

May 18, 1937.

H. TAKAHASHI ET AL

2,080,901

APPARATUS FOR SHOWING PICTURES

Filed Oct. 21, 1935

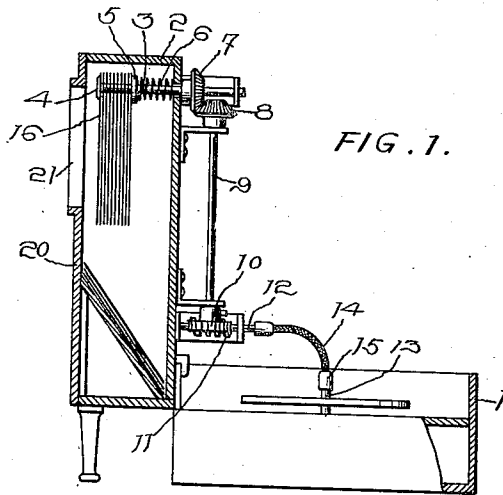


FIG. 1.

FIG. 3.

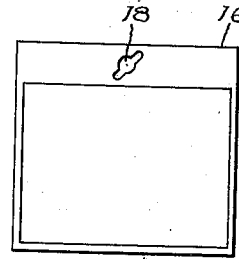


FIG. 4.

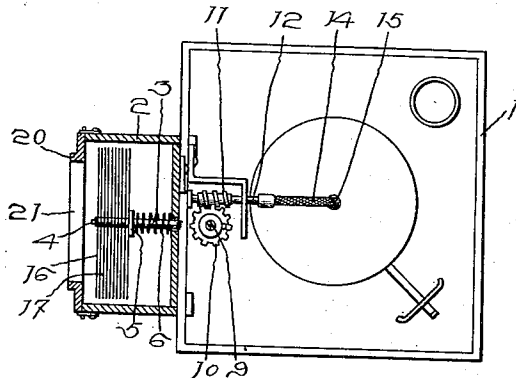
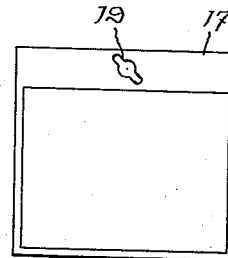


FIG. 2.

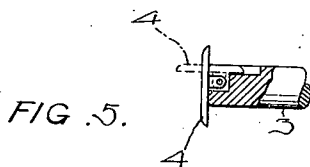


FIG. 5.

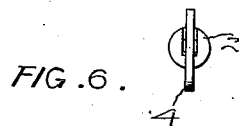


FIG. 6.

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2,080,901

APPARATUS FOR SHOWING PICTURES

Hideaki Takahashi and Masanori Nagatsuka,
Tokyo, JapanApplication October 21, 1935, Serial No. 45,856
In Japan October 26, 1934

1 Claim. (Cl. 40—28)

This invention relates to an apparatus for use in combination with a sound reproducing device wherein a plurality of pictures or other illustrations showing a story, poses of a dance, sceneries or advertisement pictures may, successively and at regular intervals, be shown to the public, as the explanation, speech or musical accompaniment corresponding to the pictures is reproduced from the sound reproducing device.

For this purpose, the apparatus is provided with a synchronizing mechanism, by means of which the rotary movement of the shaft of the turntable of a sound reproducing device such as gramophone and the like is transmitted to a shaft on which is mounted a number of cardboards drawn, painted or printed with necessary pictures to be shown to the audience, the cardboards being successively and at regular intervals freed from engagement with the supporter shaft and disappear from sight by the rotary movement of the supported shaft i. e. as the shaft of the turntable rotates, thus synchronizing the picture show with the sounds reproduced from the record on the turntable.

The invention will now be more fully described with reference to the drawing, in which,

Figs. 1 and 2 show vertical and horizontal sections of one embodiment of this invention,

Figs. 3 and 4, front elevations of the two types of cardboards cut with holes, of different shape, and

Figs. 5 and 6, side and front elevations of the end of the supporting shaft for cardboards

Referring to Figs 1 and 2, the numeral 1 represents the phonograph to which is attached the casing 2 of the apparatus according to this invention. On the upper part of the back wall of the casing 2, a supporter shaft 3 is journaled, the front part of the shaft 3 projecting into the casing 2. A locker pin 4 is pivotably mounted on the front end of the shaft 3, as shown more clearly in Figs. 5 and 6.

