United States Patent

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[54] MUSICAL INSTRUMENT
3 Claims, 4 Drawing Figs.

[52] U.S. Cl. 84/1.28, 84/1.03, 84/1.09, 84/1.26, 84/1.27
[51] Int. Cl. G10h 3/04, G10f 1/00: G10h 1/02
[50] Field of Search 84/1.01, 1.09, 1.17, 1.28, 1.03, 1.27, 1.26

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ABSTRACT: A musical instrument comprises an elongated drum on the curved surface of which there are a plurality of actual recordings of different notes of a musical instrument, the recordings being arranged at different axial positions on the drum, drive means for rotating the drum at a predetermined speed, and a plurality of pickup devices selectively operable to cause the notes recorded on the drum to be selectively reproducible.

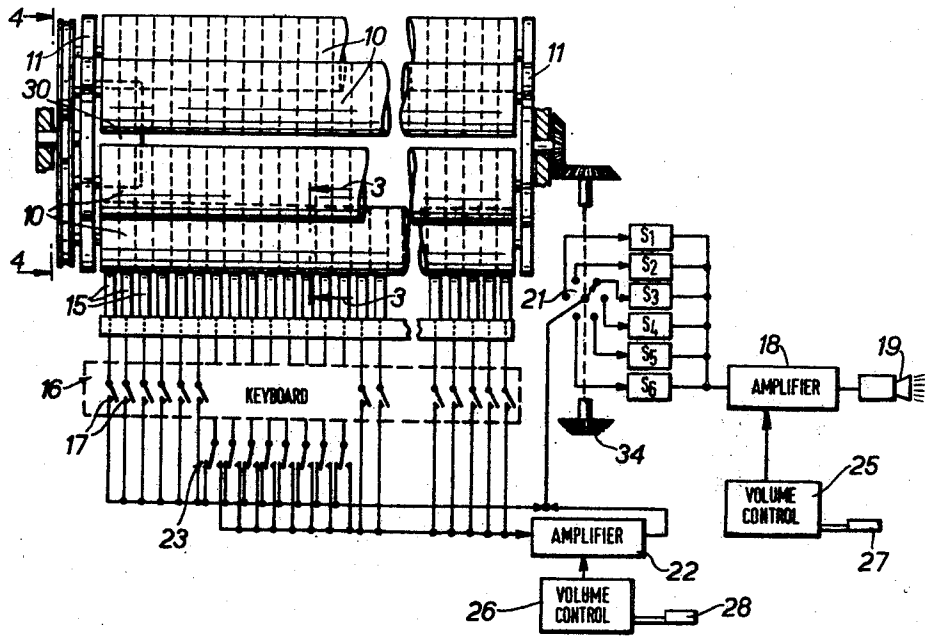


FIG. 1.

