

The present invention relates to improvements to connector casings for microcircuit cards.

5 The general problem which is to be solved with the aid of such a casing consists in electrically connecting the printed contacts on the card to the electronics for processing the data contained on the said card.

10 In the current state of the art, a flat casing is used which has a narrow slot into which the card is inserted. The two faces of the slot are constituted, in the case of one face, by a face of the casing and, in the case of the other face, by a carriage carrying contacts, the width of the slot, delimited by the carriage and the casing, being greater than the thickness of the card.

15 The front end of the carriage has a bearing surface against which the front end of the card may abut. Consequently, it is understood that by inserting the card into the casing it is possible to push the carriage back. At the end of travel, with the aid of a set of ramps, the carriage is lowered and applies the contacts which it carries against the card.

20 The design of this connector casing requires the use of flexible electrical conductors in order to connect the contacts, which are carried by the carriage, to the casing with all the drawbacks which this involves.

25 Such an arrangement is shown by the apparatus known from Document EP-A-0,234,654, in which, however, the insertion slot is completely formed by the casing in which the carriage is provided.

30 US-A-4,236,667 provides a connector for a perforated card, the connector having arms, whose connection to a lead which is securely attached to the casing is broken when they do not encounter a corresponding hole in the card in its final position. The card is conveyed up to this position by a carriage which is lifted up along a ramp formed by the inclined bottom of the casing when the card is inserted.

The object of the invention as defined in Claim 1, is especially to overcome these drawbacks and it is noteworthy in that the card rests on a carriage, guided into the casing, in which it may be moved under the action of the thrust exerted by the user on the card, the said carriage being capable, at the end of travel and by the agency of a set of ramps, of lifting up the card in order to apply it against fixed contacts carried by the casing.

The invention will be more clearly understood by reading the description which follows, given with reference to the attached drawing, solely by way of indicative example, in which:

Figure 1 is a longitudinal sectional view of a connector casing in accordance with the invention, the movable elements being represented in an initial position in which the electrical contact has not been established;

Figure 2 is a view similar to that of 1, showing the final position of the movable elements when the electrical contact between the card and the casing has been established.

Figure 3 is a sectional view taken along the line III-III of Figure 1;

Figure 4 is a partial perspective view of the carriage.

With reference to the drawing, it may be seen that the connector casing is constituted by a body 1, which is hollow and in the form of a flattened prism, having on one of its lateral faces a slot 2 for inserting a microcircuit card C.

A carriage 3, having at its front end a stop surface 4 against which the front end of the card C may bear in the usual manner, is housed in the body 1.

According to the invention, the contacts 5 of the casing are carried directly by the latter and are disposed so that, when the card C is inserted into the casing, a certain distance separates the upper face of the said card from the said contacts, as is apparent in

Figure 1.

If, from the position represented in Figure 1, a thrust is exerted in the direction of the arrow F1, the carriage moves in the same direction and then, at the end of travel, is lifted up, entraining the card C and applying it against the contacts 5.

According to one embodiment, this result is obtained by openings 6 which extend obliquely with respect to the direction of the thrust and in which fingers 7, carried by the carriage 3, are engaged.

As shown in the drawing, the lower end of the openings 6 may have a portion 6a which extends parallel to the plane of the card C.

The card C is held on the carriage by two lateral arms 8 extending above the latter.

Finally, the return of the carriage into its initial position, when the card is released, is ensured by a spring 9 such as, for example, a kickover spring.

Of course the present invention is not limited to the embodiment described and represented but extends, on the contrary, to all variants of shapes and dimensions which are encompassed within the scope of the following claims.

CLAIMS

1. System for reading microcircuit-cards including cards fitted with electrical contacts and a connector having a hollow casing in which a card insertion slot is provided and having a carriage (3) which can move inside the casing in order to establish, at the end of travel of the carriage, an electrical connection with the contacts carried by the card under the action of a thrust exerted on the card in order to insert it into the casing via the slot, characterised in that the casing directly carries electrical contacts (5) and in that the casing and the carriage (3) include interacting means having a set of ramps for lifting up the carriage, at its end of travel, sufficiently in order for the contacts of the card, which rests on the carriage, to be applied against the contacts of the casing.
2. System according to Claim 1, characterised in that the ramps for lifting up the carriage (3) comprise openings (6), at least one fraction of which is oblique with respect to the direction of the thrust, which openings are made in the lateral faces of the casing and in which fingers carried by the carriage (3) are engaged.
3. System according to Claim 2, characterised in that the casing includes four openings each having a first portion (6a) parallel to the direction of the thrust and an oblique portion for guiding the carriage towards the electrical contacts (5) of the casing.
4. System according to Claim 1, characterised in that the set of ramps has a first portion parallel to the plane of the card (C) resting on the carriage and an oblique portion for lifting up the card parallel to itself in order to apply it against the fixed contacts.
5. System according to any one of the preceding claims, characterised in that the carriage includes lateral card-holding arms extending above the surface on which the card rests.