RANDOM SELECTION SYSTEM FOR A SLIDE PROJECTOR

OBJECTS OF THE INVENTION

A primary object of the present invention is the provision of a new and improved random selection system for a slide projector, wherein such system is of simplified and low-cost construction.

Another primary object of the present invention is the provision of a random selection system for a slide projector, which system utilizes transmitting and receiving means which in a preferred form consist of a DC stepping motor with a remote commutator.

Another object of the present invention is the provision of a random selection system of the type described, which system has a so-called "short-way home" feature, i.e., in the case of a circular slide tray for example, the tray is rotated automatically in a direction resulting in the minimum amount of rotational movement in presenting the selected slide adjacent the slide projection gate of the projector.

Still another object of the present invention is the provision of a random selection system of the type described, which system includes simplified selector means adapting the system for alternately accommodating two types of slide trays, these trays differing in the number of slide-receiving spaces they contain.

Another object of the present invention is the provision of a random selection system for a slide projector, which system does not require major changes or alterations to the associated slide projector.

Still another object of the present invention is the provision of a random selection system of the type described, which system includes a control box remote from the projector and including means for selecting any one of the slide-receiving spaces in the slide tray as well as including means for advancing or reversing the slide tray one slide-receiving space at a time.

These and other objects and advantages of the invention will become apparent from the following specification disclosing a preferred embodiment shown in the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is perspective view of the components constituting the random selection system according to the present invention showing the same associated with a slide projector;

FIG. **2** is an enlarged view of the remote control unit with the housing thereof removed for purposes of illustrating the interior components;

FIG. **3** is a view similar to FIG. **2** showing the remote unit with the "initiate button" removed and also showing an indicator masking plate in a position different from that shown in FIG. **2**;

FIG. **4** is a section taken generally along the line **4—4** of FIG. **3** with certain parts being removed;

FIG. **5** is a top plan view of a rotatable selector disk having two dial scales, one for a "**100**-slide" tray and the other for an "**80**-slide" tray;

FIG. **6** is a perspective view of the other side of the disk shown in FIG. **5** and primarily showing the means constituting arcuate contact strips;

FIG. **7** is a perspective view of the remote control housing with the cover thereof removed, this view primarily showing the **100**-slide contact gear and the **80**-slide contact gear;

FIG. **8** is a view of the **100**-slide and **80**-slide gear in assembled relation;

FIG. **9** is a perspective view of the **80**-slide contact gear only;

FIG. **10** is a perspective view of the **100**-slide gear;

FIG. **11** is a perspective view of the other side of the **80**-slide gear;

FIG. **12** is a perspective view of the remote control unit with the housing and many parts removed and primarily showing a central bearing column having a plurality of electrical slip rings thereon;

FIG. **13** is a fragmentary section taken along the line **13—13** of FIG. **2**;

FIG. **13A** (adjacent FIG. **5**) is a fragmentary view taken along line **13A—13A** of FIG. **13**;

FIG. **14** is an enlarged view of the attachment unit taken along the line **14—14** of FIG. **1** showing this unit with the housing removed;

FIG. **15** is a top plan view of the attachment unit as seen in FIG. **14**;

FIG. **16** is a view taken along the line **16—16** of FIG. **1** showing the attachment unit with its housing removed;

FIG. **17** is a perspective view similar to FIG. **16**;

FIG. **18** is a perspective showing the bottom of the attachment unit and the side thereof shown in FIG. **16**;

FIG. **19** is a view taken along the line **19—19** of FIG. **14**;

FIG. **20** is an electrical schematic of the random selection system;

FIG. **21** is an electrical schematic of the DC stepping motor and remote commutator therefor;

FIG. **22** is a perspective view of the rotor of the DC stepping motor;

FIG. **23** is an enlarged, fragmentary, top plan view of a **100**-slide tray;

FIG. **24** is an enlarged plan view of the teeth on such tray;

FIG. **25** is a top plan view of the tray drive gear; and

FIG. **26** is an enlarged, fragmentary, top view of the teeth on an **80**-slide tray.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIG. **1**, the random selection system according to the present invention includes a remote control unit **10** and an attachment unit **12**, the latter being detachably mounted on a slide projector **14**. The remote control unit **10** and the attachment unit **12** are connected together by a multiconductor extension cable **15**. Preferably, at least one end of this cable is connected to a multiterminal jack (not shown) for detachable engagement with either the unit **10** or the unit **12** to facilitate storage of these units when not in use.

The embodiment of the invention disclosed herein as been designed for use with the slide projector disclosed in the application of Walter J. Hall, Ser. No. 684,202, filed Nov. 20, 1967, now U.S. Pat. No. 3,499,708. It will be apparent to those skilled in the art that the present invention can be readily adapted for use in association with other types and forms of slide projectors, and therefore the present invention is not to be limited for use only with the projector shown in the aforementioned Hall application.

The remote control unit **10** includes a housing defined by a rectangular base **16** and a shell-piece **17**. The unit **10** includes a slide selector knob **18** having an "initiate button" **20** mounted centrally thereof. This unit also includes a so-called "one-slide advance button" **21** and a "one-slide reverse button" **22**. A "**80-100**" selector arm **24** is mounted on this unit. The top wall of the shell **17** has an aperture therein defining a window preferably containing a transparent plate **25** having a reference line or mark **26** thereon.

Referring particularly to FIGS. **2**, **3**, **5** and **6**, the remote control unit **10** includes a rotatably mounted disk, generally designated **28**, which disk has an integral hub portion **29** (which defines the knob **18**) on one face thereof, this face bearing a first "**100**" dial scale **30** and an "**80**" dial scale **31**. Mounted within the hub are two pairs of diodes **33** and **34**. Also mounted within the hub **29** is a metal bracket **35** having a pair of brush arms or contacts **35*a***, this bracket being secured to the disk **28**, (which is formed of dielectric material) by a fastener **36**. A similar metal bracket **38** includes a pair of brush arms or contacts **38*a***, this bracket being secured to the disk **28** by a fastener **39**. It will be understood the brush arms **35*a*** and **38*a*** are vertically spaced from each other and therefore electrically insulated from each other in all relative posi-