

April 5, 1955

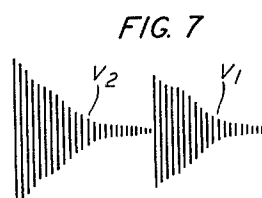
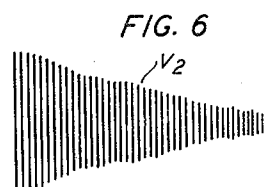
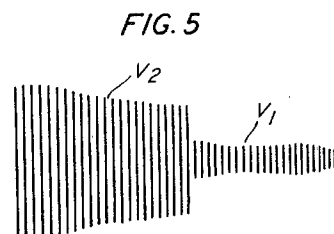
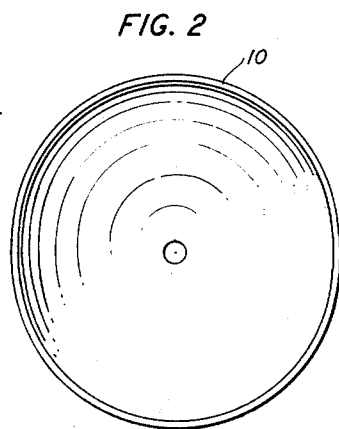
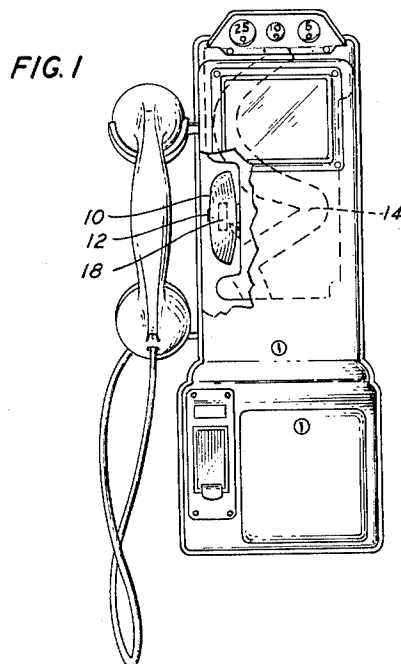
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COIN SIGNAL FOR TELEPHONE PAY STATIONS

Filed Dec. 8, 1950

2 Sheets-Sheet 1



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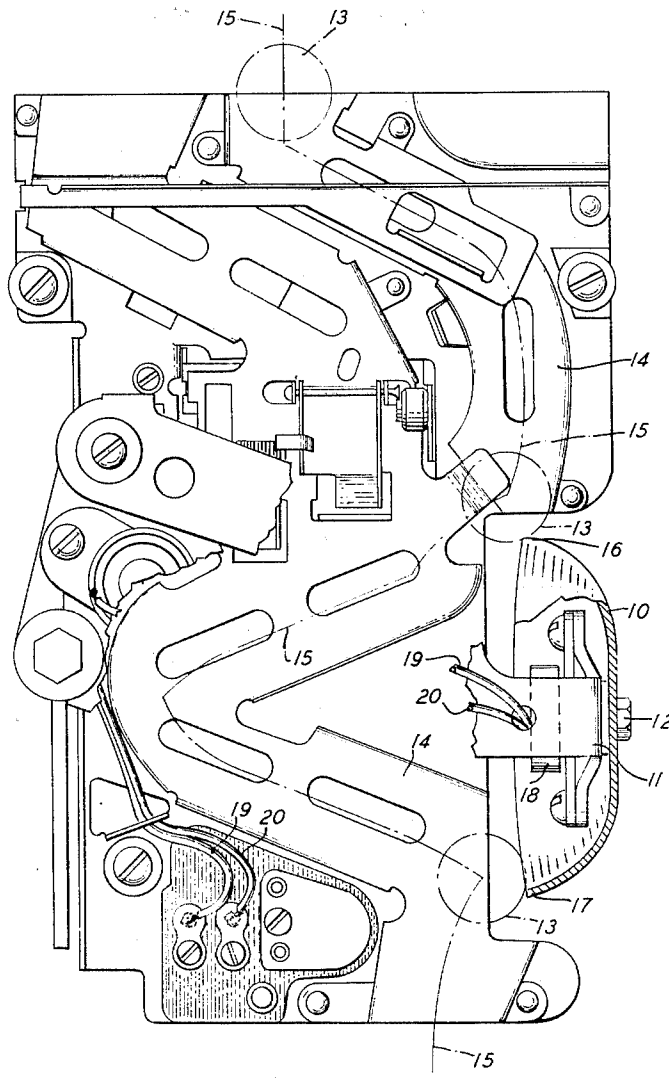
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COIN SIGNAL FOR TELEPHONE PAY STATIONS

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FIG. 4



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## COIN SIGNAL FOR TELEPHONE PAY STATIONS

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2 Claims. (Cl. 116—152)

This invention relates to coin collectors and more particularly to a coin signal for telephone pay stations wherein the signal comprises a gong or bell which is struck two successive blows by the coin as it traverses its path on its way to the coin box.

One object of the invention is the provision of a coin signal, of the gong type, in which the gong is so shaped that two successive blows, with a very short time interval between the blows, will transmit two individual sets of vibrations and that the vibrations created by the first blow will not mask or cancel the vibrations of the second blow.

