Nov. 12, 1968 R. DEEG 3,410,469

ARRANGEMENT FOR EFFECTING THE OPTIONAL IN-AND-OUT MOVEMENT OF GUIDE PINS ON TYPEWRITER PLATENS

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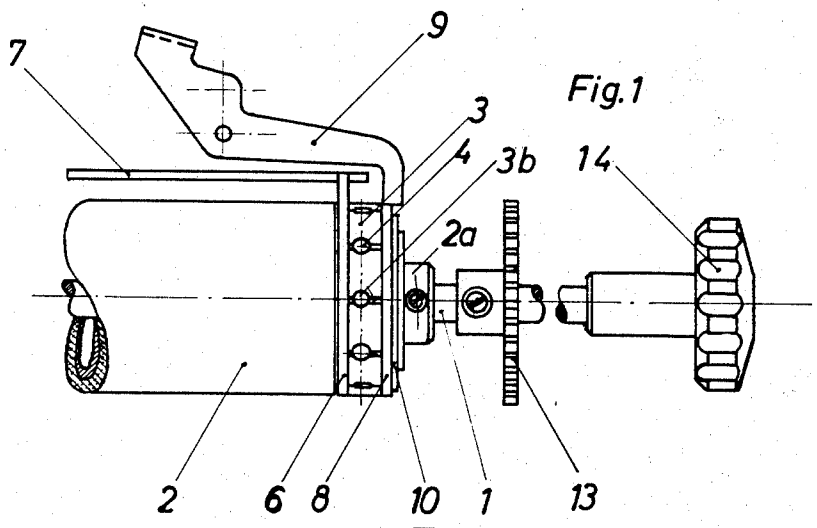



Fig. 1

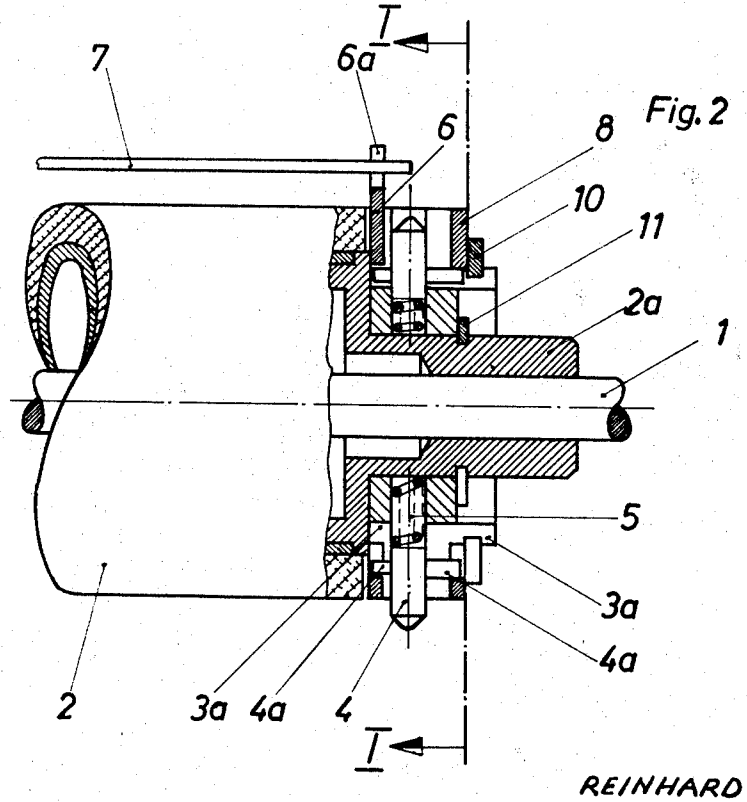



Fig. 2

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ARRANGEMENT FOR EFFECTING THE OPTIONAL IN-AND-OUT MOVEMENT OF GUIDE PINS ON TYPEWRITER PLATENS

