

[54] ADJUSTABLE FACET PRINT MECHANISMS

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[51] Int. Cl. B41j 1/60

[58] Field of Search 101/106-108,
101/85, 110, 111; 74/378, 349

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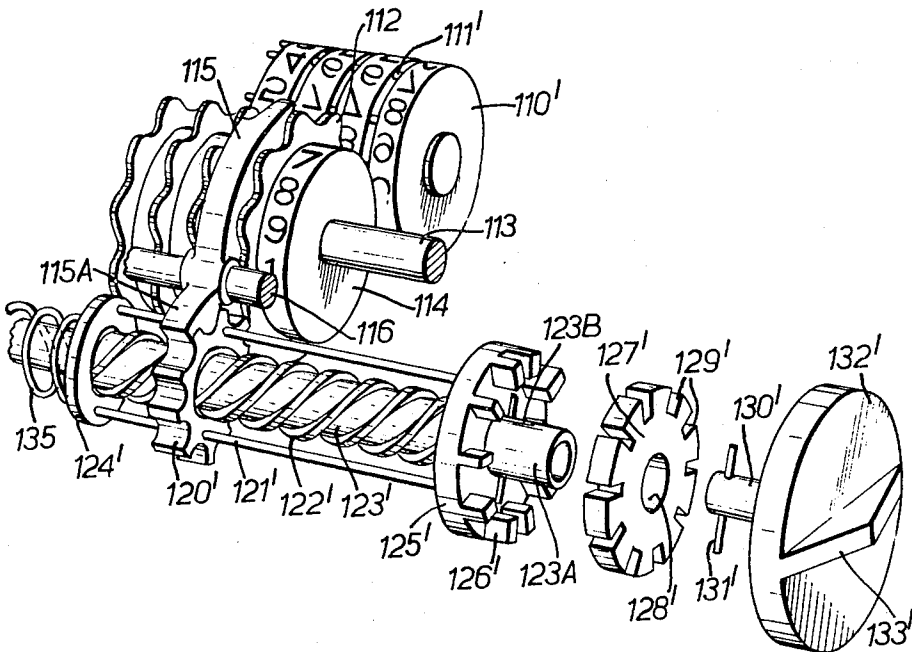
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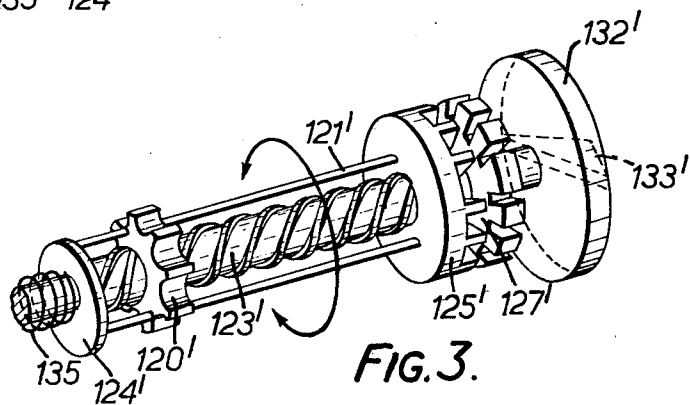
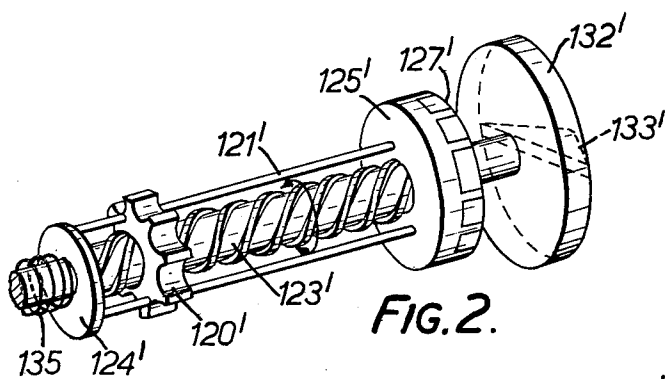
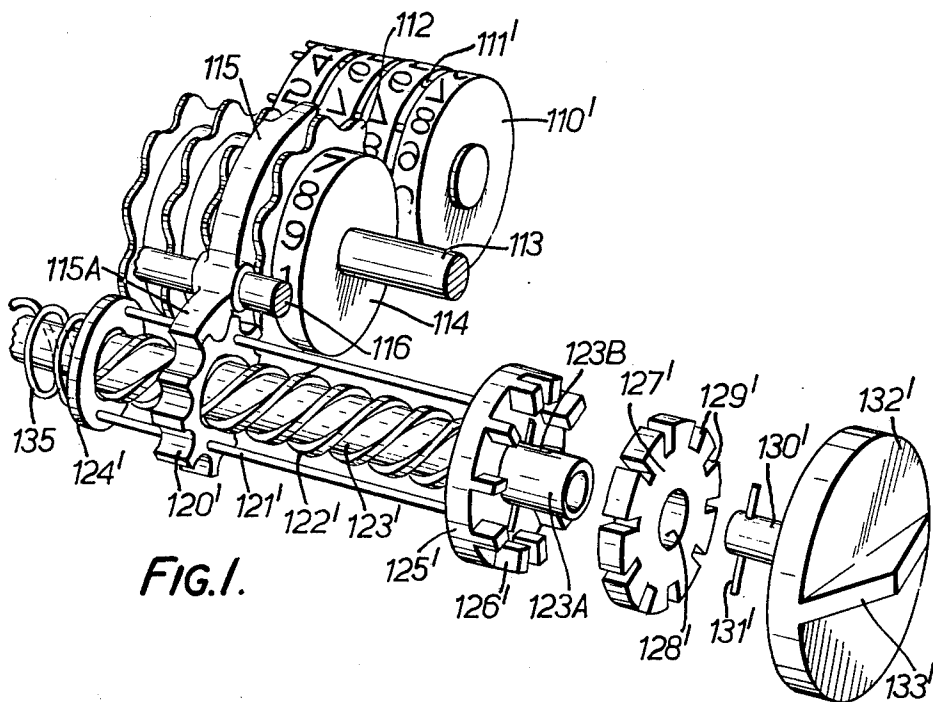
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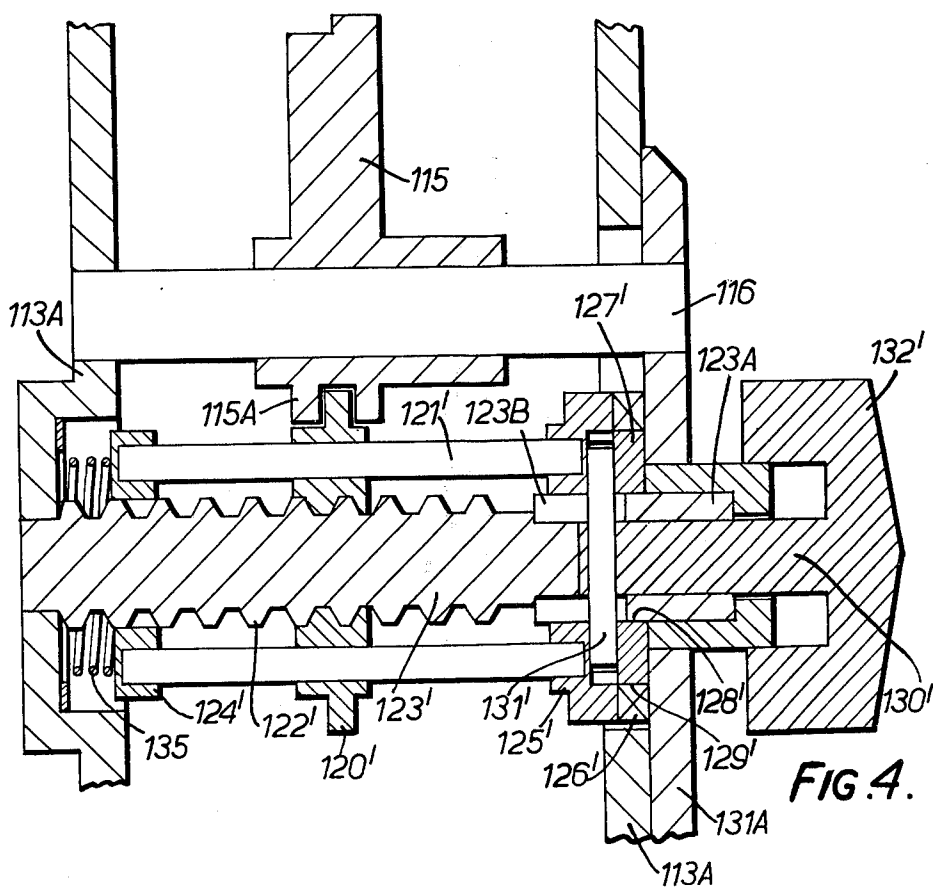
[57] ABSTRACT

The mechanism comprises a plurality of print wheels each capable of adjustment to give a selected print-out and a corresponding plurality of read-out wheels the adjusted positions of which correspond at any given time to those of the print wheels. The print-out of any given print wheel is adjusted by a pinion carried by a screwed member which is constrained to rotate the pinion unless a control knob is moved axially, when a clutch member acts to prevent rotation of the pinion so that the latter tracks along the screwed member until it is opposite another print wheel to be adjusted. Release of the knob to resume its normal axial position enables adjustment of the print wheel.