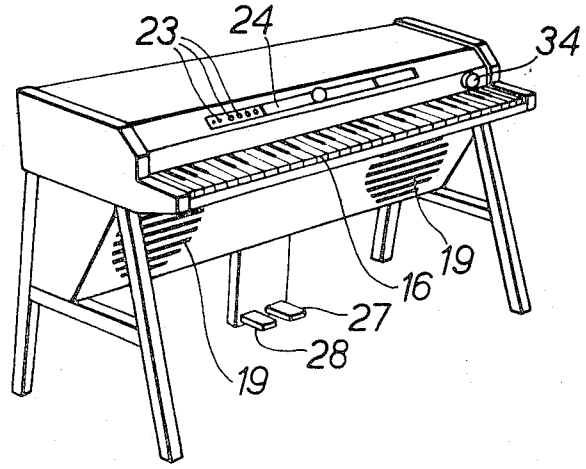
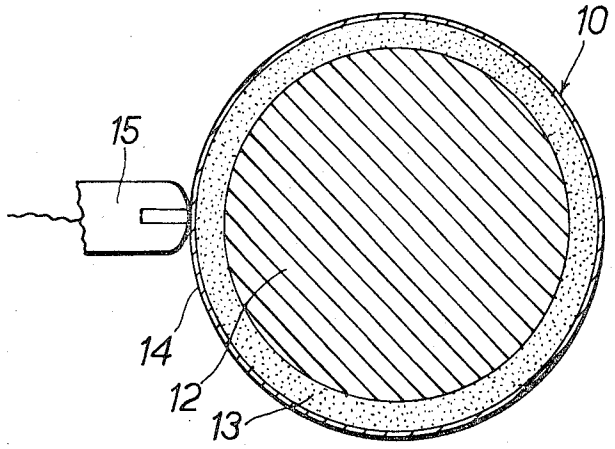
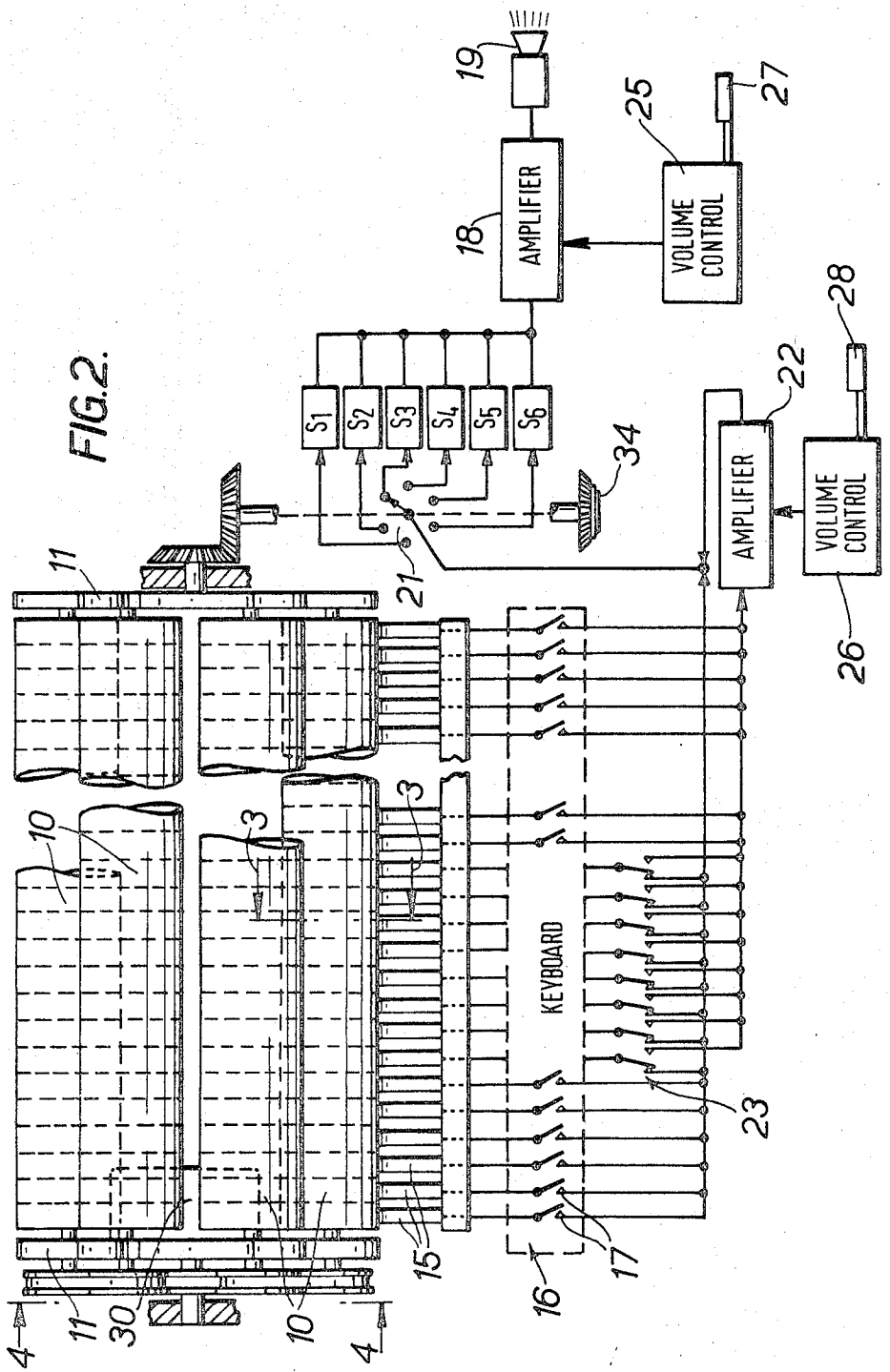


FIG. 3.



