

[54] NOISE-REDUCING COVERS FOR
TELEPRINTERS AND OTHER MACHINES

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197/102, 103, 104, 186 R, 186 A, 186 B;
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[56]

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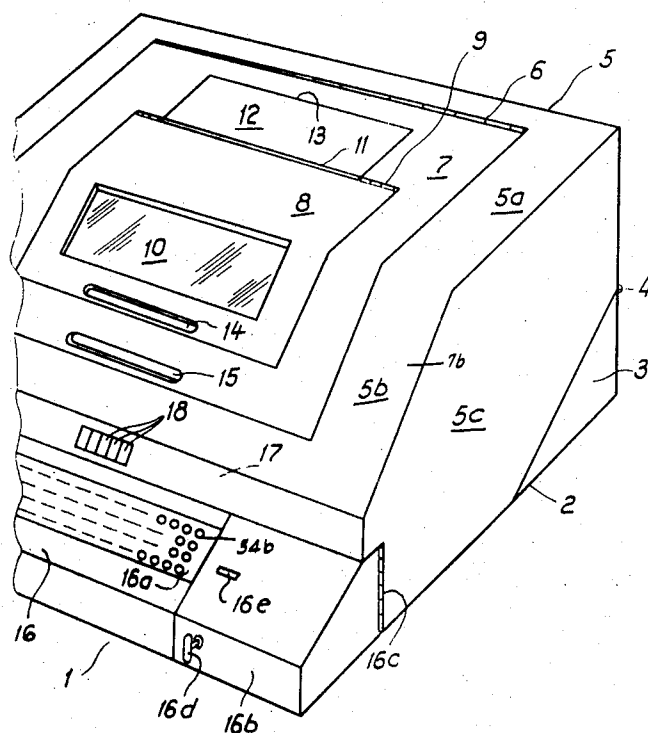
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[57]

ABSTRACT

A cover particularly suitable for use with a teleprinter, including aperture means extending through the cover adjacent each teleprinter key, and means projecting through said aperture means for manipulation by a teleprinter operator located externally of the cover to thereby actuate an associated teleprinter key located within the cover. The inner surface of the cover may carry a sound absorbing material and, such a cover may be used with keyboard-type equipment other than with teleprinters.

