

Dec. 8, 1931.

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1,835,778

SOUND APPARATUS

Filed June 13, 1929

2 Sheets-Sheet 1

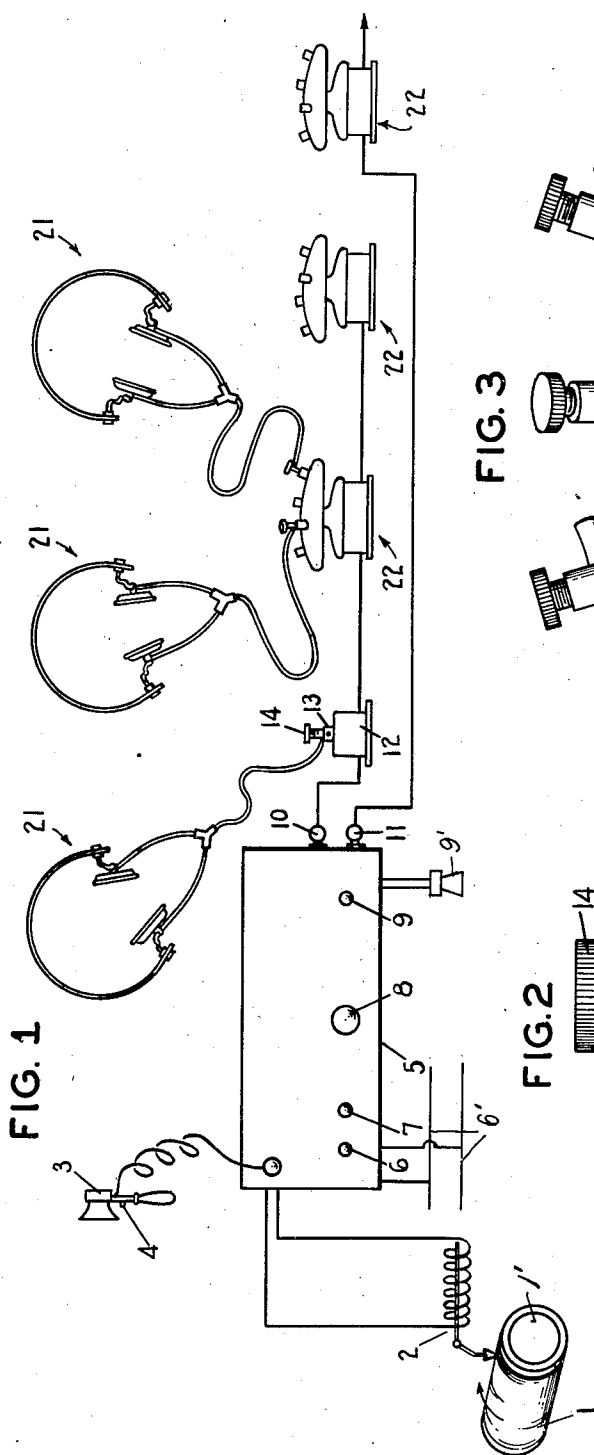


FIG. 3

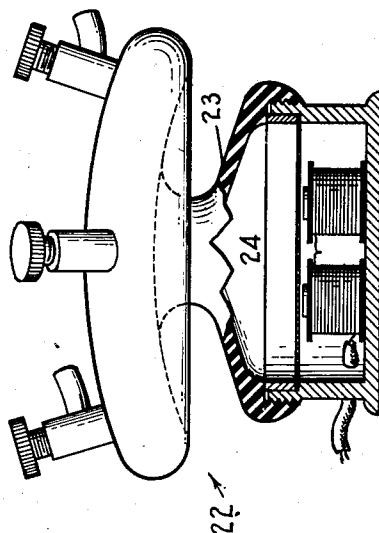
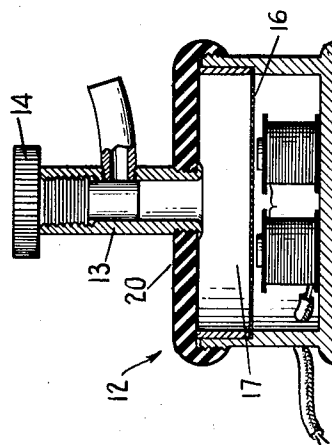