6 Claims, 4 Drawing Figures







ADJUSTABLE FACET PRINT MECHANISMS

This is a continuation, of application Ser. No. 300,374 filed Oct. 24, 1972, and now abandoned.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

This invention relates to adjustable-facet print mechanisms, for example for use in hand-held self-adhesive-label applicators where space requirements are very stringent, but it is nevertheless necessary to provide for a wide range of print facets giving, at any given time, a print-out facility for a number of characters in the range of one to 40 or even more.

2. Description of the Prior Art

Adjustable facet print mechanisms have been proposed in which individual print-facet carriers are adjustable by individual knobs. Where there is a large number of carriers the corresponding number of knobs gives rise to a cumbersome mechanism. Again it is not always possible with prior mechanisms to appreciate readily the print-out at any given adjustment of the individual carriers and one object of the present invention is to provide a read-out facility.

SUMMARY OF THE INVENTION

According to the present invention there is provided, in an adjustable-facet print mechanism, a plurality of print-facet carriers arranged side-by-side, each carrier including a plurality of print-facets, means common to the carriers for adjusting the operative print-facet of a selected one of the carriers, and means for selecting one of the carriers for adjustment by the adjustment means, the selection means serving to traverse the adjustment means relative to the carriers.

BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of an adjustable-facet print mechanism in accordance with the present invention will now be described by way of example, with reference to the accompanying diagrammatic drawings, in which:

FIG. 1 is a perspective view of one embodiment of an adjustable-facet print mechanism in accordance with the invention;

FIG. 2 is a perspective view of one part of the mechanism shown in FIG. 1 in one operational condition;

FIG. 3 is a perspective view similar to FIG. 2 but with the mechanism in another operative configuration; and

FIG. 4 is a longitudinal section of the mechanism of FIGS. 1 to 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the embodiment illustrated in FIGS. 1 to 4, of an adjustable-facet print mechanism in accordance with the invention, is intended for incorporation in a self-adhesive label applicator, for example as disclosed in co-pending application Ser. No. 283,212, assigned to the same assignee as is the present application.

The mechanism comprises a plurality of print wheels 110 mounted for rotation on a fixed shaft (not shown) and each carrying on one lateral face thereof an annulus of pins 111 which serve, effectively as gear teeth.

One of a plurality of sprocket wheels 112 meshes with each annulus of pins 111 and is rotatably mounted on a shaft 113, itself carried in the casing or housing 131A (FIG. 4) of the machine. A read-out wheel 114,

with positive characters, is fast for rotation with each sprocket wheel 112 and, as will be appreciated, there is one sprocket wheel 112 and one read-out wheel 114 for each of the print wheels 110. An indicator finger 115, which serves to denote the print wheel which is to be adjusted to a fresh facet at any given time, is mounted on a transverse pin or shaft 116 itself mounted in the casing or housing of the machine. The finger 115 is rigid with a bifurcated member 115A (FIG. 4) which straddles the pinion 120 and thus ensures that the finger tracks with the pinion.

In order to rotate the sprocket wheel 112 and hence the corresponding print-out wheel 110 the pinion 120 is mounted for rotation and is also movable in the direction of its own rotational axis. Once a particular sprocket wheel 112 has been selected the pinion 120 is arranged to rotate about its own axis.