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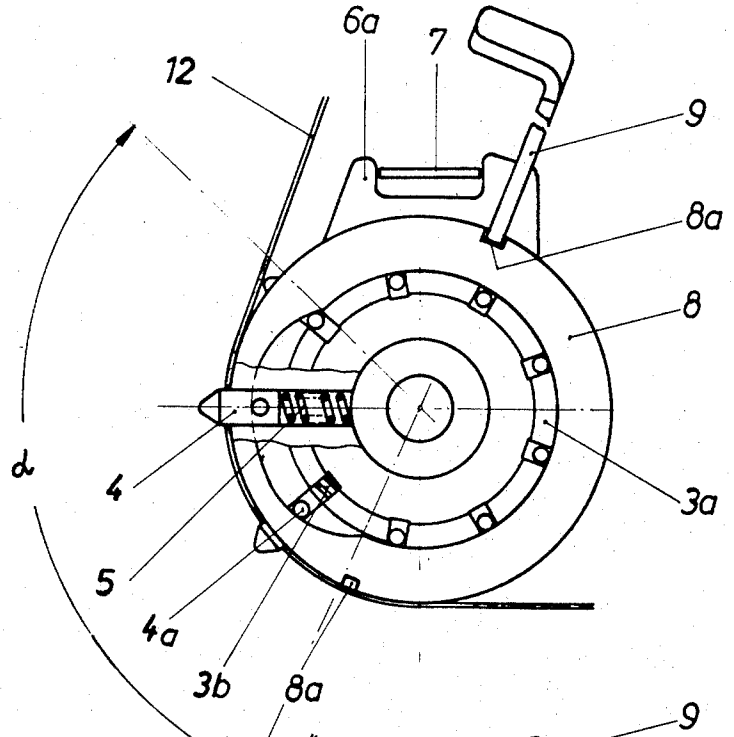



Fig. 3a

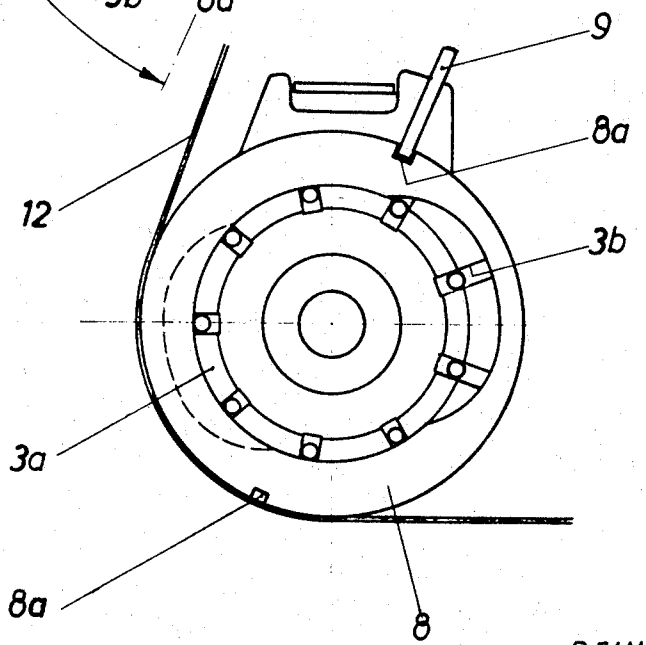



Fig. 3b

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3,410,469

# ARRANGEMENT FOR EFFECTING THE OPTIONAL IN-AND-OUT MOVEMENT OF GUIDE PINS ON TYPEWRITER PLATENS

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6 Claims. (Cl. 226—81)

## ABSTRACT OF THE DISCLOSURE

According to the arrangement, the guide pins are acted upon in the radial direction by springs, and project with their transversal bolts into the range of the curved tracks of two concentrically arranged cam plates. These curved tracks are congruent, and one of the cam plates can be turned so that the tracks can be brought into and out of congruence.

## BACKGROUND OF THE INVENTION

### *Field of the invention*

The present invention relates to an arrangement for effecting the optional in-and-out movement of guide pins which are provided on the platens of form-processing typewritters. The guide pins are positioned in a pinned ring capable of being radially displaced, and are provided with bolts which are arranged transversally in relation to the pin axis and serve as a torsional resistance and actuation means.

### *Description of the prior art*

One such arrangement is German Patent No. 1,920,424, in which the guide pins with their transversal bolts engage on one side of a common slotted disk and, on the other side, project into the range of action of a stationary connecting link guide. When readjusting the guide, the action of at least one radially influenced guide pin causes the readjustment of the common slotted disk, such that all guide pins are moved in and out in common.