3 Claims, 5 Drawing Figures



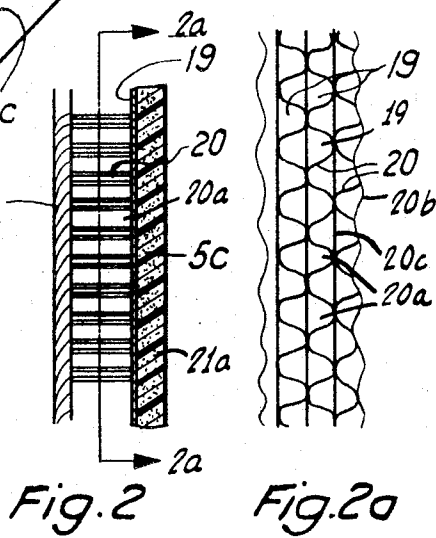
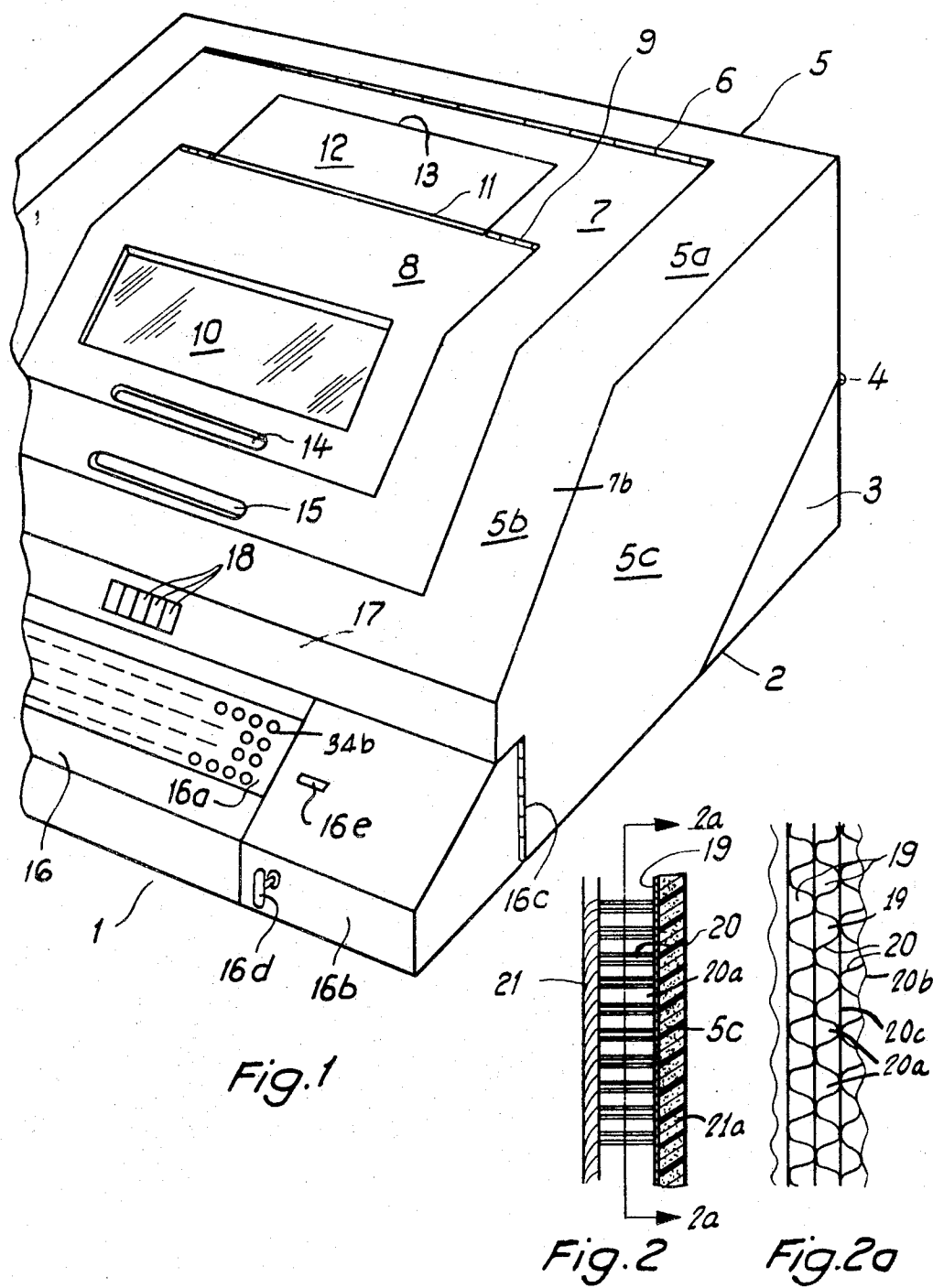