The details of the mechanism which provides for this selective axial and rotational movement of the pinion will now be described. The pinion 120 is slidably mounted on at least two rods 121 or other guides and has two internal helical grooves (not shown) which mesh constantly with a coarse two-start thread 122 provided on a shaft 123. Opposite ends of the rods 121 are secured to a disc 124 and to one half of a dog clutch having a plurality of teeth 126. The half 125 is freely rotatable on the shaft 123. The other half 127 of the clutch takes the form of a disc with a central bore 128 and a plurality of peripheral grooves 129 each of a peripheral extent corresponding to the peripheral dimension of one of the dog teeth 126 of the half 125. The half 127 is fixed to one side wall of the housing 113A. The shaft 123 has a tubular extension 123A with a transverse slot 123B and this receives a transversely extending pin 131. The transverse pin 131 is carried by an axially extending spindle 130 rigid with a knob 132 disposed externally of the housing 131A and having a ridge 133 enabling an operator to grasp it. As shown in FIG. 1, the disc 124 is biased in a sense to engage the clutch halves 125, 127, by a helical spring 135 which acts between the disc and a part of the housing (FIG. 4).

The operation of the mechanism will now be described with particular reference to FIGS. 2 and 3. Assuming that each of the print wheels 110 is orientated to give a desired print-out and it is then desired to change the orientation of the print wheel 110 as illustrated, the knob 133 is initially turned without applying inward axial pressure while the clutch halves are engaged and this has the effect of rotating the shaft 123 together with the threads 122 thereon while the rods 121 remain stationary because the fixed clutch half 127 is in engagement with the rotary half 125. The pinion 120 is thus caused to track along the shaft 123 until it lies opposite that gear wheel 112 corresponding to the print-out wheel 110 of which the operative facet is to be changed. The pinion 120 then has to be indexed while in mesh with the gear wheel 112 until the selected character is in its operative position. This is effected with the clutch disengaged as illustrated in FIG. 3, by pushing the knob 132 axially inwards against the bias of the spring 135, the pin 131 carrying the clutch half 125 with it and thus disengaging the clutch halves. The half 125 is constrained to rotate under these conditions with the shaft 122 since the restraint provided by the fixed clutch half 127 is removed and thus the pinion 120 is rotated in its selected axial position until the se-

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lected facet is at the print position as indicated by the corresponding read-out wheel 114. On release of the knob 132 the spring 135 acts to re-engage the clutch halves and the pinion can no longer rotate. The finger 115 is carried along with the pinion 120 through the intermediary of the bifurcated member 115A. This ensures that the correct print-wheel is selected.

What is claimed is:

1. In an adjustable-facet print mechanism, a plurality of print-facet carriers arranged side-by-side, each said carrier including a plurality of print-facets, adjustment means common to said carriers for adjusting the operative print-facet of a selected one of said carriers, selection means for selecting one of said carriers for adjustment by said adjustment means, said selection means serving to move said adjustment means relative to said carriers to a position wherein said adjustment means can act to adjust a selected carrier, and a single rotatable member common to both said adjustment means and said selection means and constituting the sole actuating member for both thereof, said single rotatable member being selectively axially displaceable between two positions and operable, in one of said positions, to operate only said selection means and, in the other of said positions, to operate only said adjustment means.

2. A mechanism according to claim 1 comprising read-out means adjustable in synchronism with adjustment of the carriers.

3. A mechanism according to claim 1, wherein the means common to said carriers comprises a pinion.

4. In an adjustable-facet print mechanism, a row of spaced print-facet carriers, each said carrier incorporating a plurality of print-facets, turning means for turning selectively one of said carriers to change the operative print-facet thereof, a screwed member carrying said turning means, said turning means containing matingly screwed means for cooperating with said screwed member, said screwed member, said screwed cooperating means and said turning means constituting

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means for providing relative angular movement between said screwed member and said turning means, said screwed cooperating means allowing axial displacement of said turning means upon rotation of said screwed member, and operating means coaxial with said screwed member selectively operable to prevent such relative angular movement and thereby rotate said turning means with said screwed member, said coaxial means also acting to provide for said relative angular movement and thereby a rotary input to said screwed member, when the turning means is at a selected position and such relative angular movement is prevented, effects adjustment of the corresponding carrier at the selected position to render a different print-facet operative, said operating means including a single rotatable member displaceable axially between two axially spaced positions in one of which it is operable to provide a rotary input to drive said turning means together with said screwed member to effect adjustment of the selected carrier to render a different print-facet operative and in the other of which it is operable to effect such relative axial movement between said screwed member and said turning means.

5. A mechanism according to claim 4, comprising a casing, and wherein said means for selectively preventing and providing for said relative angular movement comprises a dog clutch including a first half, and a second half, said first half being rotatable with the turning means, the second half being fixed relative to the casing, and axial motion of the single rotatable member between two positions serving to engage and disengage the clutch.

6. A mechanism according to claim 5, comprising means biasing the first and second halves of said clutch into engagement.

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