There are a number of conventional arrangements in which the guide pins, via sideway grooves, are in a form-locking engagement with an oval cam plate. In accordance with the shape of this cam plate, the pins are caused to perform a radial movement during the platen rotation. In order to bring the guide pins into and out of operation in this case, the cam plate must be readjusted in relation to the platen. A modification of this type arrangement is proposed in U.S. Patent No. 2,815,672, in which the guide pins are arranged on a flexible steel tape which, due to a swivelled cam member, is capable of being brought from a concentrical rest position into an oval operating position.

All of these conventional arrangements are relatively expensive, and the complicated construction causes manufacturing difficulties. In addition, the control of the guide pins is such that the marginal perforation can be easily damaged whenever the different layers within the range of engagement of the guide pins are not exactly aligned with respect to one another.

### *Summary of the invention*

Therefore, the object of the present invention is to provide a guide pin arrangement which is simple in its construction and operation, and which insures a careful handling of the sheets of recording medium to be guided.

According to the broader aspects of the invention, the guide pins are provided with bolts arranged transversally



in relation to the pin axis for serving as a torsional resistance and actuating means, and are displaceably supported in a pinned ring. The guide pins are acted upin in the radial direction by springs and project with their transversal bolts into the range of the curved tracks of two concentrically arranged cam plates. These curved tracks are congruent, and one of the cam plates is capable of being turned so that the two curved tracks can be brought into and out of congruence. The guide pins within a certain curvature section are permitted to move out of the circumference of the cam plates to engage the paper feed holes.

### *Brief description of the drawings*

The invention will be described in detail with reference to an embodiment shown in FIGS. 1 to 3 of the accompanying drawings, in which:

FIG. 1 shows the end of a platen comprising the arrangement according to the invention;

FIG. 2 shows a sectional view of the arrangement according to the invention; and

FIGS. 3*a* and 3*b* show the arrangement in a sectional elevation taken on line I—I of FIG. 2, FIG. 3*a* showing the arrangement in its operative position and, FIG. 3*b* showing the arrangement in its non-operative position.

### *Description of preferred embodiment*

The constructional features of the invention are shown in FIGS. 1 and 2. Arranged in the usual way at both ends of the platen **2**, the arrangement substantially consists of a pinned ring **3** and two cam plates **6** and **8**. These plates are capable of rotating over the concentrical portion of their congruent inner cam plate (FIGS. 3*a* and 3*b*) on correspondingly set-off annular projections 3*a* of the pinned ring **3**. In the axial direction, the cam plates are guided by the plane surface of the platen **2** or by a spring ring **10**. The pinned ring **3**, is positioned on the concentrical or shoulder portion of the platen support **2***a*, and is on a form-locking connection therewith by a not shown locking-pin. The axial position is maintained by the employment of a spring ring **11**.

The pinned ring **3** is in a form-locking connection with the drive **13** or **14** via the shaft **1**, and the cam plate **6** is fixed in a predetermined position by the engagement of the fork-shaped projection **6***a* and a stationary bar **7**. The cam plate **8** is detachably connected with a stationary engaging lever **9** which, by a resilient engagement in engaging grooves **8***a* arranged on the circumference, can fix these grooves in at least two predetermined positions.

These cam plates **6** and **8**, are provided with congruent cam plates which, according to FIG. 3*a* and with the exception of an angle $\alpha$ extend concentrically. The angle $\alpha$, shown in FIG. 3*a*, represents the operating range of the cam plates **6** and **8** within which the guide pins **4** are brought into their operative position. This angular range $\alpha$, is chosen smaller than 180°, and the remaining cam plate section functions as a bearing surface.

The guide pins **4** are guided radially in recesses **3***b* of the pinned ring **3**, and are acted upon by compression springs **5**, as shown in FIG. 2. The guide pins **4** are provided with transversal bolts **4***a*, extending into the range of the cam plates **6** and **8**. Under the action of the springs **5**, the transversal bolts **4***a* are retained by one of the two curved tracks of the cam plates, depending on which of the two tracks has the smaller curved radius. As can be seen in FIG. 2, and due to the different diameters of the ends of the transversal bolts, the cam plate **6** has a priority position in this respect, the significance of which will be explained hereinafter.