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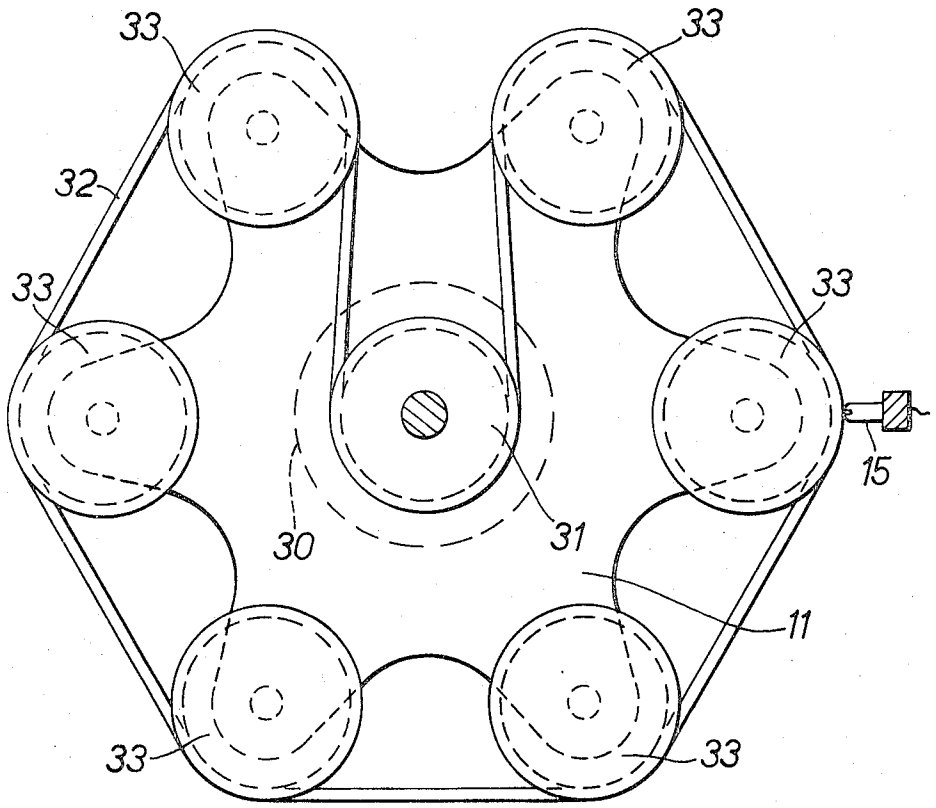
FIG. 2.



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FIG. 4.



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MUSICAL INSTRUMENT

This invention relates to a musical instrument.

A musical instrument in accordance with the invention comprises an elongated drum on the curved surface of which there are a plurality of actual recordings of different notes of a musical instrument, the recordings being arranged at different axial positions on the drum, drive means for rotating the drum at a predetermined speed, and a plurality of pickup devices selectively operable to cause the notes recorded on the drum to be selectively reproducible.

In the accompanying drawings there is shown one example of a musical instrument in accordance with the invention.

FIG. 1 is a perspective view of the instrument;

FIG. 2 is a diagrammatic representation of the mechanical and electrical aspects of the invention;

FIG. 3 is an enlarged fragmentary section on line 3–3 in FIG. 2; and

FIG. 4 is an enlarged section on line 4–4 in FIG. 2.

