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(54) IMPROVEMENTS IN AND RELATING TO MAGAZINES FOR SLIDE PROJECTORS

(71) We, AGFA-GEVAERT AKTIEN-
GESELLSCHAFT, a body corporate re-
cognised under German Law, of Leverk-
usen, Germany, do hereby declare the in-
vention, for which we pray that a patent
may be granted to us, and the method by
which it is to be performed, to be particu-
larly described in and by the following
statement:—

10 The invention relates to magazines for
slide projectors, which are of circular con-
struction and in which the walls of the
slide compartments extend radially.

15 The invention provides a circular
magazine for use with a slide projector
which comprises a first ring member, a
second ring member arranged substantially
coaxially with the first ring member and
spaced apart from the first ring member in
an axial direction, a third ring member
fixed in relation to and arranged coaxially
with the first and second ring members,
and a plurality of slide compartment walls
which are secured to the first and second
25 ring members and which extend sub-
stantially radially with respect to the ring
members to form a plurality of sub-
stantially radially extending slide com-
partments, wherein the first ring member is
30 arranged to prevent slides from leaving
the slide compartments in one direction
parallel to the axis of the magazine, the
second ring member is arranged to prevent
slides from leaving the slide com-
35 partments in the opposite axial direc-
tion, the third ring member is
arranged to prevent slides from leaving the
slide compartments in a radially inward
direction but extends over a part only of
40 the length of the slide compartments in a
direction parallel to the axis of the
magazine, each slide compartment wall is
formed with at least one projection ex-
tending towards an adjacent slide com-
45 partment wall, the arrangement of the

projections being such that in operation
they limit the movement of slides in the
compartments in a circumferential direc-
tion, and a radially outward portion of each
slide compartment wall is formed with re- 50
taining means arranged to tend to prevent
slides from leaving the slide compartments
in a radially outward direction but which
means is resiliently movable to permit
slides to leave the slide compartments in a 55
radially outward direction and to enter the
slide compartments in a radially inward
direction.

Advantageously, a radially outer portion
of each slide compartment wall is provided 60
with two circumferentially spaced arms, the
retaining means arranged to tend to pre-
vent slides from leaving the slide com-
partments in a radially outward direction
are on the arms and the arms are resiliently 65
deformable in a circumferential direction to
permit the retaining means to move to
allow slides to leave the slide com-
partments in a radially outward direction
when they are urged in that direction. 70
The retaining means are advantageously pro-
jections on the arms, each such projection ex-
tending towards the adjacent arm provided
on an adjacent compartment wall. Prefer-
ably, each of the said arms is provided 75
with such projections so that there is a
pair of such projections associated with
each slide compartment, the projections of
each pair being movable away from one
another in a circumferential direction upon 80
resilient deformation of the arms on which
they are provided to allow a slide to leave
the slide compartment in a radially out-
ward direction.

When, as referred to above, the retaining 85
means are projections on arms, each of the
projections that constitute the retaining
means is advantageously provided with a
radially inner surface which is so inclined
with respect to a radial direction as to 90

facilitate removal of the slides from the slide compartments in a radially outward direction. Similarly, each of the projections that constitute the retaining means is preferably provided with a radially outer surface which is so inclined with respect to a radial direction as to facilitate insertion of the slides into the slide compartments in a radially inward direction.

When, as referred to above, a radially outer portion of each slide compartment wall is provided with two circumferentially spaced arms, each arm is preferably joined to its respective compartment wall only at its radially inward edge and is separated from the radially outer portion of its respective compartment wall by a substantially radially extending slot so that the arms can be deformed without it being necessary to deform the compartment walls.

The circular magazine is advantageously of integral construction.

One form of circular magazine for use with a slide projector and constructed in accordance with the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a part of the circular slide magazine;

Fig. 2 is a section through a part of the magazine;

Fig. 3 is a view of a part of the magazine in the direction of the arrow III in Fig. 2; and

Fig. 4 is a view of a part of the magazine in the direction of the arrow IV in Fig. 2.

Referring to the accompanying drawings, the magazine, which is of one-piece construction, comprises a first ring member, which is in the form of a base ring 101 and a support ring which is indicated generally by the reference numeral 102. The base ring 101 and the support ring 102 are coaxial with one another. A portion 102a of the support ring 102 is cylindrical and extends downwardly over a part of the height of the magazine, an annular portion 102b of the support ring extends over a part of the top of the magazine, and the support ring is also formed at its lower edge with an inwardly extending annular portion 102c. The annular portion 102b constitutes a second ring member and the cylindrical portion 102a constitutes a third ring member.

Slide compartment walls 104 are arranged between the base ring 101 and the support ring 102, and extend radially with respect to the base ring and the support ring to form radially extending slide compartments for slides 103.

