

June 14, 1932.

A. F. BENNETT

1,863,322

TELEPHONE PAY STATION

Filed July 22, 1931

2 Sheets-Sheet 1

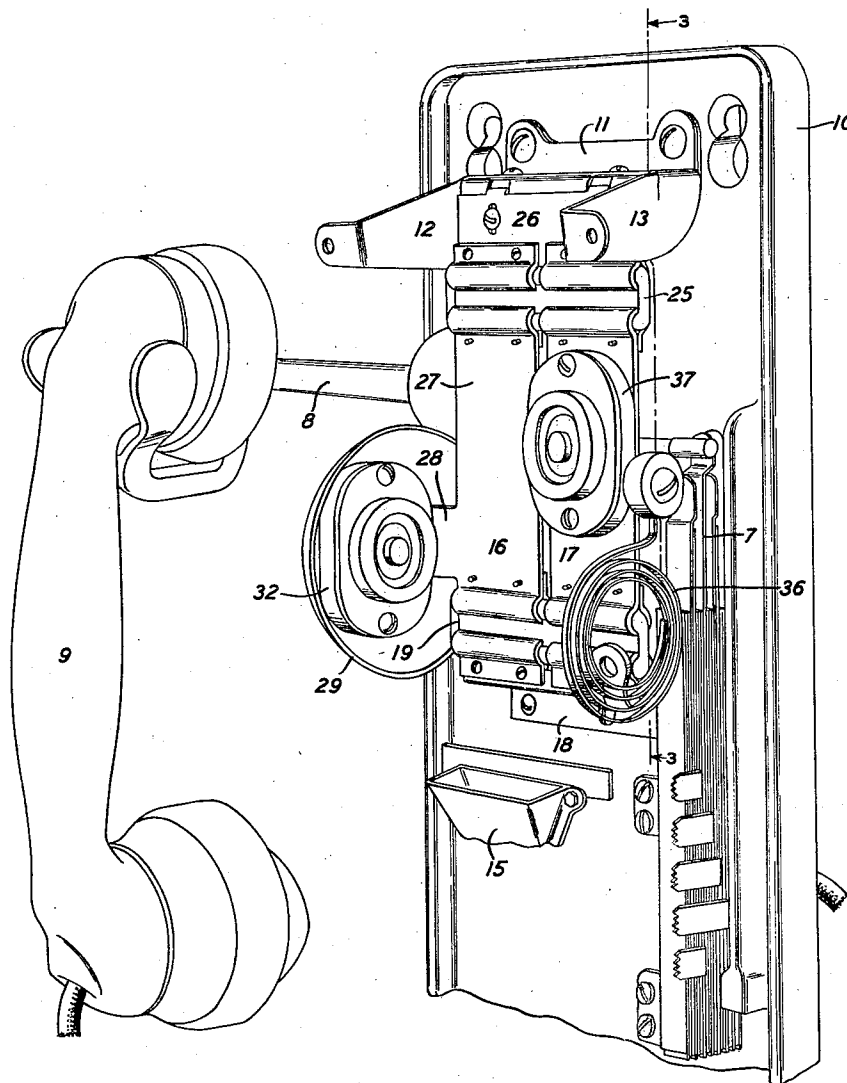


FIG. 1

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FIG. 2

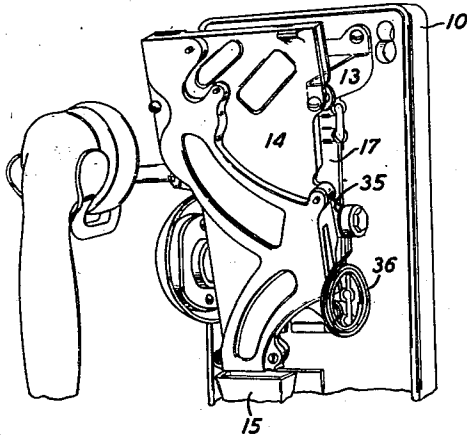


FIG. 5

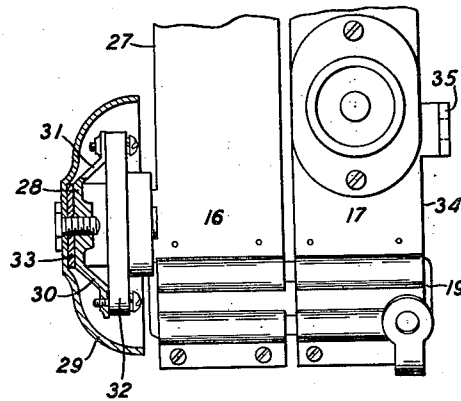


FIG. 3

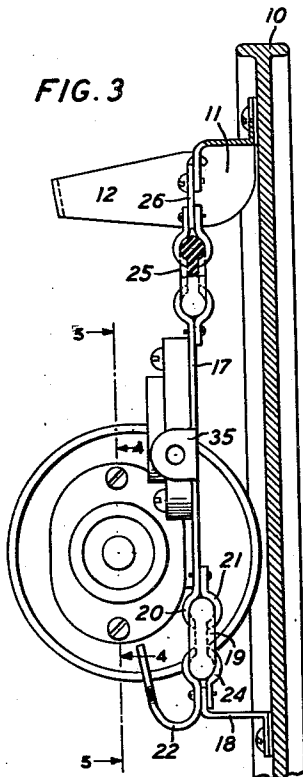
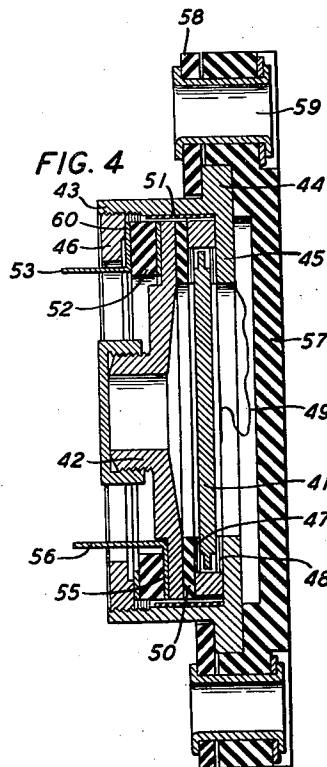


FIG. 4



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UNITED STATES PATENT OFFICE

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TELEPHONE PAY STATION

Application filed July 22, 1931. Serial No. 552,345.

This invention relates to telephone apparatus and particularly to telephone pay station apparatus operable by coins of various denominations.

An object of the invention is the provision of a multi-coin collector suitable for use with handsets or other apparatus containing the talking instrument.

Another object is the provision of means to prevent the sending of signals without depositing coins or tokens of the proper denomination and thereby obtaining service either free or for less than the prescribed rate.

Still another object is to prevent the transmission over the telephone circuit of noises incident to deposited coins traveling through the coin chute.

In accordance with one of the features of the invention, the talking transmitter has no acoustic connection with the coin signalling apparatus there being provided in the coin collector case an auxiliary transmitter for each signal to which it is rigidly connected through sound conducting material, each signal and its associated transmitter forming distinct units which are supported in non-acoustic relation to each other and to the rest of the coin collector apparatus by resilient cushions of sound absorbing material.

In accordance with another feature each auxiliary transmitter is provided with an inertia diaphragm which is substantially insensitive to sound vibrations transmitted thereto through the air.

In accordance with another feature of the invention two low resistance auxiliary transmitters are connected in series with each other and in series with the talking transmitter.

For the purpose of describing the invention, it is shown as adapted for use in multi-coin collectors of the general type shown and described in Patent 1,043,219 of November 5, 1912 to O. F. Forsberg.

