Feb. 8, 1966 J. L. HARTLEY 3,233,344

APPARATUS FOR TEACHING MORSE CODE TELEGRAPHY

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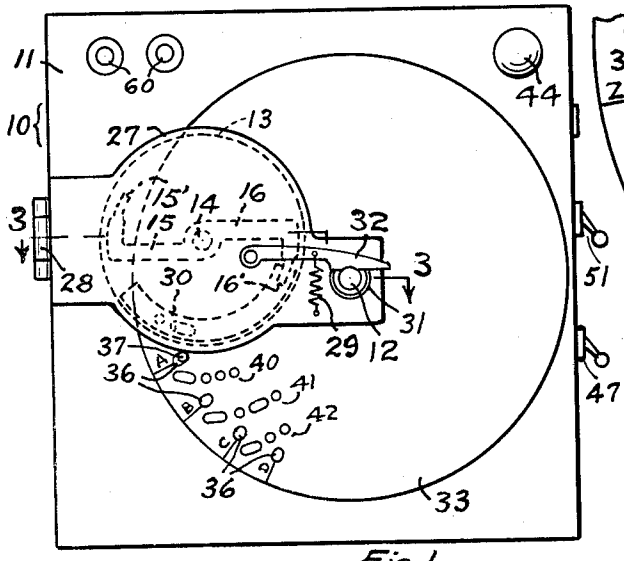


Fig. 1

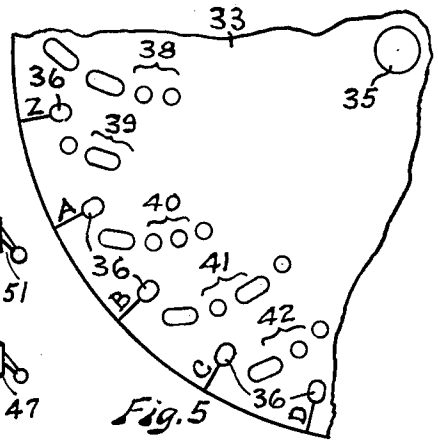


Fig. 5

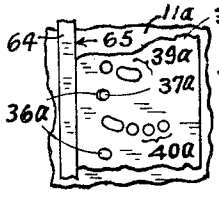


Fig. 7

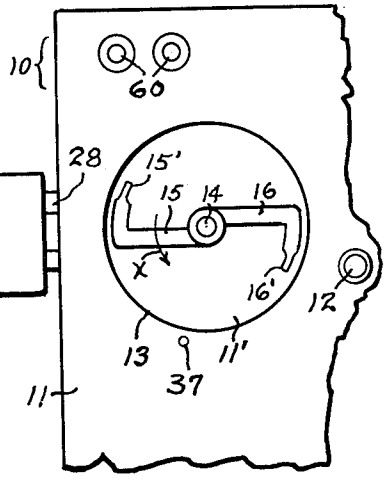
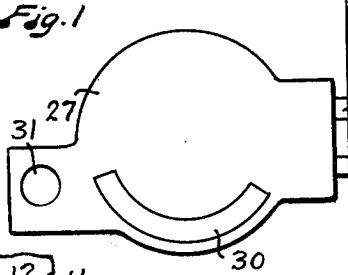