The slides 103 are prevented from leav-

ing the slide compartments in a downward axial direction by the first ring member, which is constituted by the base ring 101, and they are prevented from leaving the slide compartments in an upward axial direction by the second ring member, which is constituted by the annular portion 102b. Slides 103 are prevented from leaving the slide compartments horizontally in a radially inward direction by the third ring member, which is constituted by the cylindrical portion 102a.

The radially inward part of each of the slide compartment walls 104 is of substantially uniform thickness, but, towards its radially outer edge, it is formed with projecting portions 104a and 104b, which extend towards the adjacent compartment walls.

In the region away from the wedges 104a and 104b, adjacent slide compartment walls 104 are at such a distance from one another that a slide-change slider of a projector can pass between the walls and transport a slide 103 into or out of the corresponding slide compartment. The slides 103 need to be held in their compartments in order to prevent them from falling outwards in a radial direction, but any retaining means must of course not prevent the desired slide transport in a projector by means of a slide-change slider. In order to avoid the need to provide separate retaining springs, a portion of the radially outermost part of each compartment wall 104 is bifurcated to form two resilient arms 104c each of which is formed with a wedge-shaped projection 104d which extends towards the adjacent resilient arm on one of the adjacent compartment walls 104. The wedges 104d each have surfaces 104e and 104f, which are inclined with respect to a radial direction. Each radially inner surface 104e extends towards the adjacent resilient arm 104c with respect to a radially outward direction while each radially outer surface 104f extends away from the adjacent resilient arm with respect to a radially outward direction.

The resilient arms 104c are separated from the portions of the radially outermost parts of the compartment walls 104 above them by means of horizontally extending slots 105. Below the resilient arms 104c, the compartment walls stop short in a radially outward direction of the resilient arms 104c. Thus, the arms 104c are secured to the compartment walls 104 only at the radially inner ends of the arms and it is this that allows the arms 104 to be resilient.

When, in operation, it is desired to remove a slide 103 from a slide compartment, the slide is urged radially out-

wards against the two inclined surfaces 104e on the wedge-shaped projections 104d that serve to prevent the slide from falling out of the compartment in which it is situated in a radially outward direction. Because the two inclined surfaces 104e extend towards one another with respect to the radially outward direction in which the slide is urged, the wedge-shaped projections 104d are urged apart from one another with accompanying resilient deformation of the resilient arms 104c, and thus the slide is allowed to move radially outwards out of the compartment. Similarly, when it is desired to insert a slide 103 in a compartment, the slide is urged radially inwards so that its radially inner edge bears against the inclined surfaces 104f associated with the compartment, the two wedge-shaped projections 104d are urged apart, with accompanying resilient deformation of the arms 104c on which the projections are formed, and the slide is allowed to enter the compartment.

Other arrangements are of course possible. Thus, the slot 105 and the spring arms 104c could extend vertically on the outer rim of the magazine. Further, instead of being of one-piece construction, the magazine could be made up of a number of parts secured together. Also the inwardly extending annular portion 104c of the support ring 102 could be omitted.

WHAT WE CLAIM IS:

1. A circular magazine for use with a slide projector which comprises a first ring member, a second ring member arranged substantially coaxially with the first ring member and spaced apart from the first ring member in an axial direction, a third ring member fixed in relation to and arranged coaxially with the first and second ring members, and a plurality of slide compartment walls which are secured to the first and second ring members and which extend substantially radially with respect to the ring members to form a plurality of substantially radially extending slide compartments, wherein the first ring member is arranged to prevent slides from leaving the slide compartments in one direction parallel to the axis of the magazine, the second ring member is arranged to prevent slides from leaving the slide compartments in the opposite axial direction, the third ring member is arranged to prevent slides from leaving the slide compartments in a radially inward direction but extends over a part only of the length of the slide compartments, in a direction parallel to the axis of the magazine, each slide compartment wall is formed with at least one projection extending towards an adjacent slide compartment wall, the arrangement of

the projections being such that in operation they limit the movement of slides in the compartments in a circumferential direction, and a radially outward portion of each slide compartment wall is formed with retaining means arranged to tend to prevent slides from leaving the slide compartments in a radially outward direction but which means is resiliently movable to permit slides to leave the slide compartments in a radially outward direction and to enter the slide compartments in a radially inward direction.

2. A circular magazine as claimed in claim 1, wherein a radially outer portion of each slide compartment wall is provided with two circumferentially spaced arms, the retaining means arranged to tend to prevent slides from leaving the slide compartments in a radially outward direction are on the arms and the arms are resiliently deformable in a circumferential direction to permit the retaining means to move to allow slides to leave the slide compartments in a radially outward direction when the slides are urged in that direction.

3. A circular magazine as claimed in claim 2, wherein the retaining means are projections on the arms, each such projection extending towards the adjacent arm provided on an adjacent compartment wall.

4. A circular magazine as claimed in claim 3, wherein each of the said arms is provided with such projections so that there is a pair of such projections associated with each slide compartment, the projections of each pair being movable away from one another in a circumferential direction upon resilient deformation of the arms on which they are provided to allow a slide to leave the slide compartment in a radially outward direction.