Referring to the drawings, Fig. 1 is a perspective view showing the signal units mounted on a backboard, the coin chute being omitted;

Fig. 2 is a view showing the relation of the

signal units to the chute, the switching springs being omitted for sake of clearness; Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged sectional view of the auxiliary transmitter unit on the line 4—4 of Fig. 3; and

Fig. 5 is a view showing the manner of mounting the transmitter unit in the bell which is shown in section on line 5—5 of Fig. 3.

Attached to the upper part of the backboard 10 of the coin collector housing is a bracket 11 having forwardly projecting arms 12 and 13 to which the coin chute 14 having a plurality of passageways is secured for conducting coins, such as nickels, dimes and quarters, to the usual hopper 15. Also supported on the backboard is a switchhook 8 arranged for supporting a handset 9 and operating circuit springs 7.

Mounted on the backboard 10 and between it and the coin chute 14 are two signaling units 16 and 17. The lower ends of these units are secured to the backboard by means of the brackets 18 and the rubber strip 19 clamped between the jaws 20 and 21 of the units, and 22 and 24 of the brackets. The upper ends of the units are similarly secured to the backboard 10 through the rubber strip 25 and a plate 26 adjustably attached to the bracket 11 between the arms 12 and 13. This adjustment is to facilitate in mounting the unit and tensioning the rubber strips but is not essential to the invention. The rubber mounting strips 19 and 25 are shown in one piece but two pieces may be used at each end, one for each unit, if desired.

The unit 16 is shown as comprising a flat metal plate 27 having a right angle bracket 28 extending from one edge thereof to the end of which is rigidly secured a bell 29. Mounted within the bell 29 on transverse arms 30 and 31 on the bracket 28 and rigidly secured thereto is a transmitter unit 32. Between the bracket 28 and the bell 29 is a washer 33 finished at both sides in order to provide an efficient and rigid mechanical coupling between the bell 29 and the transmitter unit 32. Upon the size of this washer or the

contacting surface between the bracket and the bell, if the washer is not used, depends the duration of the overhang of the tone of the bell, the larger the contacting surface the shorter the overhang.

