

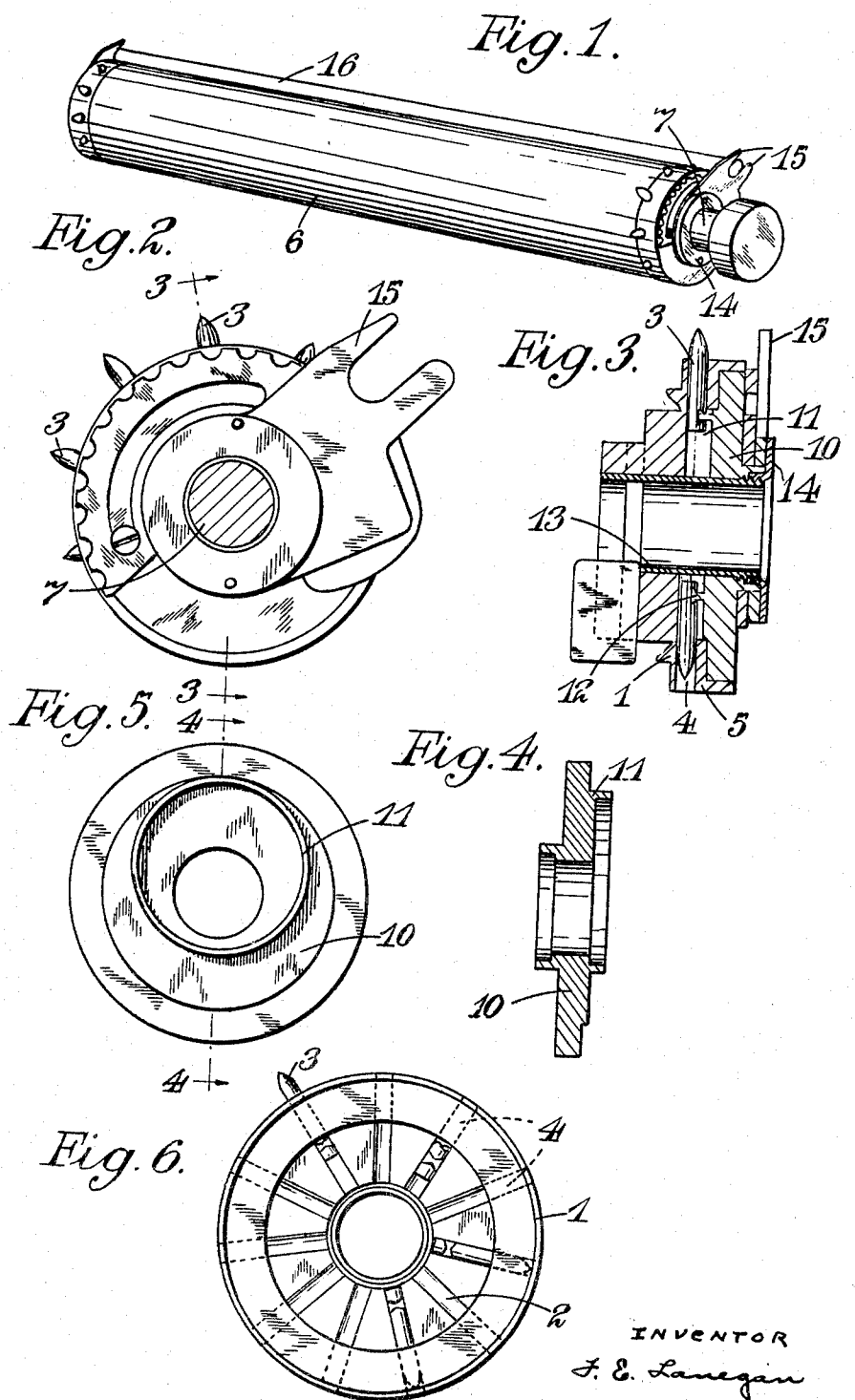
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PIN-WHEEL FEEDING DEVICE FOR STATIONERY

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INVENTOR

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## PIN-WHEEL FEEDING DEVICE FOR STATIONERY

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This invention relates to rotatable pin-wheel feeding devices of the kind (hereinafter referred to as the kind described) employed for feeding continuous stationery past the writing position of a typewriter or other writing machine by engagement of pins extending radially of the device with marginal perforations in the stationery.

It is already well known (see for example U. S. Patent No. 2,000,649 and Reissue No. 20,888) so to construct a pin-wheel device of the above kind that as the device is rotated to feed the stationery the pins are given a radially reciprocating movement to assist in the engagement and disengagement of the pins with the perforations in the stationery. In these known devices the pins are engaged by a fixed cam which is of approximately elliptical shape and the arrangement is such that only one pin is at any time fully extended radially into engagement with the perforations. It has now been found that for certain purposes (e. g. when the stationery follows an extended path and there is considerable frictional resistance to movement of the stationery) engagement of the stationery by a single pin is unsatisfactory because the part of the paper engaged by the pin has insufficient strength and may tear. It is an object of the present invention to provide an improved form of pin-wheel feeding device in which this disadvantage is reduced while at the same time the advantages of the reciprocating pins are to a large extent retained.