Fig. 2



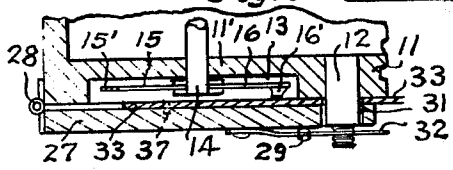


Fig. 3

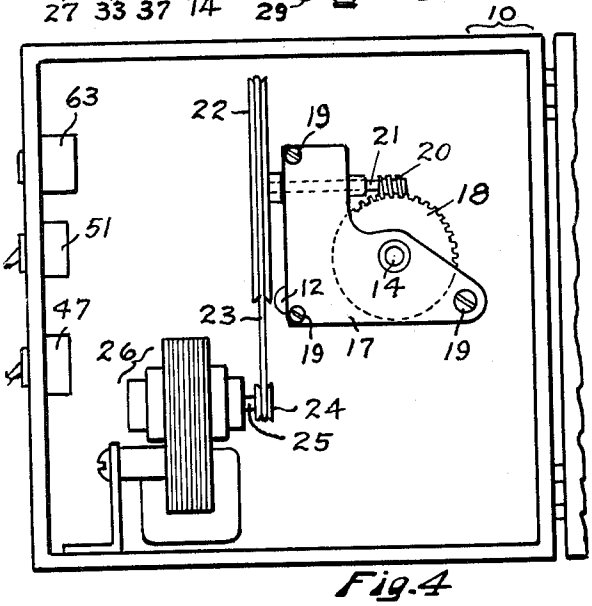


Fig. 4

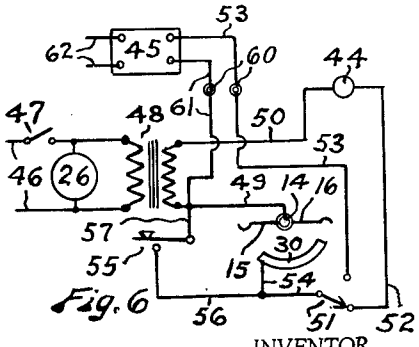


Fig. 6

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APPARATUS FOR TEACHING MORSE CODE TELEGRAPHY

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My invention relates to apparatus for teaching Morse code telegraphy.

An object of my invention is to provide a machine or device which will repeat, at timed intervals, Morse code characters to which the machine or device is set, said device producing the characters either visually or audibly, thereby enabling the person learning the character to become familiar with each character and imitate the character, as produced by the device, by the use of a hand telegraph key which can be operated by the learner in the interval of time between two successive productions of the character by the device.

Another object is to provide a machine or device for teaching Morse code telegraphy which has an adjustable code plate adapted to be quickly and easily set, at random, by the learner or by another person, to any selected character to test the learner's knowledge or recognition of the character.

Another object is to provide a device for teaching Morse code telegraphy having in combination code plate supporting means and electric circuit closing devices and a thin flat code plate of electrically insulating material, said code plate having therein sets of Morse code signal perforations, each set being marked with the character it represents so that said character, as marked on the code plate, is clearly visible to the learner while it is being produced in code by the device, thus helping the learner by causing him to associate the coded character being produced by the machine with the visual image of the character on the code plate, and said sets of perforations being arranged in a compact and advantageous manner on the code plate for cooperation with the circuit closing devices so that the Morse code signal represented by any selected set of perforations in the code plate can be repeated any desired number of times at sufficiently spaced apart intervals to allow a learner to practice the signal between successive repetitions of said signal.

Another object is to provide a machine or device of this nature in which the code plate is quickly and easily adjustable to different signalling positions without entirely removing it from the device.

Other objects are to provide a machine or device for teaching Morse code telegraphy which is simple and durable in construction, not expensive to manufacture, and one which makes it easy for a person to learn the Morse code without other assistance.

Other objects of my invention will be apparent from the following description and accompanying drawings.

In the drawings FIGURE 1 is a view in front elevation of a device embodying my invention as it may appear when in use.

FIG. 2 is a front elevation of said device with parts broken away and with a hinged panel which carries a contact plate moved to an open position and a code plate removed.

FIG. 3 is a fragmentary inverted sectional view taken substantially on broken line 3—3 of FIG. 1.

FIG. 4 is a rear elevational view of the device with the back cover member open to reveal the driving mechanism.

FIG. 5 is a detached elevational view, on a larger scale than FIGS. 1 to 4, showing a fragment of a perforated code plate.

FIG. 6 is a wiring diagram illustrative of electrical devices.

FIG. 7 is a fragmentary elevation showing a perforated code plate of modified form.

Like reference numerals refer to like parts throughout the several views.

My Morse code signaling device comprises a housing **10**, which serves as a frame and receptacle for some of the operating mechanism, and has one flat side or wall which serves as a platen or mounting plate for some of the mechanism and is herein termed a platen wall **11**.