Fig. 2a

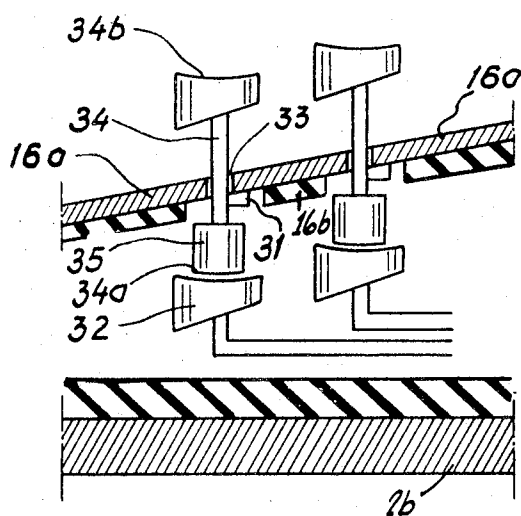


Fig. 3

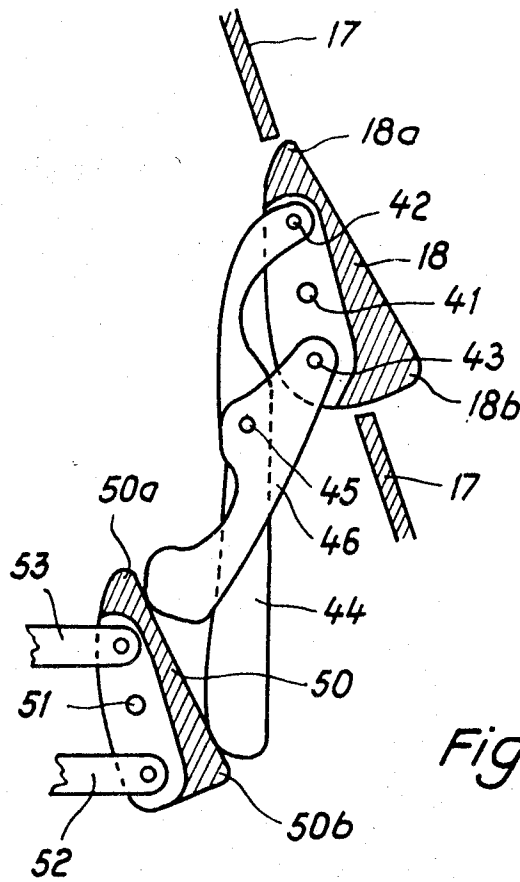


Fig. 4

NOISE-REDUCING COVERS FOR TELEPRINTERS AND OTHER MACHINES

THE FIELD OF THE INVENTION

The present invention relates to a device which may be used in combination with casings, covers or the like and for the sake of simplicity, will be described by way of example in conjunction with a teleprinter. The present invention relates more particularly to a novel casing, cover or the like which has good sound attenuation properties resulting from sound absorbing material which is attached to it and which serves as a sound damper.

BACKGROUND OF THE INVENTION

It is known to provide a cover fitted over a teleprinter, but such known cover is not primarily designed to materially eliminate sound coming from the teleprinter when actuated. Even if the cover itself will cause some reduction of the sound level it is obvious that sound can pass freely through apertures in the cover which are opposite the teleprinter key-board.

Some sound radiating devices, such as teleprinters, radiate a very disturbing sound. This is particularly noticeable when the teleprinters are located in silent rooms, such as offices, near switch boards or the like. If the task of the persons working in that room requires concentration, or conversation with other persons, the sound from the teleprinter will be disturbing and steps should be taken to reduce the sound level.

OBJECT OF THE INVENTION

One object of the present invention is to provide a novel device to actuate keys of a teleprinter, such as the keys on the keyboard so that the casing constructed according to the present invention does not need to be removed in order to actuate the teleprinter keys.

PREFERRED EMBODIMENTS

In the drawing which illustrates embodiments of the invention,

FIG. 1 is a perspective view of a cover for a teleprinter,

FIG. 2 is a section through one of the walls of the cover showing sound absorbing material on the inside of the cover,

FIG. 2a is a section along the line 2a—2a of FIG. 2 looking in the direction of the arrows,

FIG. 3 is a partial section of means for actuating the keys on the keyboard of the teleprinter, and

FIG. 4 is a partial section of means for actuating other keys on the teleprinter.

The casing 1 is provided with a bottom plate 2 which supports a sound radiating device which, by way of example, is a teleprinter. The bottom plate 2 has an up-standing wall 3 to which an upper cover 5 is connected through hinge 4. The casing 1 can therefore be opened by raising cover 5 to provide access to the teleprinter.

The shape of the cover 5 substantially conforms to that of the teleprinter although it is slightly larger. Thus the cover 5 has a plane surface 5a, a downwardly sloping surface 5b, and lateral surfaces or side walls 5c.