FIG. 2



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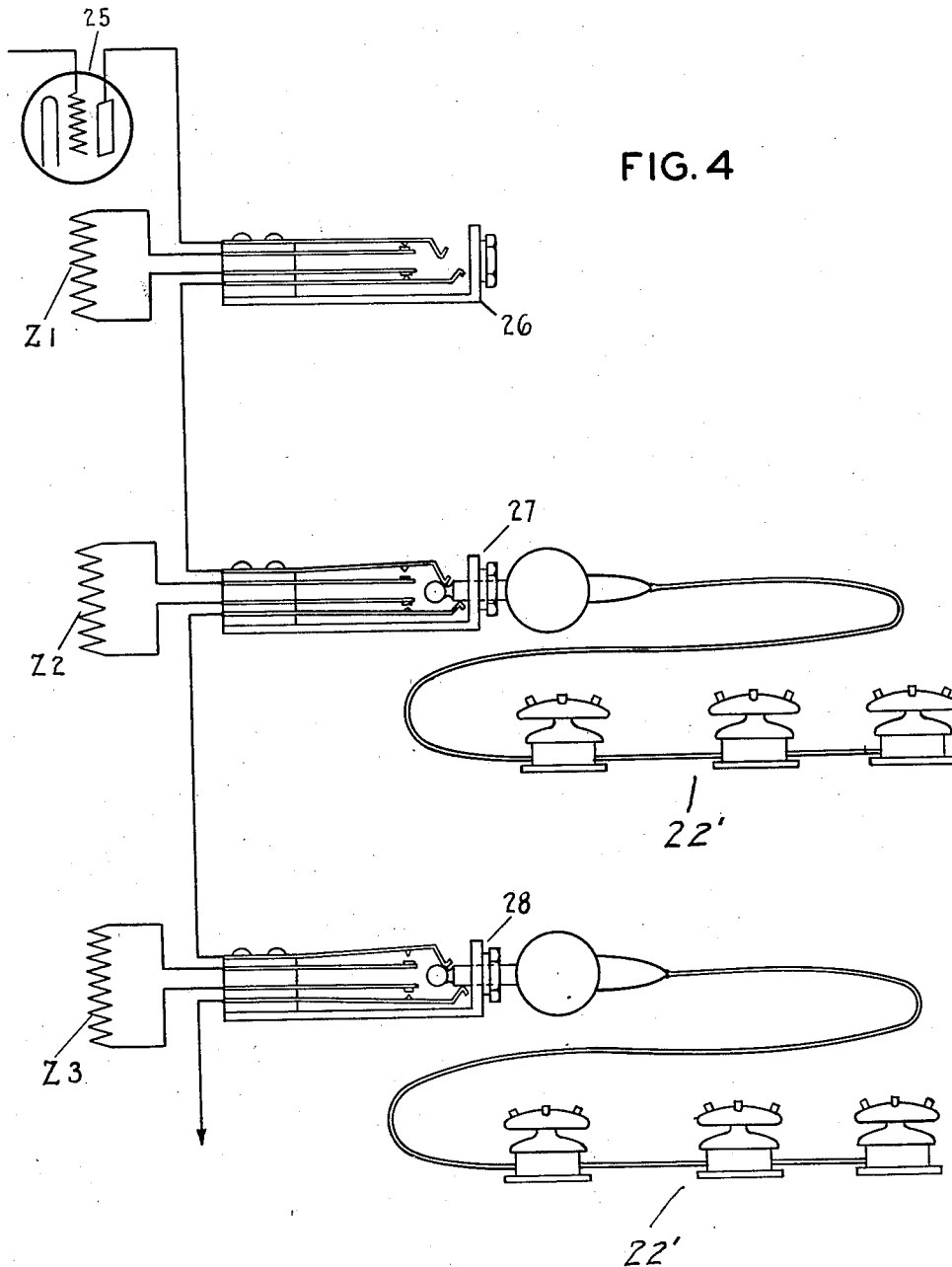
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2 Sheets-Sheet 2



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SOUND APPARATUS

Application filed June 13, 1929. Serial No. 370,508.

This invention relates to sound apparatus and more particularly to dictating machines and equipment for students of typing.

The process of transcribing from the phonographic record to the typewritten sheet is a delayed direct dictation and thus the operator must listen to words and write on the typewriter simultaneously. Clearly it is necessary to train students in transcribing from dictating machine records, and it is also clear that it is difficult for the teacher to address a class over the noise of the typewriting machines, particularly if the students are listening to the machine records.