The platen wall **11** has an approximately centrally positioned rigid stud pin **12** projecting outwardly therefrom. Also said platen wall **11** has a circular concave recess **13** provided in it at one side of the stud pin **12**. A driven shaft **14** extends from within the housing **10** through a part **11'** of the platen wall **11**, said part **11'** forming the bottom of the recess **13**. The shaft **14** has preferably two contact arms **15** and **16** secured to it and extending outwardly from it, said contact arms being rotatable within the recess **13** by driving said shaft **14**. The contact arms **15** and **16** are preferably formed of thin flat resilient metal and said arms terminate respectively in contact shoes or fingers **15'** and **16'** of suitable size and shape for electrical contact purposes, as hereinafter explained.

The portion of the shaft **14** within the housing **10** is connected with any suitable driving means for driving it at slow speed. The driving means, of speed reduction type, herein disclosed by way of illustration comprises frame means **17** within which the shaft **14** is journaled, a worm wheel **18** rigidly attached to said shaft **14**, a worm **20** secured to a countershaft **21** and meshing with the worm wheel **18**, a relatively large grooved pulley **22** secured to said countershaft **21**, and a belt connecting the large pulley **22** with a smaller grooved pulley **24** on the shaft **25** of an electric motor **26**. Obviously a motor of different type, such as a spring motor, can be used. Frame **17** can be secured to platen wall **11** by screws **19**. Obviously pulleys **22** and **24** can be of a multiple-stepped type to provide for changing the gear ratio between motor shaft **25** and countershaft **21** by shifting the belt **23** from one set of pulleys to another. Preferably a hinged door **9** is provided as a closure means for the rear side of housing **10**.

A panel **27** is connected by hinge means **28** with an edge portion of the platen wall **11** and is swingingly movable between a position in which it is parallel with and close to said platen wall **11** and overlies and covers the recess **13**, as shown in FIGS. 1 and 3, and a position in which it is clear of and away from the platen wall **11** and recess **13**, such as the position in which it is shown in FIG. 2. The panel **27** carries an arcuate contact plate **30** which is flush with the inner surface of the panel and, when the panel **27** is in the position shown in FIGS. 1 and 3, is parallel with the platen wall **11** and close to the circular recess **13** and coincides with the path of movement of the two contact shoes **15'** and **16'**. The end portion of the panel **27** remote from the hinge **28** has a perforation **31** which is adapted to fit over the stud pin **12** and a latch member **32** is provided on the outer side of the panel **27** to engage with the pin **12** and hold the panel in the closed position in which it is shown in FIGS. 1 and 3. A spring **29** yieldingly holds the latch member **32** in engagement with the pin **12**.

A thin flat perforated code plate **33**, formed of insulating material, such as plastic, is removably supported against the platen wall **11** with a portion of said code plate disposed between the panel **27** and the contact arms **15** and **16**. I prefer to make the code plate **33** of disc shape as shown in FIGS. 1 and 5, but it will be understood that the shape of said code plate **33** can be varied. Said code plate **33** is provided with a centrally disposed perforation **35** which is adapted to fit over the stud pin **12**.

Also said code plate 33 is provided, adjacent its periphery, with a plurality of spaced apart index perforations 36 arranged in a circular path and adapted to fit over an index pin 37 which protrudes from the face of the platen wall 11. Also said code plate 33 is provided with a plurality of sets of code perforations, five of which sets, 38, 39, 40, 41 and 42, are shown in FIG. 5. The several perforations of each set of code perforations are spaced apart and the perforations of each set are arranged in a circular path the radius of which is equal to the distance of the contact shoes 15' and 16' from the center of the shaft 14. The center perforation 35 and index perforations 36 in the code plate 33 cooperate with the center pin 12 and index pin 37 on the platen wall to always position the code plate 33 so that one set of code perforations therein coincides with the path of movement of the contact shoes 15' and 16'. The code perforations of each set are of suitable size and shape to provide for either a shorter or a longer period of electrical contact of shoes 15' and 16' with contact plate 30 as said shoes pass over the successive perforations of the set. Thus long and short signals of dot and dash type are provided.

