

July 26, 1966 B. A. C. VAN DER WIJNGAART ETAL 3,262,698

CARD STORAGE AND FEED DEVICE

Filed June 3, 1964

2 Sheets-Sheet 1

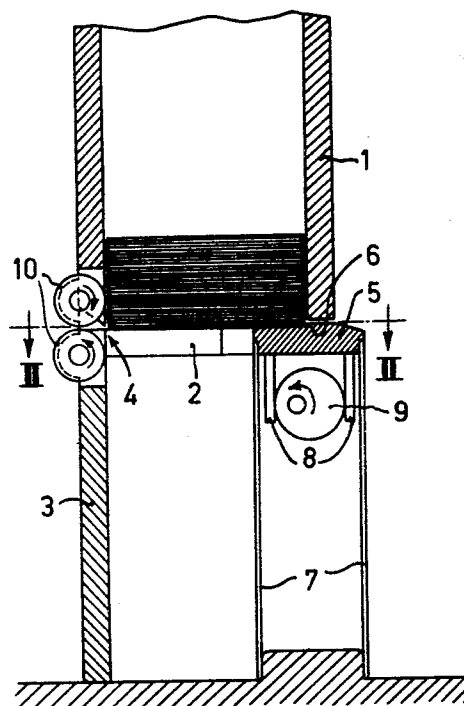


FIG. 1

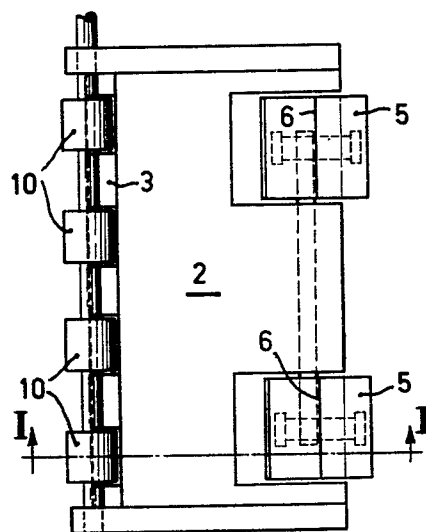


FIG. 2

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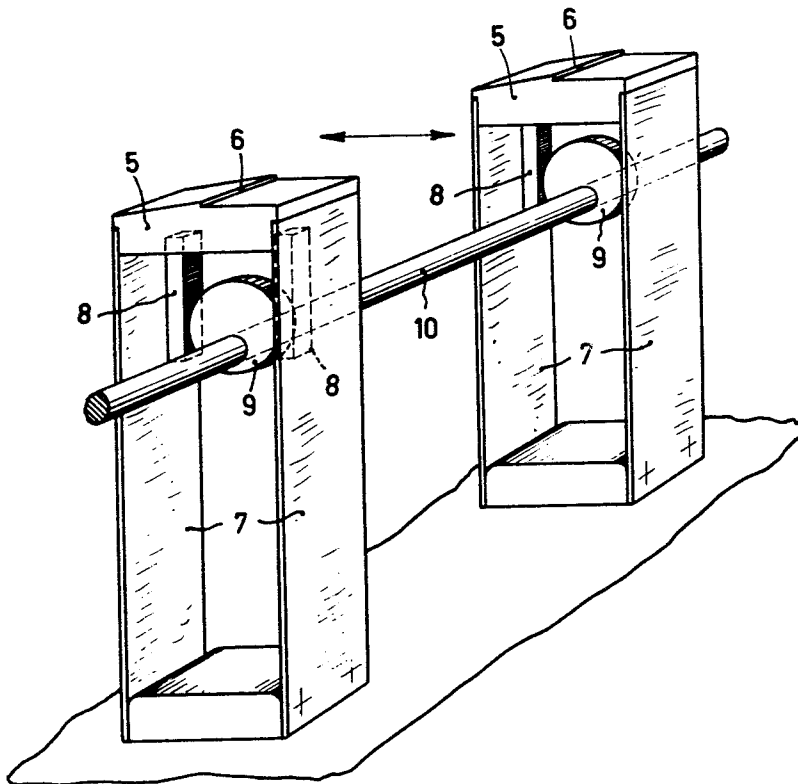


FIG. 3

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3,262,698

CARD STORAGE AND FEED DEVICE

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Claims priority, application Netherlands, June 13, 1963, 294,041

5 Claims. (Cl. 271—44)

The invention relates to storage devices for stacked sheets or cards, for example perforated cards, the store being open on the bottom side, beneath which a reciprocating sliding member is arranged for feeding the sheets or cards individually out of the store.

In a known device of the kind set forth the sliding member or shuttle is formed by a plate-shaped element adapted to move along guides. On its side facing the store this element is provided with a stop, the maximum height of which is equal to the thickness of one card. With each movement of the sliding member or shuttle this stop feeds one card or sheet from the store. On the other side the element is connected to a driving member, which may be formed by a crank-driving rod mechanism. It is also known to provide the element on its side remote from the store with a toothed rack co-operating with a reciprocating sprocket segment.