5. A circular magazine as claimed in claim 4, wherein each of the projections that constitute the retaining means is provided with a radially inner surface which is so inclined with respect to a radial direction as to facilitate removal of the slides from the slide compartments in a radially outward direction.

6. A circular magazine as claimed in claim 4 or claim 5, wherein each of the projections that constitute the retaining means is provided with a radially outer surface which is so inclined with respect to a radial direction as to facilitate insertion of the slides into the slide compartments in a radially inward direction.

7. A circular magazine as claimed in any one of claims 2 to 6, wherein each arm is joined to its respective compartment wall only at its radially inward edge and is separated from the radially outer portion of its respective compartment wall by a



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wards against the two inclined surfaces 104e on the wedge-shaped projections 104d that serve to prevent the slide from falling out of the compartment in which it is situated in a radially outward direction. Because the two inclined surfaces 104e extend towards one another with respect to the radially outward direction in which the slide is urged, the wedge-shaped projections 104d are urged apart from one another with accompanying resilient deformation of the resilient arms 104c, and thus the slide is allowed to move radially outwards out of the compartment. Similarly, when it is desired to insert a slide 103 in a compartment, the slide is urged radially inwards so that its radially inner edge bears against the inclined surfaces 104f associated with the compartment, the two wedge-shaped projections 104d are urged apart, with accompanying resilient deformation of the arms 104c on which the projections are formed, and the slide is allowed to enter the compartment.

Other arrangements are of course possible. Thus, the slot 105 and the spring arms 104c could extend vertically on the outer rim of the magazine. Further, instead of being of one-piece construction, the magazine could be made up of a number of parts secured together. Also the inwardly extending annular portion 104c of the support ring 102 could be omitted.

WHAT WE CLAIM IS:

1. A circular magazine for use with a slide projector which comprises a first ring member, a second ring member arranged substantially coaxially with the first ring member and spaced apart from the first ring member in an axial direction, a third ring member fixed in relation to and arranged coaxially with the first and second ring members, and a plurality of slide compartment walls which are secured to the first and second ring members and which extend substantially radially with respect to the ring members to form a plurality of substantially radially extending slide compartments, wherein the first ring member is arranged to prevent slides from leaving the slide compartments in one direction parallel to the axis of the magazine, the second ring member is arranged to prevent slides from leaving the slide compartments in the opposite axial direction, the third ring member is arranged to prevent slides from leaving the slide compartments in a radially inward direction but extends over a part only of the length of the slide compartments, in a direction parallel to the axis of the magazine, each slide compartment wall is formed with at least one projection extending towards an adjacent slide compartment wall, the arrangement of

the projections being such that in operation they limit the movement of slides in the compartments in a circumferential direction, and a radially outward portion of each slide compartment wall is formed with retaining means arranged to tend to prevent slides from leaving the slide compartments in a radially outward direction but which means is resiliently movable to permit slides to leave the slide compartments in a radially outward direction and to enter the slide compartments in a radially inward direction.

2. A circular magazine as claimed in claim 1, wherein a radially outer portion of each slide compartment wall is provided with two circumferentially spaced arms, the retaining means arranged to tend to prevent slides from leaving the slide compartments in a radially outward direction are on the arms and the arms are resiliently deformable in a circumferential direction to permit the retaining means to move to allow slides to leave the slide compartments in a radially outward direction when the slides are urged in that direction.

3. A circular magazine as claimed in claim 2, wherein the retaining means are projections on the arms, each such projection extending towards the adjacent arm provided on an adjacent compartment wall.

4. A circular magazine as claimed in claim 3, wherein each of the said arms is provided with such projections so that there is a pair of such projections associated with each slide compartment, the projections of each pair being movable away from one another in a circumferential direction upon resilient deformation of the arms on which they are provided to allow a slide to leave the slide compartment in a radially outward direction.

5. A circular magazine as claimed in claim 4, wherein each of the projections that constitute the retaining means is provided with a radially inner surface which is so inclined with respect to a radial direction as to facilitate removal of the slides from the slide compartments in a radially outward direction.

6. A circular magazine as claimed in claim 4 or claim 5, wherein each of the projections that constitute the retaining means is provided with a radially outer surface which is so inclined with respect to a radial direction as to facilitate insertion of the slides into the slide compartments in a radially inward direction.

7. A circular magazine as claimed in any one of claims 2 to 6, wherein each arm is joined to its respective compartment wall only at its radially inward edge and is separated from the radially outer portion of its respective compartment wall by a

substantially radially extending slot so that the arms can be deformed without it being necessary to deform the compartment walls.

5 8. A circular magazine as claimed in any one of claims 1 to 7, wherein the magazine is of integral construction.

9. A circular magazine substantially as

hereinbefore described with reference to, and as shown in, the accompanying drawings.

ABEL & IMRAY,
Chartered Patent Agents,
Northumberland House,
303-306 High Holborn,
London, WC1V 7LH.

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