The invention consists in a pin-wheel feeding device of the kind described in which the pins are given a radially reciprocating movement to assist in the engagement and disengagement of the pins with the perforations in the stationery characterised by the feature that there are two or more (preferably three) pins substantially fully extended at any time for engagement with perforations in the stationery. A pin-wheel feeding device having this characteristic feature has the advantage that the feeding load is divided among two or more points of engagement with the stationery while at the same time the advantages of radial engagement and withdrawal of the pins into and out of the stationery may be retained.

In the preferred form of the invention the pins are reciprocated by an eccentric or cam of circular configuration. The cam may be in the form of a cam ring engaging slots in the sides of the pins and it may effect a positive movement of the pins in both directions.

A specific form of pin-wheel feeding device

according to the invention will now be described by way of example, and with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a platen for a typewriter,

Figure 2 is an end view of the platen shown in Figure 1,

Figure 3 is a section through one of the pin-wheel devices employed in the platen shown in Figure 1, the section being taken on the line 2-2 in Figure 2,

Figure 4 is a section through the cam plate employed in the device shown in Figure 3, the section being taken on the line 4-4 in Figure 5.

Figure 5 is a front view of the cam plate, and

Figure 6 is a front view of the housing employed in the device.

The device forming the subject of this example comprises a cylindrical housing 1 having eleven radially extending semi-circular grooves 2 in one side face within which grooves are received a corresponding number of taper-pointed feeding pins 3 in radial alignment with holes 4 provided in a peripheral flange 5 on the housing. The housing and associated pins are arranged to be carried with a platen roll 6 for rotation therewith on a central tube or shaft 7.

Surrounding the tube or shaft there is a cam plate 10 consisting of a disc having on one side face an upstanding circular ring 11 eccentric to the shaft 7 and fitting into slots 12 cut in the feeding pins. The cam plate is retained within the peripheral flange 5 of the housing by a short tube 13 secured to the housing and a retaining ring 14 screwed onto the tube. The cam plate is free to rotate on the tube 13 which is keyed to the tube or shaft 7. The cam plate is provided with a fork 15 extending radially therefrom for engagement with a fixed rod 16 or other part of the writing machine to prevent rotation of the cam member. The fork is adjustable (in known manner) around the cam plate to determine the position with respect to the machine of the highest part of the cam ring 11 and therefore of the circumferential position relative to the machine at which the pins are radially extended.

In use as the platen roll is rotated the pins are carried by the housing around the cam plate and the engagement of the eccentric ring with the slots in the feeding pins imparts a reciprocating movement to the pins. The dimensions of the eccentric ring and of the pins are so chosen that there are always three pins extending through the holes in the housing for full engagement with

the stationery and two pins partially extended for engagement with the stationery.

I claim:

1. A pin-wheel feeding device for use in feeding continuous stationery past the writing position of a writing machine by engagement of the pins with marginal perforations in the stationery comprising a rotatable housing, a plurality of pins mounted in the housing for radial reciprocation with respect thereto and a circular cam ring engaging in a slot in the side of each pin, the cam ring being held by a fixed cam plate eccentrically of the axis of rotation of the housing and being of such dimensions in relation to the pins and housing and so arranged that on rotation of the housing the pins will be carried around the ring and reciprocated into and out of the housing, there being at any time three pins extending from the housing for full feeding engagement with the stationery.

2. A pin-wheel feeding device for use in feeding continuous stationery past the writing position of a writing machine by engagement of the pins with marginal perforations in the stationery comprising a rotatable housing, between six and fourteen pins mounted in the housing for radial reciprocation with respect thereto and a circular cam ring engaging in a slot in the side of each pin, the cam ring being held by a fixed cam plate eccentrically of the axis of rotation of the housing and being of such dimensions in relation to the pins and housing and so arranged that on rotation of the housing the pins will be carried around the ring and reciprocated into and out of the housing, there being at any time three pins extending from the housing for full feeding engagement with the stationery.

3. A platen roll for a typewriter comprising a

supporting shaft for rotation in the typewriter bearings, a cylindrical platen surface supported by the shaft and two pin-wheel feeding devices at opposite ends of the platen surface respectively, each device comprising a cylindrical housing rotatable with the platen surface and constituting an axial extension thereof, a plurality of taper-pointed pins mounted in the housing for reciprocation with respect thereto radially from limiting positions within the housing and projecting therefrom, a circular cam ring eccentrically mounted in relation to the axis of rotation of the housing and engaging in slots in the sides of the pins, and means adapted by engagement with a fixed part of the typewriter for holding the cam ring against rotation so that on rotation of the housing the pins will be reciprocated into and out of the housing as aforesaid, there being at any time at least two pins extending from the housing for full feeding engagement with the stationery and at least two pins partly extending from the housing for partial engagement.

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