The known devices described above require a great number of guides and points of rotation, all of which necessitate clearance spaces due to tolerances and wear. It will be obvious that these clearances involve inaccuracy in the individual removal of cards and sheets, which always have a very small thickness. If this inaccuracy is too great, the satisfactory operation of the device can be completely disturbed. Said clearance is furthermore a source of noise, which is particularly disadvantageous in devices operating with great speed, for example of the order of 120,000 cards an hour.

The invention has for its object to obviate the aforesaid disadvantages and is characterized in that by means of one or more resilient elements the sliding member is fastened to a stationary part of the device. By using this construction an extremely smoothly and noiselessly operating device is obtained.

The sliding member supported in accordance with the invention may be driven by a crank-driving-rod mechanism or a sprocket-toothed rack structure.

However, a considerably more reliable and noiseless device is obtained in a further embodiment of the invention in which the sliding member is provided with at least one guide element which is governed by a control-member. The control-member may be formed by a grooved drum, a cam disc, a cup-shaped disc and so on.

A further advantageous device embodying the invention is characterized in that the sliding member is provided with at least two guide members between which an eccentric disc is adapted to rotate.

The spring elements supporting the sliding member may be formed by a rubber block or bamboo sticks. In a further advantageous device embodying the invention the spring elements are formed by leaf springs which are resilient in substantially the same direction, so that they are rigid in the other direction.

The device according to the invention is extremely suitable for use in a device for feeding perforated cards, such as a card sorting machine and the like.

The invention will be described more fully with reference to the drawing.

FIGS. 1 and 2 show diagrammatically a store for feeding perforated cards with a sliding member constructed

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according to the invention arranged beneath it in sectional views taken along the lines I—I and II—II, respectively.

FIG. 3 is a perspective view of the two sliding members.

Referring to the drawing, reference numeral 1 designates a store which is open on the bottom side. The store 1 is bounded by a card slide plate 2, which is connected with the frame 3 of the device. Between the store 1 and the frame 3 an opening 4 is left for passing only one card at a time. The device comprises furthermore two shuttles or sliding members 5, which are provided on their upper side with an upright rim 6. The sliding members 5 are each connected by two leaf springs 7 to the base of the device. On the bottom side each of the sliding members 5 is provided with two guide members 8, between which an eccentric disc 9 is arranged. These eccentric discs are driven via a common shaft 10. The shaft 10 may be driven in known manner, for example by an electric motor (not shown).

The device operates as follows. Due to the rotation of the eccentric disc 9 the sliding members 5 are reciprocated. During the stroke to the left the rim 6 carries along only one card, which is inserted through the opening 4 between the rotating rollers 10, by which they are transported further out of the store. The card, thus conducted away is then worked in a card-handling device (not shown).

By utilizing a continuously rotating eccentric disc the mass of reciprocating parts, which must be braked and accelerated at each inversion of the movement, is considerably smaller than in the known devices. This fact alone considerably reduces wear and clearance whilst the noise is also considerably mitigated. A further advantage of the structure according to the invention is that the sliding member does not reciprocate along guide members, but is arranged on leaf springs, which allow a noiseless reciprocating movement.

What is claimed is:

1. A card storage and feed device comprising, a card hopper having front and rear openings at the bottom for retaining cards in a flat stacked relationship, a card shuttle means including a resilient mount positioned below said card hopper such that as the shuttle reciprocates between the back and front of the hopper by means of the resilient mount it engages the lowermost card in the stack through the rear opening and discharges the card through the front opening as it moves forward, and means for cyclically driving said shuttle and resilient mount from back to front and vice versa.

2. A card storage and feed device as set forth in claim 1 in which said shuttle is provided with a guide means which is engaged by the means for cyclically driving the shuttle.

3. A card storage and feed device as set forth in claim 1 in which said shuttle is provided with a pair of spaced guides and the means for cyclically driving the shuttle includes a disc positioned between the guides and adapted for rotation about an off center axis.

4. A card storage and feed device comprising, a base, a card hopper having front and rear openings at the bottom for retaining cards in a flat stacked relationship, means for supporting said hopper above said base, a pair of spaced elongated flat parallel springs mounted on said base and extending longitudinally upwards toward the bottom of said card hopper and free to move in the front to back direction, a card shuttle mounted on the free ends of the flat springs in close proximity to the hopper and arranged to engage the lowermost card only as it is moved from the back to the front of the hopper and discharge the engaged card into the front opening, means for

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cyclically driving said shuttle and flat springs from the back to front and vice versa, and conveyor means located proximate said front opening for removing cards discharged thereinto by the shuttle as it moves from the back to the front.

5. A card storage and feed device as set forth in claim 4 in which said shuttle is provided with a pair of spaced guides and the means for cyclically driving the shuttle includes a disc positioned between the guides and adapted for rotation about an off center axis.

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