A separate lid 7 is connected through hinge 6 to the plane surface 5a. The lid 7 is so shaped that the lower part 7b lies in the same plane as surface 5b. The lid 7 makes it possible to inspect, and in some cases even to adjust, the teleprinter. Lid 7 carries another lid 8,

which is connected to the upper plane surface of lid 7 through hinge 9, the plane surface of lid 7 lying in the same plane as plane surface 5a of casing 1.

The lid 8 is provided with an inspection window 10 to make it possible to read the text from the teleprinter. The paper on which the text appears is adapted to be moved by conventional means to cause it to pass through a slot 11 in the lid 8 and under a Plexiglass holder 12 which has a cutting surface 13 facing hinge 6.

A recess 14 in the lid 8 is used to open the lid 8 for inspection, or to adjust the paper. By a recess 15 in the lid 7 the two lids 7 and 8 may be opened simultaneously for inspection, or adjustment of the teleprinter.

The lower front portion 16 of the casing 1 is adapted to cover the keyboard 16b of the teleprinter. The casing 1 also has one essentially vertical surface 17 on which a plurality of actuating devices 18 are situated. These actuating devices 18 are intended to actuate push buttons or keys 50 which will be described in more detail in connection with FIG. 4. The portion 16 has a plate 16a on which a plurality of key buttons 34b are arranged. These key buttons 34b cooperate with the keys 32 on the teleprinter inside the casing 1. The construction of these keys will be described in more detail with reference to FIG. 3. The portion 16 also has a part 16b, which is connected to a lateral surface of wall 5c by a hinge 16c. By means of handle 16d the part 16b may be opened to permit an automatic sending device to be loaded. When part 16b is closed the sending device may be started and devices are provided to feed a punched tape through the sending device. The punched tape is fed through the aperture 16e, through the sending device and through an additional aperture, not shown in FIG. 1, in the bottom plate 2.

It is usual in teleprinters which have both a sending device and a receiving device, to provide a tape punch on the left hand side and a tape reader on the right hand side. A message typed on a keyboard is transferred to a punched tape. This tape may then be placed on the right hand side of the teleprinter and threaded into an automatic sending device which reads the message on the tape and sends it automatically.

Sometimes it is advisable to provide the casing 1 with a special ventilation channel not shown taking cooling air through an aperture not shown in the bottom of the casing 1 and having devices which are provided in order to properly ventilate the teleprinter.

FIG. 2 illustrates a specially constructed sound absorbing material for the casing 1. The wall 5c comprises of a laminate layer which consists of laminated wood 21a and with a thickness of about 20 mm. The laminate wall 5c carries a lead plate 19 which has a thickness of about 1.5 mm. The lead plate 19 cooperates with a layer of insulating material 20 which consists of partly plane and partly corrugated water proof papers 20b and 20c glued together. The channels or cells 20a thus formed by the papers are arranged so that they are substantially perpendicular to the lead plate 19 as shown in FIG. 2a. The lead plate 19 therefore, serves as a backing for the cells 20a. To the layer of insulating material 20, a layer of foamed plastic 21 is attached. The layer of insulating material 20 has a thickness of about 20 mm while the foam plastic 21a has a thickness of about 10 mm. It is possible for the casing 1, and even the walls 5c to be constructed of a plastic material instead of a laminate layer.

Plastic having a cellulose structure may be substituted for the layer of insulating material 20.

The bottom plate 2 of the casing 1 is also covered with a lead plate having a felt or felting material 2b attached thereto. The casing however may only have the lead plate 19 over certain specific areas.

The thickness dimensions of the different materials referred to above may vary depending upon the desired degree of sound attenuation. The thicknesses may be increased for greater sound attenuation and layers could be eliminated or reduced in thickness for diminished sound attenuation.