In coin collectors associated with telephone pay stations where the dime or ten cent piece, as it traverses its chute, on the way to the coin box, is caused to strike the coin signal gong two successive blows with a very short time interval between the blows, it has been found that with a conventional type of gong, the vibrations set up by the first blow sometimes mask or cancel the vibrations created by the second blow, thereby transmitting a false signal to the operator since the merging of the two sets of vibrations into one or the sudden cessation of vibration, will transmit a signal that could be interpreted as a single blow or gong strike, such as given when a nickel or five cent piece traverses the coin chute and strikes the gong a single blow. It is with the elimination or reduction of false coin signals that this invention is concerned.

In accordance with a preferred embodiment of the invention, I have provided a coin signal gong which is elliptical in configuration and which, when given two successive blows, with a short time interval in between, the vibrations created by the first blow will not materially affect the vibrations of the second blow but there will be produced two separate and distinct sets of vibrations which will be transmitted to the operator as indicative of a dime or ten cent piece being deposited in the coin chute.

With the structure of my proposed gong, the vibrations of the first blow are attenuated so rapidly that they do not interfere with the vibrations set up by the second blow thereby providing two distinct trains of vibrations.

The invention will be more clearly understood from the following detailed description when read in conjunction with the accompanying drawings, of which:

Fig. 1 is a front elevational view, with a portion broken away, of a telephone pay station with the coin signal gong of this invention mounted therein;

Fig. 2 is a top plan view of the coin signal gong shown in Fig. 1;

Fig. 3 is a side elevational view of the coin signal gong shown in Fig. 2;

Fig. 4 is a rear elevational view, with parts broken away, of a coin chute for telephone pay stations with the coin signal gong of this invention mounted thereon and the coin and the path it traverses indicated in dot and dash lines;

Fig. 5 is a graph illustrating the variation of vibration amplitude with time as transmitted by a round gong, and shows the second set of vibrations being cancelled by the first set;

Fig. 6 is a second graph similar to Fig. 5 and shows the second set of vibrations from a round gong being masked by the first set of vibrations; and

Fig. 7 is a similar graph illustrating the vibrations transmitted by the elliptical-shaped gong of this inven-

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tion and shows the two separate and distinct sets of vibrations.

As shown in Figs. 1, 2 and 3, and more in detail in Figs. 2 and 3, the coin signal gong 10 is substantially elliptical in configuration with the major axis thereof extending in the direction of the grain of the metal. The gong 10, as shown in Figs. 1 and 4, and more in detail in Fig. 4, is secured to a supporting bracket 11 by means of the bolt 12, in such a manner that a coin 12, as shown in dot and dash lines, traversing the coin chute 14 and following a path as indicated by the dot and dash line 15, will strike the gong 10 first at the top portion 16 and a second time at the bottom portion 17, these two portions being at opposite ends of the major axis of the gong. Since the transmitter button 18 is mounted in juxtaposition with respect to the gong 10, the vibrations generated by the gong will be transmitted over suitable leads 19 and 20 to the operator to indicate the proper coin signal corresponding to the coin deposited.

The gong 10, which, as shown, is elliptical in configuration, is formed as by squeezing a round gong at right angles with respect to the grain of the metal. The discontinuity in the peripheral shape of the gong 10, due to its elliptical configuration, interferes with the gong vibrations in such a way as to drive energy across the center of the gong where it is picked up by the carbon transmitter button 18. This results in less energy being transmitted to the air and more to the transmitter 18. When more of the available energy is absorbed by the carbon transmitter button 18, the duration of gong vibration is less than when most of the gong energy is radiated to the air.

Since the rate of energy transferral is higher for the elliptical-shaped gong than for the conventional round gong because of increased vibration near the center point, the transmitter button 18 output for a given coin strike is approximately three decibels higher than with the usual type of gong, and the duration of the output is sufficiently short to prevent interference by the second gong strike.

The squeezing of a circular gong, to provide an elliptical gong 10, as shown, results in two closely spaced fundamental frequencies of vibration, with their associated harmonics. This double frequency provides an effective pitch approximately equal to that produced by the round gong of equivalent diameter, so that it is not necessary for operators to become accustomed to a differently pitched signal.

As shown in the graph in Fig. 5, there is illustrated two sets of vibrations  $V_1$  and  $V_2$ , which have been set up by two strikes on a round gong and shows the second set of vibrations  $V_2$  being cancelled out by the first set of vibrations  $V_1$ .

In Fig. 6, the second set of vibrations  $V_2$  have been completely masked out by the first set of vibrations  $V_1$ , with the result that two separate and distinct sets of vibrations which would indicate two gong strikes are not transmitted.

With the elliptical gong of this invention, two sets of vibrations are indicated, and, as shown in Fig. 7, they are separate and distinct, i. e.,  $V_1$  being the first gong strike and  $V_2$  being the second, thereby assuring the transmission of two gong strikes.

While I have shown and described a preferred embodiment of my invention, it is to be understood that various changes and modifications may be made therein without departing from the scope and spirit of the invention.

What is claimed is:

1. In a coin collector for telephone pay stations a coin signal comprising an elliptical metallic gong having a major and a minor axis, and a coin chute having therein a path two spaced parts of which are adjacent the ends of said major axis, said chute having apertures therein at said parts of said path through which a coin traversing said chute may strike said gong twice on its major axis.

2. In a coin collector for telephone pay stations a coin signal comprising an elliptical metallic gong having a major axis in a direction of the grain of the metal and

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a minor axis at right angles thereto, and a coin chute having therein a tortuous path, two spaced parts of which are adjacent the ends of said major axis, said chute having apertures therein at said parts of said path through which a coin traversing said chute may strike said gong twice on its major axis.

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