The cardboards on which the pictures to be shown are drawn may be divided into two groups. The cardboards 16 of one group and those of the other group 17 are cut, on the upper parts, with holes 18 and 19 respectively, both of which are of the shape of a circle, adapted to receive the shaft 3, intersecting with a slit, of such length that it may permit the free passing of the retainer pin 4 therethrough. The perforations 18 and 19 however differ from each other in the angles of inclination of the slits from the longitudinal axis of the cardboard. In the example shown in Figs. 3 and 4, the directions of the

slits of the perforations 18 and 19 are at right angles to each other.

The supporter shaft 3 carries a ring 5, slidably mounted thereon, and a helical spring 6 wound on the said shaft 3 at the back of the ring 5, and adapted to press the said ring 5 against the back surface of the last one of the cardboards 16 and 17 supported by the shaft 3.

The device for synchronizing the picture show with the sound will be described hereunder. On the rear end of the shaft 3 projecting out of the casing 2 is formed a bevel gear 7, co-acting with another bevel gear 8, secured to the upper end of the vertical shaft 9 supported by the brackets secured to the back wall of the casing 2. The shaft 9 carries at its lower end a worm wheel 10, co-acting with a worm 11 formed on a shaft 12 journaled on a bracket secured to the back wall of the casing 2. To the rear end of the shaft 12 one end of a flexible shaft 14 is fastened, the other end 15 of which is adapted to be connected with the shaft 13 of the turntable of the gramophone 1, permitting the insertion of the upper end of the shaft 13 of the turntable, but prohibiting the rotational movement thereof relative to the flexible shaft.

For mounting the cardboards on the shaft 3, the pin 4 is turned about its axis to the horizontal position as shown in dotted lines in Fig. 5, and then cardboards 16 and 17 are alternately mounted on the shaft 3 by passing the pin 4 through the perforations 18 and 19 of the cardboards 16 and 17 respectively. When the required number of cardboards have been mounted on the shaft 3, the pin 4 is turned back to the position shown in full lines in Figs. 5 and 6. The cardboards mounted on the shaft 3, will be pressed forward by means of the spring 6 acting on the ring 5, as hereinbefore stated, but will be retained in the position by the pin 4, and the pictures on the foremost cardboards 16 or 17 (as the case may be) may be viewed through the window 21 in the front wall 20 of the casing 2.

When the rotational movement of the shaft 13 of the gramophone commences, the movement will be imparted through the flexible shaft 14 to the shaft 12, then through the worm 11 and the worm wheel 10 to the shaft 9, and thence to the shaft 3 by means of the bevel gears 8 and 7. The rotary movement of the shaft 3 will cause the pin to revolve in a vertical plane, while the cardboards remain stationary on the shaft. During the revolution of the pin 4, it will take such a position as to coincide with the slit of the perforation 18 (or 19) of the foremost cardboard

16 (or 17), so that the cardboard will no more be retained by the pin 4. Then the cardboard will be pushed forward under the action of the spring 6, and will drop from off the shaft 3 by its own gravity, so that the next cardboard will appear before the window 21, but will be retained on the shaft 3 on account of the pin 4 not being in coincidence with the slit of the perforation on the cardboard. By the further rotation of the shaft 3 by a quarter of a circle, the pin 4 will be brought before the slit of the perforation 18 (or 19) of the second cardboard 16 (or 17), and will fall down from off the shaft 3, by the reason as hereinbefore stated. Thus, by the rotational movement of the shaft 3, cardboards 16 and 17 are alternately freed from engagement with the shaft 3 and disappear from sight at regular intervals (that is, four cardboards for each complete rotation of the shaft 3).

It will be easily understood that the interval at which each cardboard 16 (or 17) disappears from sight may be adjusted by changing the rate of gearing down the speed of rotational movement of the shaft 3.

The apparatus may be used for amusement, advertising or educational purpose; the pictures on the cardboards may be of a story, poses of dancing, sceneries or advertisement pictures, which

may be successively brought before the window 21 and retained in the position for a predetermined period when the corresponding sounds such as the explanatory speech on the story, scenery, or advertisement, or musical accompaniment is being reproduced from the record on the gramophone.

We declare what we claim is:

In combination with a gramophone having a rotary turntable shaft; a card discharging device comprising a supporting shaft, a series of cards loosely mounted upon said supporting shaft, each of said cards having an opening extending in a direction different from that in which the opening of an adjacent card extends, a pin mounted upon one end of said supporting shaft and rotatable therewith, said pin fitting into the opening formed in any one of said cards in a predetermined position of said supporting shaft, means pressing said cards toward said pin, and means connecting said supporting shaft with the turntable shaft of the gramophone and transmitting the rotation of the latter to said supporting shaft, whereby due to the rotation of said pin, said cards are caused to drop one by one from said supporting shaft.

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