FIG. 3 illustrates a means for actuating the keys 32 of the teleprinter where the keyboard is under the cover plate 16a. The plate 16a, opposite each key 32 is provided with a hole 33, in the plate 16a through which extends an axially movable rod 34. The rod 34 is provided at one end with a rubber or plastic member 35 having a key actuating surface 34a, and at its other end with an operating surface or button 34b. Member 35 also prevents upward movement of rod 34 completely through hole 33. The surface 34b may have the same button indicia as its corresponding key 32. Alternately rod 34 may have about the same cross sectional area as the upper surface of key 32 and may be made of clear plastic so that the indicia on key 32 may be seen through the rod 34. In such an application the end portions of the rod 34 may be polished.

To eliminate rotation of the rod 34 in hole 33 it is preferable to form the rod 34 with a non-round cross-section and the hole 33 with a corresponding non-round cross-section. If the rod 34 has a cylindrical form it may be suitable to arrange a groove or the like and having a key device 31 cooperating with the groove in order to prevent rotation of the rod 34.

The present invention may be used in a teleprinter where the plate 16a is secured to the surface 17 to completely cover the keyboard of the teleprinter. The material for rod 34 may be chosen so that the rod has low sound transmitting properties and may be made of plastic or like material.

FIG. 4 illustrates, by way of example an actuating device 18 adapted to cooperate with the surface 17 of the casing 1. The actuating device 18 is pivotable about a pin 41 so that the upper end 18a may be either in a position close to the surface 17 or in a position remote from the surface 17. This is also true for the lower end 18b. The actuating device 18 is provided with fixed pivot pins 42, 43. The pivot pin 42 carries an operating lever 44 which pivots about a pin 45. The free end of lever 44 rests on the lower half 50b of a key 50. The pin 43 carries another operating lever 46 which also pivots about a pin 45. The free end of lever 46 rests on the upper half 50a of key 50. The key 50 is pivotable about a pin 51 and is pivotally connected to two separate actuating rods 52, 53. These rods 52, 53 actuate devices within the teleprinter which are outside the scope of

this invention.

It is obvious from FIG. 4 that device 18 has substantially the same orientation as key 50 as a result of the arrangement of levers 44, 46. Pins 41 and 45 may support a number of adjacent actuating devices 18 and are mounted in bearings not shown but supported in surface 17 of casing 1. By turning device 18 clock-wise about the pin 41, the lever 46 will be turned counter-clock-wise about pin 45 while the lever 44 will be turned clock-wise around the pin 45. In this way key 50 will be turned in the same manner as device 18.

In some teleprinters the lever 44 is not used because a spring means will directly actuate the key 50 or the rods 53 or 52 so that the key 50 tends to be moved in a more nearly vertical position, and thus an actuation of the device 18 will be done toward the spring means and the device 18 and the key 50 will be turned back to its original position by the spring mean.

The invention is not restricted to the foregoing examples but may be modified within the scope of the claims.

What is claimed is:

1. A sound-insulating casing for a key-board operated machine, said casing having at least one wall facing the machine and which includes means for attenuating the sound-created by the operation of the machine, said sound-attenuating means including a lead plate supporting a sound-insulating layer of cellular configuration directed toward the machine, said sound-insulating layer comprising a sandwich construction of both plane and corrugated paper, the paper providing cells which are disposed to lie with their longitudinal axes perpendicular to the lead plate, the casing including a bottom wall covered by the sound-attenuating means, the casing having an upper part connected by a hinge to the bottom wall to allow for a turning of the upper part to a position in which the machine located within the casing is available.

2. A sound-insulating device comprising, a sound-insulating casing enclosing a key-operated machine, an actuating device comprising an elongated member pivotally mounted between its opposite ends on the casing, each end of said actuating device being pivotally connected to one end of a separate, pivotally mounted lever, the other ends of said levers cooperating with opposite end portions of an element of the key-operated machine to thereby actuate said element through the operation of the actuating device.

3. A sound insulating device according to claim 2, wherein the casing is lined by a laminated layer comprising lead sheeting disposed against the walls of the casing, celled corrugated paper disposed against the lead sheeting and a layer of plastic foam disposed against the celled corrugated paper, the plastic foam being innermost toward the machine.

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