The musical instrument described makes use of a plurality of drums **10** mounted on a carrier **11** for rotation about spaced parallel axes. The carrier **11** is rotatable about an axis parallel to the axes of the drums **10** which are equiangularly spaced about the axis of the carrier. As shown in FIG. 3 each drum consists of a central roll **12** on which a covering of soft resilient foamed plastic material is provided. The outer surface of the drum **10** is formed by a film **14** of the material from which magnetic recording tapes are manufactured. The film **14** is divided into a plurality of zones arranged along the length of the drum and each zone has recorded upon it the sound of one note played on a chosen musical instrument. Each of the drums **10** carries recordings of the notes of a different musical instrument, so that in the present example six different musical instruments are recorded on the drums **10**.

There are a series of magnetic pickup heads **15** arranged to engage the film **14** of the drum which is at any given time, at a pickup station. The pickups **15** engage the film **14** of the particular drum in question in the respective zones on which the different notes are recorded. The provision of the foam covering **13** enables the pickup to be pressed against the film **14** without excessive wear on either part.

The instrument has a keyboard **16** which actuates a plurality of switches **17** whereby the pickups **15** can be selectively connected to an amplifier **18** through the intermediary of a suitable mixing circuit (not shown). The amplifier feeds a loudspeaker **19**.

The notes on the individual zones of the drums **10** are recorded with the attack and any dying-away effect which may be characteristic of the instrument concerned omitted so that continuous pressing of a given key will produce a continuous note including the harmonic content characteristic of the instrument. To obtain any desired attack and dying-away characteristics there are six known electric circuits S_1 to S_6 which are selectively connected between the pickup heads **15** and the amplifier **18** under the control of a rotary selector switch **21** coupled to the carrier **11**. When any drum **10** is presented to the pickup heads **15** the associated circuit of the

circuits S_1 to S_6 is selected to give the required characteristics for the instrument recorded on the drum.

To provide for the simultaneous playing of a melody and an accompaniment, with the melody at a higher volume than the accompaniment, there is an auxiliary amplifier, **22**. The higher notes of instrument are all fed directly to this amplifier **22** which delivers its output to the switch **21**. The lower notes are delivered directly to switch **21**. Associated with the intermediate notes of the instrument is a series of switches **23** which, when actuated cause the pickup heads associated with these notes to be connected to amplifier **22**, but which connect these pickup heads directly to the switch **21**, when the switches are not actuated. The switches **23** are actuable by a slide **24** on the front of the housing of the instrument which can be slid between extreme positions in one of which it actuates all the switches **23** and in the other of which it actuates none of the switches **23**. The slide **24** is thus positioned in use to suit the compass of the particular melody to be played.

Separate volume controls **25**, **26** for the amplifiers **18** and **22** are provided. In the example shown the volume controls are actuated by pedals **27**, **28** respectively.

Various arrangements may be provided for driving the drums **10** at a predetermined speed. For example a motor **30** may be provided on the axis of the carrier, the motor being coupled to a pulley **31** which engages a single belt **32** extending around pulleys **33** connected to the individual drums **10**. A separate motor may be provided for indexing the carrier **11** to bring the different drums **10** into engagement with the pickup heads **15**. Alternatively, as shown, a manually actuated arrangement including a knob **34** may be provided for such indexing movement.

In another form of the invention the recordings of all the instruments may be carried on a single rotatable drum and arranged so that the notes of a selected instrument may be obtained by axial adjustment of the position of the assembly of the pickup heads **15**.

I claim:

1. A musical instrument comprising a rotatable carrier, a plurality of drums arranged in an equiangularly spaced, parallel relationship about the rotary axis of said carrier, each drum having a curved surface on which there are a plurality of actual recordings of different notes of a musical instrument, the recordings being arranged at different axial positions on the drum and the drums bearing recordings of a plurality of different instruments respectively, pickup position, means for indexing the carrier to bring any selected drum to bear on a pickup position, drive means for rotating a drum at the pickup position at a predetermined speed, and a plurality of pickup devices at said pickup position selectively operable to cause the notes recorded on a drum at the pickup position to be selectively reproducible.

2. A musical instrument as claimed in claim **1** in which the curved surface of each drum is constituted by magnetizable film and the pickup devices are magnetic pickup heads.

3. A musical instrument as claimed in claim **2** in which the pickup devices are respectively connectable to an amplifier by a plurality of keyboard operable switches.