The code plate 33 can be quickly and easily adjusted to change the code signal, without taking said code plate off of the center pin 12, by opening the hinged panel 27 and rotatively moving said code plate 33 about the pin 12 to a new position in which the index perforation 36 of the chosen signal can be fitted over the index pin 37. The previously described arrangement of the sets of code perforations in the code plate 33 is advantageous in that it makes possible a device of simple construction and makes it possible to get an entire alphabet of Morse code signal perforations in a single flat code plate which is not objectionably large in size.

The signals controlled by the circuit closing means can be visual, as by the energizing of a lamp 44, FIGS. 1 and 6, or audible, as by the energizing of a tone oscillator 45, FIG. 6. In said FIG. 6 energy from circuit wires 46, controlled by switch 47, is supplied to motor 26 and to a step down transformer 48. One low voltage terminal of the transformer 48 is connected by a conductor 49 with the shaft 14 which carries the contact arms 15 and 16. The other low voltage terminal of the transformer 48 is connected by a conductor 50 with the lamp 44. Preferably the lamp 44 is mounted on the platen wall 11 where it is clearly visible. A two way switch 51 has one terminal connected by a conductor 53, through one of a pair of binding posts 60 on the housing 10, with one terminal of the tone oscillator 45. The other terminal of the tone oscillator 45 is connected by a conductor 61, through the other binding post of the pair 60 with the conductor 49, which is in turn, connected by conductor 57 with a hand operated telegraph key 55. Control of oscillator 45 is had through conductors 53 and 61 but preferably independent circuit wires 62 are used to supply current to said oscillator 45. The third terminal of the switch 51 is connected by a conductor 54 with the contact plate 30. The hand operated telegraph key 55 is connected by the conductors 56 and 57 with the conductors 54 and 49 so that said key 55 can be used to close a circuit to either the lamp 44 or the tone oscillator 45. Thus, depending on the setting of switch 51, a learner can practice a code signal during the interval of time between repetitions of said signal by the machine. Preferably a jack 63 in the housing 10 is used in making connection between the telegraph key 55 and the circuits just described.

In the use of this device the code plate 33 is angularly adjusted between the platen wall 11 and the hinged panel 27 so that the index perforation 35 of a selected code character fits over the index pin 37. Then when the motor 26 is energized the contact arms 15 and 16 will be rotated and, if the two way switch 51 is in the position shown in FIG. 6, a visual code signal of the selected character will be given each time a contact shoe 15' or 16' passes over the perforations of the set which registers with the contact member 30. Obviously the coded letters or characters do not need to be in sequence in the code plate 33. If for instance, the index perforation 36 marked with the latter "A" is positioned over the index pin 37, then the set of code perforations numbered 39, FIG. 5, will be properly aligned for use and movement over said perforations 39 of each contact shoe 15' and 16', in the direction indicated by arrow X, FIG. 2, will produce a short and a long illumination of the lamp 44. It will be noted that some of the sets of code perforations in code plate 33 are omitted in FIG. 1.

An advantage of my device is that the letter or character which is being produced in code by the machine is clearly marked on the code plate 33 and readily visible to the learner. Thus, if the machine is set for the letter A, as shown in FIG. 1, said letter A will be visible immediately below the panel 27 and the learner associates the coded image or sound produced by the machine with the visual image he sees on the code plate.

FIG. 7 shows a code plate 33*a* of strip form which can be used instead of the disc shaped code plate 33. The code plate 33*a* has spaced apart aligned index perforations 36*a* and has sets, such as 39*a* and 40*a*, of code perforations similar to the index perforations 36 and code perforations 39 and 40, shown in FIGS. 1 and 5, except that they are disposed in general alignment lengthwise of said code plate 33*a*. The code plate 33*a* is used on a platen wall 11*a* similar to the platen wall 11, except that it is provided with any suitable guide means, such as a thin flat strip 64 having a straight edge 65 against which the code plate 33*a* may be placed, to help insure proper positioning of said code plate 33*a* when one of the index holes 36*a* therein is fitted over an index pin 37*a*. Each set of code perforations, such as 39*a* and 40*a*, is arranged so it will register with the path of travel of the contact shoes 15' and 16' when the index perforation marked to correspond therewith is on the index pin 37*a*. The code strip 33*a* operates in substantially the same manner as the code plate 33, shown in FIGS. 1, 3 and 5.