One method of instruction is to give each student or each two students at most the use of a dictating machine, but in this case any uniform activity of the class is difficult. It has also been proposed to run a sound conduit down the length of the class room and to tap off from the conduit ear-tube branches for as many students as are to be accommodated. With this system elaborate precautions must be taken to prevent too great attenuation of the speech, but the most serious difficulty lies in the fact that mechanical disturbances anywhere along the conduit are transmitted in both directions in it and may obscure the speech.

My invention provides a combination of apparatus whereby these difficulties are avoided and a greater range of usefulness is secured and greater flexibility of the system is obtained.

One of the objects of my invention is to simulate as nearly as possible the effect of an individual dictating machine and to allow the student to become accustomed to the conventional acoustic head set and volume control which make part of the standard dictating machine equipment, without providing an individual machine for each student.

Another of the objects of my invention is to provide a typist's instruction system which

will not pick up, be disturbed by or transmit the mechanical noises in the room.

Another of the objects of my invention is to provide means whereby the whole class may easily be addressed above the noise of the typewriters.

Another of the objects of my invention is to provide a system easily adaptable to large or small classes and to provide means whereby this adaptation is easily accomplished.

Another of the objects of my invention is to provide interlocked means for the alternate addressing of the class either by the instructor or the dictating machine so that the sequence of directions given by the machine will not be broken or overlapped by the instructor's remarks.

Still other objects and advantages of my invention will be apparent from the specification.

The features of novelty which I believe to be characteristic of my invention are set forth with particularity in the appended claims. My invention itself, however, both as to its fundamental principles and as to its particular embodiments, will best be understood by reference to the specification and accompanying drawings, in which:

Figure 1 is a diagrammatic illustration of a system according to my invention.

Figures 2 and 3 are detail views, partly in section, of sound reproducing apparatus according to my invention.

Figure 4 is a detail diagram illustrating the method of cutting additional sound reproducers into the circuit.

Referring now more particularly to Fig. 1, numeral 1 represents the rotating cylinder record shown mounted on the mandrel 1' of a standard dictating machine; 2 represents an electrical pick-up or reproducer of any suitable type; 3 represents the instructor's microphone or transmitter provided at 4 with a control button operating dually to close the microphone circuit and to stop the

rotation of the dictating machine record, by means of suitable apparatus not shown, and 5 represents an audio amplifier, which for convenience is preferably arranged to be operated directly from the electric lighting mains 6'. The controls indicated on the audio amplifier may comprise an on-and-off switch 6, a microphone volume control adjustment 7, and an amplifier volume control adjustment 8. The knob 9 controls switching means which disconnect the normal output circuit of the device and connect it to a loud speaker 9' which may be used for the purpose of addressing a whole class above the noise of typewriter machines. Numerals 10 and 11 indicate plugs cooperating with switching jacks as illustrated in Fig. 4, controlling the output circuit.

The output apparatus used with my invention is indicated by 12, 21 and 22, in which 12 is, for example, an electro-magnetic device similar to a telephone receiver, with the exception that a space 17 is provided above the diaphragm 16 for damping and loading the diaphragm. The space 17 is enclosed by the cap 20, provided with an acoustic valve 13. When the volume adjusting knob 14 is turned, the passage into the flexible conduit leading to the ears of the operator is more or less closed off and the volume of sound reaching the ears of the listener is by this means adjusted to a comfortable level, just as the volume of sound produced by direct acoustic means from a dictating machine record is adjusted by its user in practice. Numeral 21 represents a common commercial form of acoustic head set or stethoscope ordinarily used with dictating machines.

The output circuit of my device is illustrated in Fig. 4, wherein 25 represents the output vacuum tube or translating device, and 26, 27 and 28 illustrate circuit control jacks or equivalent switching means whereby groups of output devices may be connected to the amplifier. Connected across each of these jacks, as shown in Fig. 4, are impedances Z1, Z2, and Z3. The value of each of these impedances is preferably arranged to equal the total impedance of one series of output devices, indicated by 22' and 22' on Fig. 4, whereby the total impedance of the output circuit remains unchanged as one or more of these groups is connected thereto for operation. The apparatus can thus be adjusted to meet the size of the class without affecting the quality of reproduction.

Illustrated at 22, Fig. 1, and in detail in Fig. 3, is a somewhat larger electromagnetic receiving device adapted for students rather than for the instructor's use.

To prevent the sound tubes from tangling, and for symmetry and appearance, it has been found convenient to make the sound distributing head of the electromagnetic unit a domed or mushroom-shaped structure.

