

PATENT SPECIFICATION (11)

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(54) IMPROVEMENTS IN OR RELATING TO HOLDERS FOR TAPE CASSETTES

(71) We, IDN INVENTIONS AND DEVELOPMENT OF NOVELTIES A.G., a Swiss Company, of CH-7078 Lenzerheide, Switzerland, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to holders for tape cassettes.

Such holders may consist of a rectangular housing with an ejector device which can be actuated in order to push the cassette out of the housing. The housing includes a drawer which is spring-loaded by the ejector device and is locked when the cassette is in the storage position. When the locking means is released, the ejector device pushes the drawer out and the cassette can be removed. Both the housing and the drawer are of injection-moulded plastic. The holder is provided with means to allow the stacking of several similar holders to form a stack. Furthermore, in the known holder, provision is made for the tape coils of an inserted cassette to be fastened by means of cams engaging in the coil cores.

The object of the present invention is to create a holder which is of simple construction so that a net saving on manufacture can be achieved in comparison with known holders.

The present invention provides a holder for a tape cassette, comprising a rectangular housing which has an entrance on one side for insertion of a cassette, and an ejector device which is actuable to eject the cassette from the housing, the ejector device comprising a strip a first portion of which extends along the inner surface of the housing base wall opposite the entrance and a second portion of which extends towards the entrance, lying along a housing side wall adjoining the base wall, the ejector device being actuable by pushing the second portion of the strip inwardly of the housing, away from the entrance, so as to arch the first portion in the direction of the entrance.

By way of example only an embodiment of the invention will now be described in

greater detail with reference to the accompanying drawings of which:—

Figure 1 is a diagrammatic section through the holder,

Figure 2 is a section along line II—II in Figure 1, and

Figure 3 is a partial section along the line III—III in Figure 2.

The holder has a housing 1 with side walls 8, 9, a base 4 opposite an entrance for a cassette 5, and end walls 6, 7. The housing, therefore, is substantially rectangular, forming a box which is open on one narrow side opposite to the base 4.

The side walls 8, 9 are provided with means to allow the stacking of several similar 1, 1¹ holders as shown in Figure 3. The side wall 9 carries two parallel rails 10 each with a dovetail profile on the upper edge, whilst the side wall 8 is provided with grooves each corresponding to the dovetail profile. In this way, any two holders which are interlocked are spaced apart by a distance "a" from one another (Figures 2 and 3).

In addition, the side wall 8 has two apertures 13 which are approximately U-shaped when seen in elevation as in Figure 1, and, at the free end of each of the tongues 14 thus formed, there is an approximately semi-circular cam projecting into the inside of the housing. The tongues 14 are so positioned that, when the cassette 5 is pushed in completely, the cams engage in the tape coil apertures and secure the tape coils; when the cassette is moved in or out, the tongues 14 can move resiliently away towards the outside. This is also possible when the holders are stacked, due to the spacing "a". If such securing of the tape coils is not required, the apertures 13 and tongues 14 are of course omitted, and it is then no longer necessary to maintain a distance "a". The height of the rails 10 could then be reduced accordingly.

Along the base 4 and the end wall 7 there extends a strip 3 which is attached at 15 and is placed over an inward-extending bridge 16 of the base 4. The free end of the strip has a hook member 17 moulded onto it, and in front of the latter the strip 3 has a

widened section 18 which is guided in lateral grooves 19 in the side walls 8, 9 (Figure 2). That portion of the strip which extends across the base 4 is arched towards the housing entrance.

Below the hook member 17 the end wall 7 has a slot 20. The length of the strip 3 is such that the lug extension 21 of the hook member 17 engages over an inserted cassette 5, as shown in Figure 1.

The housing 1 is a one-piece injection-moulded plastic part, and the strip 3 may be of flexible plastics material or some resilient material for example thin spring steel. In each case the hook member 17 is biased by the strip 3 inwardly of the housing entrance.

When the cassette is in the storage position, as shown in Figure 1, the strip 3 extends across the base 4 of the housing, lying on the bridge 16, and then along the end wall 117, and the lug extension 21 holds the cassette 5. In order to remove the cassette it is sufficient to exert a slight pressure, in the direction of the arrow 23, on a finger grip 22 formed on the hook member 17 and a shifting movement in the direction of the arrow 24 causes a deformation of the strip 3 such that it is arched away from the base 4—this is indicated by dash-dotted lines in Figure 1. If resilient material is used for the strip, the latter is preferably also pretensioned in the direction of the arching so that the movement according to the arrow 24 occurs automatically when the cassette is no longer held by the lug extension 21. The length of the slot 20 limits the deformation of the strip, the arched section of which pushes out the cassette 5. If the cassette 5 is now pushed back in again, the operations described take place in reverse order.

As will be apparent from the foregoing description of a preferred embodiment, it is possible to construct the housing on the one hand and the strip of the other hand in such a simple manner that the manufacturing costs are extremely low: the housing may easily be made from injection-moulded plastic, and the strip may also be an injection moulded part (made of easily deformed, flexible plastic) or may be cut from thin

spring steel. The addition of the finger grip 22 which facilitates removal of the cassette does not increase the manufacturing costs to any great extent.

WHAT WE CLAIM IS:—

1. A holder for a tape cassette, comprising a rectangular housing which has an entrance on one side for insertion of a cassette, and an ejector device which is actuable to eject the cassette from the housing, the ejector device comprising a strip a first portion of which extends along the inner surface of the housing base wall opposite the entrance and a second portion of which extends towards the entrance, lying along a housing side wall adjoining the base wall, the ejector device being actuable by pushing the second portion of the strip inwardly of the housing away from the entrance, so as to arch the first portion in the direction of the entrance.
2. A holder according to Claim 1, in which a part of the second portion of the strip is guided in grooves in the housing.
3. A holder according to Claim 1 or 2, in which the end of the second portion of the strip is provided with a finger grip.
4. A holder according to Claim 3, in which the finger grip has an extension piece which engages over the edge of an inserted cassette.
5. A holder according to any one of the preceding claims, in which the housing base wall includes a bridge piece extending in the direction of the entrance to impart a curvature to the first portion of the strip.
6. A holder according to Claim 4, in which the strip is flexibly pretensioned into the arched shape in the direction of ejection of a cassette.
7. A holder substantially as described herein with reference to and illustrated by the accompanying drawings.

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widened section 18 which is guided in lateral grooves 19 in the side walls 8, 9 (Figure 2). That portion of the strip which extends across the base 4 is arched towards the housing entrance.

Below the hook member 17 the end wall 7 has a slot 20. The length of the strip 3 is such that the lug extension 21 of the hook member 17 engages over an inserted cassette 5, as shown in Figure 1.

The housing 1 is a one-piece injection-moulded plastic part, and the strip 3 may be of flexible plastics material or some resilient material for example thin spring steel. In each case the hook member 17 is biased by the strip 3 inwardly of the housing entrance.

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2. A holder according to Claim 1, in which a part of the second portion of the strip is guided in grooves in the housing.

3. A holder according to Claim 1 or 2, in which the end of the second portion of the strip is provided with a finger grip.

4. A holder according to Claim 3, in which the finger grip has an extension piece which engages over the edge of an inserted cassette.

5. A holder according to any one of the preceding claims, in which the housing base wall includes a bridge piece extending in the direction of the entrance to impart a curvature to the first portion of the strip.

6. A holder according to Claim 4, in which the strip is flexibly pretensioned into the arched shape in the direction of ejection of a cassette.

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