Obviously changes in my device may be resorted to within the scope of the following claims.

I claim:

1. In a device for repeatedly producing a Morse code telegraph signal, a rotatively driven contact arm having thereon a contact shoe movable in a circular path by rotation of said arm; a contact plate supported adjacent the path of movement of said contact shoe and positioned so that said shoe will be moved across said contact plate at each revolution of said contact arm; and a thin flat code plate of insulating material positioned between said contact plate and said contact arm and having therein sets of code perforations, each set representing a Morse code character and each set being adapted to be positioned in the path of movement of said contact shoe thereby providing for electrical contact of said contact shoe with said contact plate through each perforation of each set each time said shoe passes across said contact plate.

2. The apparatus as claimed in claim 1 in which the contact plate is carried by a panel member which is swingingly movable toward and away from the path of movement of said contact shoe.

3. A device for producing Morse code telegraphic signals, comprising frame means including a flat platen wall; a driven shaft extending through said platen wall; a transverse contact arm carried by said shaft and positioned parallel with and close to said platen wall; a contact shoe carried by said contact arm and movable therewith in a circular path; a panel mounted on said platen wall for movement toward and away from said contact arm; a contact member carried by the side of said panel adjacent said contact arm and positioned to register with the path of movement of said contact shoe when the panel is close to the platen wall; a thin flat code plate

of insulating material adapted to be positioned between said panel and said contact arm; a plurality of sets of aligned code perforations in said plate, each set of code perforations representing a Morse code character; and code plate positioning means adjustably positioning said code plate in predetermined fixed positions between said platen wall and said panel, whereby a chosen set of code perforations therein can be disposed in the path of movement of said contact shoe and the code signal provided by said chosen set repeated at spaced intervals of time.

4. The apparatus as claimed in claim 3 in which electric circuit means is provided connecting said contact arm and said contact member with a source of electrical energy and a signaling device.

5. The apparatus as claimed in claim 3 in which the code plate positioning means includes an index pin protruding from the platen wall and an index perforation in the code plate in predetermined relation to each set of code perforations, each index perforation being capable of fitting over said index pin and when fitted over said indexing pin cooperaing in positioning said code plate so that the set of code perforations therein which is in predetermined relation to said index perforation is in the path of movement of said contact shoe.

6. A device for producing Morse code telegraphic signals comprising a housing having a flat side forming a platen wall; a medially positioned stud pin protruding outwardly from said platen wall; a concave recess in said platen wall close to and at one side of said stud pin; a shaft mounted within said housing and extending through said platen wall into said recess; contact arm means carried by said shaft and rotatable within said recess and having at least one contact shoe movable in a circular path by rotation of said arm; driving means

disposed within said housing and connected with said shaft; a panel hinged to said housing at one side of said recess for movement between a retracted position and a position in which it is parallel with and overlies and is close to said contact arm; an arcuate contact member carried by the side of said panel adjacent to said contact arm and positioned coincident with the path of movement of said contact shoe when the panel is parallel with and close to the contact arm; a fixed index pin protruding from said platen wall adjacent said concave recess; a disc shaped code plate of insulating material positioned between said panel and said contact arm and having a centrally positioned perforation fitting over said stud pin; a plurality of spaced apart index perforations in the peripheral portion of said code plate disposed in a circular path and positioned to fit over said index pin, said index perforations positioning said code plate and providing for stepped rotative adjustment of said code plate on said stud pin; a plurality of spaced apart sets of code perforations in the peripheral portion of said code plate, the code perforations of each set being spaced apart and being arranged in a curved path which extends from near the periphery in a generally inward direction toward the center of said code plate.

7. The apparatus as claimed in claim 6 in which electric circuit means is provided connecting said contact arm and said contact member in circuit with a source of electrical energy and a signaling device.

References Cited by the Examiner

UNITED STATES PATENTS

2,947,090	8/1960	Levin et al.	35—14
2,954,437	9/1960	Riggle	178—115

EUGENE R. CAPOZIO, *Primary Examiner.*