The part 23 may be cored out, leaving the space 24 which provides the confined air space for damping and loading, as shown previously at Fig. 2. I have found four acoustic head sets, 21, a convenient number to attach to each student's reproducing unit.

While for initial adjustment I have provided an electrical control of volume at 8, the principal volume controls are the acoustic valves 13 which may be adjusted to suit the individual desires of each operator.

For the comfort of the listeners the volume of sound due to speech through the microphone should not be materially greater than that produced from the record. A microphone volume adjustment 7 is consequently provided, which preferably is an adjustable high resistance in series with the microphone battery.

The operation of my system will, it is believed, be clear. Dictating machine records containing special exercises are put onto the dictating machine; the instructor may listen through the pilot set 12; the class listens through its individual acoustic head sets 21 etc. When the instructor wishes to give directions or instructions he may operate the control 4 and talk through the microphone 3. Due to the interconnection of the microphone circuit and record revolution control, the record stops and starts again and continues the exercise upon the release of the control 4. Uniform activity of the class is thus secured and the instructor has no difficulty making himself understood to all members of the class no matter what noise the typewriters may be making.

The addition of a loud speaker controlled at 9 has been found of considerable advantage when it is wished to give typewriter exercises either with or without using the dictating machine.

It will thus be seen that by the medium of electrical transmission I have produced a device which is unaffected by mechanical disturbance in the room, is very flexible in its adaptability as to numbers of students and provides means for addressing the class as a whole over the noise of the typewriters, and also, by reason of the arrangement used, accustoms the operator to the identical apparatus she later will use in connection with her individual dictating machine.

While I have shown and described certain preferred embodiments of my invention, it will be understood that modifications and changes may be made without departing from the spirit and scope of my invention, as will be understood by those skilled in the art.

What I claim therefore is:

1. In a dictation instruction system, in combination, a dictating machine, a sound reproducer, electro-mechanical means associated with said machine for operating said sound reproducer, a closed chamber enclos-

ing said sound reproducer and a stethoscope communicating with said chamber.

2. In a dictation instruction system, in combination, a dictating machine, a sound reproducer, electro-mechanical means associated with said machine for operating said sound reproducer, means for providing an enclosed air space on one side of said sound reproducer, an acoustic head set communicating with said enclosed air space and a valve associated with the acoustic head set whereby the volume of sound reaching the listener may be controlled.

3. In a dictation instruction system, in combination, a dictating machine, an electrical pick-up operable by a record on said dictating machine, an electrical amplifier for amplifying the output of said pick-up, an electrical sound reproducer working into a confined air chamber and a plurality of flexible acoustic conduits connected to said confined air chamber whereby the sound may be led to the ears of a plurality of listeners.

4. The method of giving instruction in the transcription of recorded dictation consisting in generating electrical fluctuations corresponding to recorded speech, amplifying such fluctuations, converting such fluctuations into sound waves in confined air and delivering said sound waves to the ear of the listener through confined air columns.

5. In a dictation instruction system, a dictating machine adapted to rotate a sound record, an electrical pick-up adapted to cooperate with said record, an electrical amplifier provided with an output circuit comprising groups of electro-acoustic receiving devices and switches for connecting any one or more of said groups in said output circuit without substantially changing the impedance of the output circuit, said pick-up being adapted to impress voltage fluctuations on said amplifier, and said receiving devices each comprising a sound reproducer and a head set in acoustic communication with said reproducer by means of an enclosed air space.

6. In a dictation instruction system, a dictating machine adapted to drive a record, an electrical pick-up cooperating with said record, an electrical amplifier, said pick-up being arranged to impress voltage fluctuations upon said amplifier, a voice microphone adapted to impress voltage fluctuations upon the same amplifier, and switching apparatus arranged to connect said pick-up and said microphone alternately with said amplifier, said switching apparatus being interconnected with said dictating machine whereby on the connection of said microphone to said amplifier the motion of said record is stopped.

7. In a dictation instruction system, in combination, a dictating machine, an electrical

pick-up device operable by a sound record on said machine, an electrical amplifier adapted to amplify the output of said pick-up, a voice microphone adapted to impress voltage fluctuations on said amplifier, and switching means whereby either said pick-up or said microphone may be connected to said amplifier, said switching means also automatically rendering said dictating machine inoperative when said microphone is connected to said amplifier.

This specification signed this 11th day of June 1929.

CHARLES HUENLICH.

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