With this arrangement it is very simple to bring the guide pins **4** either into or out of function, by turning of the outer cam plate **8**, which is determined by the

engaging grooves 8*a*, with respect to the stationary cam plate 6.

Cam plate 6, by the engagement between the stationary bar 7 and the fork-shaped projection 6*a*, is fixed in a position with its operating range $\alpha$, is shown in FIG. 3*a*, approximately to the centre of the area throughout which the recording medium 12 is adapted to the platen surface. With the outer cam plate 8, as shown in FIG. 3*a*, in the same position, the guide pins 4 enter the range of operation $\alpha$ in the course of the platen rotation. The transversal bolts 4*a* are capable under the action of the spring 5 to follow the respective curved track of the cam plate and extend in the radial direction out of the pinned ring 3 to engage the marginal perforation of the recording medium 12. If the perforation is not properly engaged, or if the effective opening of the perforation has become smaller due to the displacement of the paper layers, there will be no damage to the feed holes because the guide pins 4 resiliently give way, which is not possible in the case of stationary guide pins.

To withdraw the guide pins, the outer cam plate 8 must be turned at least by the angle of the operating range $\alpha$ with respect to the stationary cam plate bolts 4*a* indicated in FIG. 3*b*, one end of the transversal bots 4*a* is within the range of one or the other concentrical curved track section, so that all guide pins 4, during the platen rotation, will remain in the non-extended condition.

To prevent cam plate 8 from being turned by hand, the ends of the transversal bolts 4*a* associated with cam plate 8, are somewhat larger in diameter. With the exception of the transversal bolts 4*a* falling within the operating range $\alpha$, the bolts are always lying against the curved track of the cam plate 8 by the action of the springs 5. The friction is sufficient for readjusting the cam plate 8, in its released condition, together with turning the platen. The engaging lever 9 is brought out of engagement with the respective engaging grove 8*a*, for turning the platen 2 either in a machine-controlled manner via the line-switching wheel 13, or manually via the handwheel 14, the engaging lever 9 may be released again after the first partial rotation. On further turning of the platen, the engaging groove 8*a* which is the next one in the direction of rotation, will engage the projection of the engaging lever 9. Thus the cam plate 8 is automatically fixed in the desired position.

FIGS. 3*a* and 3*b* show two engaging grooves 8*a* which are displaced by 180°. It is conceivable, however, to provide the cam plate 8 with four engaging positions provided that the operating range $\alpha$ is not greater than 90°.

While I have described above the principles of my invention in connection with specific apparatus, it is to be clearly understood that this description is made only



by way of example and not as a limitation to the scope of my invention as set forth in the objects thereof and in the accompanying claims.

I claim:

1. An arrangement for effecting the in-and-out movement of guide pins on platens of form-processing typewriters, comprising:
   - a pinned ring in which the guide pins are supported in a radially displaceable manner;
   - a bolt for each of said guide pins, arranged transversally in relation to the pin axis for serving as a torsional resistance and actuating means;
   - a pair of concentrically arranged cam plates having curved tracks, one of said cam plates being stationary and the other one capable of being rotated; and
   - each of said guide pins being acted upon by a spring in the radial direction, such that the associated transversal bolt extends into the range of the curved tracks of said pair of cam plates.

2. An arrangement according to claim 1, wherein said curved tracks are inner cam plates which, with the exception of an operating range ($\alpha$), have a concentrical shape, with the diameter thereof corresponding to the annular projections provided on said pinned ring.

3. An arrangement according to claim 2, in which the guide pins within the operating range ($\alpha$) are released to perform a restricted radial movement.

4. An arrangement according to claim 2, wherein said rotatable cam plate is designed to be fixed in a position which is either congruent to said stationary cam plate, or which is rotated with respect to said stationary cam plate by an angular amount which is greater than the operating range ($\alpha$).

5. An arrangement according to claim 4, in which said rotatable cam plate is provided with engaging grooves, said grooves are engaged by a stationary engaging lever which is capable of being disengaged by hand.

6. An arangement according to claim 1, in which the diameter of said transversal bolt on the side cooperating with the rotatable cam plate is larger than the end cooperating with the rotatable cam plate is larger than the end cooperating with said stationary plate.


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