The unit 17 is shown as comprising a flat metal plate 34 having a right angle bracket 35 to which is rigidly secured a cathedral gong 36. Mounted on the plate 34 is a transmitter unit 37 similar to the transmitter unit 32. The units 16 and 17 are supported so that coins traveling through the chute will operate the signals in the usual manner.

By rigidly securing the auxiliary transmitter units 32 and 37 to their respective signals, an efficient and close mechanical coupling is had for transmitting signals over the line and by mounting each unit resiliently with respect to the housing, to the chute, and to each other so that there is no metallic or rigid connection between these members, a loose mechanical coupling is provided which prevents the transmission of vibrations from the housing and the coin chute to the signals or from the signal of one unit to the transmitter unit of the other so that there can be no confusion of signals at the central office, or annoyance due to extraneous noises.

The transmitter shown in Fig. 4 is of the inertia type, particularly suited for this purpose. It comprises an inertia diaphragm, or movable electrode 41 having a reduced peripheral portion and a fixed electrode 42 spaced therefrom by means of an annular separator 50 of insulating material forming a chamber for carbon granules. These electrodes are mounted in an annular member 43 having outwardly and inwardly projecting flanges 44 and 45 respectively, at one end, and an internally threaded portion for receiving an externally threaded nut 46 at the other. The movable electrode 41 is supported at its periphery between book damping members 47 and 48 which extend over, but out of contact with the reduced peripheral portion. The fixed electrode is insulated from the member 43 by means of the insulator 51 and the annular insulator 52. Connecting the movable electrode 41 to the flange 45 of the annular member 43 is a wire 49 soldered thereto, and between the metal clamping ring 46 and insulator 52 is a metal washer 60 with a projecting lug 53 providing a terminal for this electrode. Between the insulator 52 and the fixed electrode 42 is a metallic washer 55 having a lug 56 providing a terminal for the fixed electrode. The face is covered by a non-perforated cap 57 of insulating material secured to the annular member 43 by means of an annular insulator 58, adapted to rest against the rear surface of the flange 44, and eyelets 59 which also provide holes for mounting the units on plates 16 and 17.

The microphone unit has a very inefficient

coupling with the air and is not sensitive to extraneous noises. It is preferably low resistance so that a plurality may be connected in series with each other and with the talking transmitter without affecting the talking efficiency of the circuit.

While the invention has been illustrated with coin collectors for use with handsets, it obviously possesses many advantages which may be utilized in coin collector sets on which the talking transmitter is mounted.

What is claimed is:

1. In a telephone pay station, a plurality of sound signals adapted to be operated by coins of different denominations, a sound translating device associated with each signal and a resilient sound absorbing connection between said translating devices.

2. In a telephone pay station, a plurality of sound signals adapted to be operated by coins of different denominations, a sound translating device associated with each signal and a resilient sound absorbing connection between said signals.

3. In a telephone pay station, a plurality of sound signals adapted to be operated by coins of different denominations, a sound translating device for each signal and mountings resonantly connecting each signal with its associated transmitter and a non-resonant connection between said mountings.

4. In a telephone pay station, a plurality of sound signals adapted to be operated by coins of different denominations, a transmitter associated with each signal and means insulating one signal and its associated transmitter from the vibration of the other signal.

5. In a telephone pay station, a plurality of gong signals adapted to be operated by coins of different denominations, a transmitter associated with each signal and means insulating each transmitter and its associated signal from the vibration of the other signal.

6. In a telephone pay station, a coin chute, a plurality of gong signals adapted to be operated by coins of different denominations, a transmitter associated with each signal and means insulating each transmitter from the vibration due to coin traveling said chute.

7. In a telephone pay station, a plurality of coin chutes for coins of different denominations, a plurality of sounding devices having characteristically different tones adapted to be operated by coins traveling in said chute, an inertia transmitter individual to each sounding device and mechanically connected thereto, and means acoustically insulating said transmitters from each other and from said coin chutes.

8. In a telephone pay station, a sounding device adapted to be operated by deposited coins, a transmitter resonantly connected to said sounding device, said transmitter comprising an inertia diaphragm of such mass as

to be substantially unresponsive to sound waves transmitted thereto through the air.

5 9. In a telephone pay station, the combination of a sounding device adapted to be sounded by deposited coins and a transmitter rigidly associated with said sounding device to translate the vibrations therefrom into electrical vibrations, said transmitter comprising an inertia diaphragm and a cover to
10 insulate said diaphragm from sound vibrations in the air.

10. In telephone apparatus, a microphone comprising a casing, an inertia diaphragm having a rigid central portion of uniform
15 thickness and a peripheral portion of reduced thickness, means disposed against each side of the margin of the central portion only for resiliently supporting said diaphragm in said casing for relative movement thereto, and a
20 rigid cover for insulating said diaphragm from vibrations in the air.

In witness whereof, I hereunto subscribe my name this 16th day of July 1931.

ARTHUR F. BENNETT.

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