end so that the middle tube **31** will remain suspended inside of the outer tube **25**.

A double pole, double throw switch **36** with a neutral intermediate position is connected to the reversible motor **13**. When the motor is energized to wind the cable **22** on the spool **21**, the cable **22** lifts the middle tube **31**, causing it to rise and carry the microphone **37** upwardly. On the other hand, when the motor is reversed by throwing the switch to the opposite position, the cable **22** is unwrapped from the spool **21** and the middle tube **31** is lowered. The limiting switches **23**, **23** are adjusted so that the riders or fingers **24**, **24** will open one or the other of the respective motor circuits to prevent the cable from being wound or unwound from the spool **21** beyond the normally required limits of extension or retraction of the middle tube **31**. The switch **36** is provided with a neutral position so that the operation of the motor **13** may be stayed at the proper point of elevation of the microphone **37**. By virtue of the use of this remote control microphone, an experienced monitor can adjust the exact position of the microphone for each person, without the one using the microphone struggling with an unfamiliar adjustment while attempting to address the microphone.

The foregoing description is merely intended to illustrate an embodiment of the invention. The component parts have been shown and described. They each may have substitutes which may perform a substantially similar function; such substitutes may be known as proper substitutes for the said components and may have actually been known or invented before the present invention; these substitutes are contemplated as being within the scope of the appended claims, although they are not specifically catalogued herein.

I claim:

1. A microphone stand comprising three concentric tubes, a cable attached at one end to the lower portion of the middle tube and passing over the top of and down through the inner tube, means for winding and unwinding the cable, driving means for said means, a microphone mounted on the middle tube, the inner and outer

tubes secured against movement with respect to each other.

2. A microphone stand comprising three concentric tubes, a cable attached at one end to the lower portion of the middle tube and passing over the top of and down through the inner tube, means for winding and unwinding the cable, driving means for said means, a microphone mounted on the middle tube.

3. A microphone stand comprising three concentric tubes, a cable attached at one end to the lower portion of the middle tube ad passing over the top of and down through the inner tube, means for winding and unwinding the cable, driving means for said means, a microphone mounted on the middle tube, a base connected to the outer tube and enclosing the means for winding and unwinding the driving means.

4. A microphone stand comprising three concentric tubes, a cable attached at one end to the lower portion of the middle tube and passing over the top of and down through the inner tube, means for winding and unwinding the cable, driving means for said means, a microphone mounted on the middle tube, a keyway slot in the middle tube, a key attached to the outer tube and slidably positioned in the keyway.

5. A microphone stand comprising a base, three concentric tubes, the outer tube attached to the base, the inner tube attached to the outer tube, the middle tube slidable between the outer and inner tubes, a reversible electric motor in the base, a spool connected for rotation to the motor, reversing switch means connected to the motor, a cable attached at one end to the spool and at the other end to the bottom portion of the middle tube, a pulley at the top of the inner tube, the cable intermediate of its said ends passed up inside the inner tube over the pulley and down outside the inner tube.

6. A microphone stand comprising a base, three concentric tubes, the outer tube attached to the base, the inner tube attached to the outer tube, the middle tube slidable between the outer and inner tubes, a reversible electric motor in the base, a spool connected for rotation to the motor, reversing switch means connected to the motor, a cable attached at one end to the spool and at the other end to the bottom portion of the middle tube, a pulley at the top of the inner tube, the cable intermediate of its said ends passed up inside the inner tube over the pulley and down outside the inner tube, a threaded shaft operably connected to the motor, normally closed limit switches operably connected to the threaded shaft, each limit switch connected in series with a line supplying current to operate the reversible motor in one direction, each limit switch adjusted with respect to the threaded shaft to open the circuit when the middle tube has reached the limit of its movement in either direction.

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