

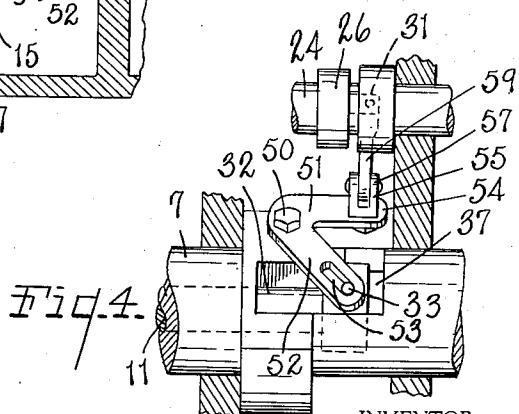
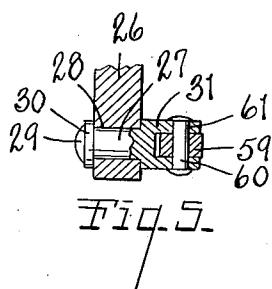
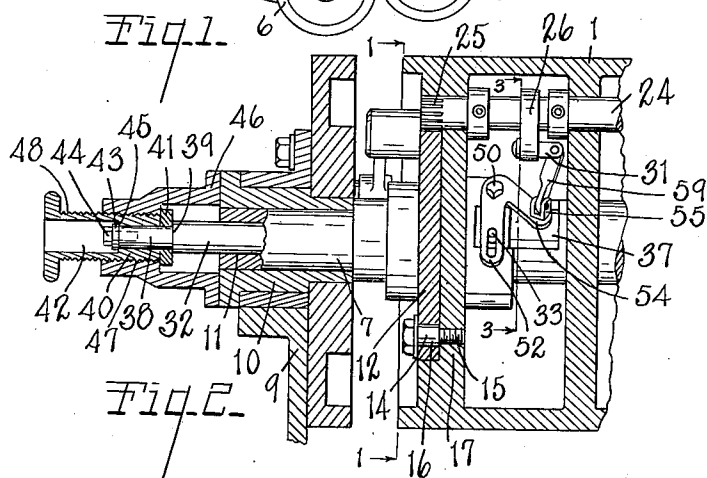
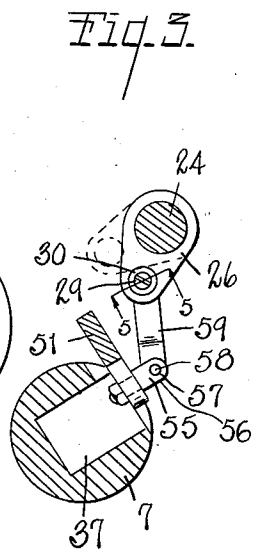
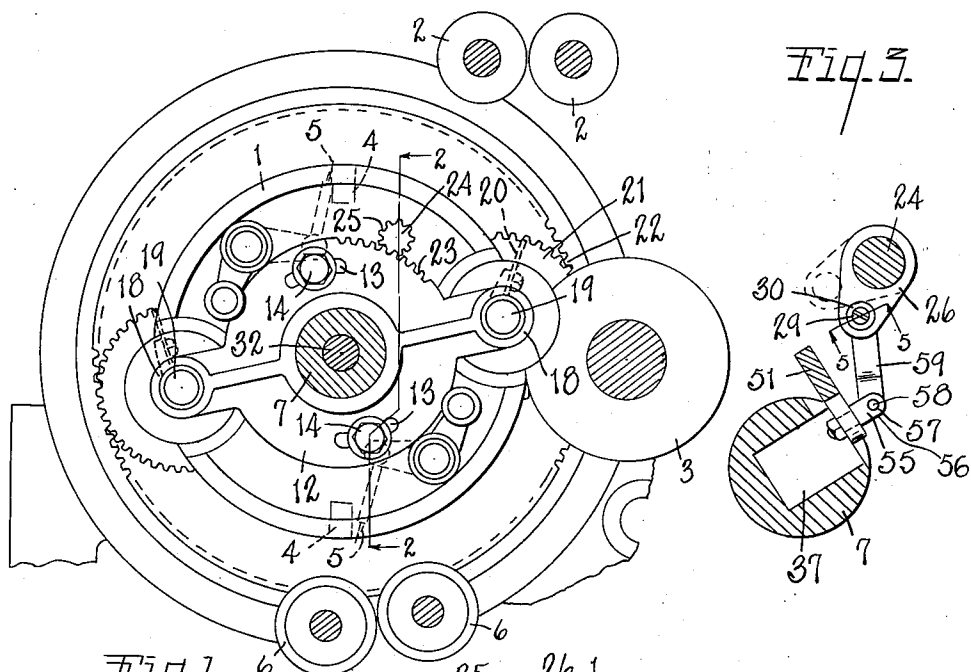
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ROTARY FOLDING MECHANISM

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ROTARY FOLDING MECHANISM

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3 Claims. (Cl. 270—77)

This invention relates to rotary folding mechanism and particularly to such folding mechanism adapted for use in folding newspapers printed on rotary web presses and relating to the structure shown in Letters Patent 1,203,464, issued October 31, 1916, to Henry F. Bechman, for Rotary folding mechanism. This invention has for its objects:

First, to provide a mechanism for adjusting the folding mechanism with reference to the cut-off mechanism.

Second, to provide such an apparatus which may be adjusted while the press is in operation, and which is simple and effective in operation, and may be economically made.

Objects and advantages relating to details of construction and operation will appear from the detailed description to follow. The invention is defined in the claims. A structure embodying my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a view partly in section, showing an improved rotary folding mechanism with my device thereon.

Fig. 2 is a sectional view, taken on line 2—2 of Fig. 1.

Fig. 3 is a detail sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is a detail view in section, showing the mechanism shown in Fig. 2 in a different position.

Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 3.

Referring to the drawing, 1 is the folding cylinder, 2 are the nipper rolls, and 3 is the male cutting roll, having a blade which cooperates with the rubber strip 4. 5 are the retractible pins for carrying the paper around the roll, and 6 are the folding rolls. These devices are all conventional and need not be described in detail.

The folding cylinder 1 is mounted on a shaft 7, which is journaled in the frame 9 of the apparatus, and a bushing 10 is provided to serve as a bearing for the shaft. The shaft 7 is provided with an axial bore 11. A plate 12 is mounted at each end of the cylinder and similar intermediate plates may be provided if desired. The plate 12 is arranged to be rotated with the cylinder and is provided with arcuate slots 13 through which headed studs 14 project, being screw threaded as at 15 into the end of the cylinder, and providing such clearance between the head 16 of the stud and the end 17 of the cylinder as to permit the plate to move with reference to the cylinder

but providing sufficient friction to hold the plate in adjusted position.

The plate carries bearings 18 in which are journaled shafts 19 which carry tucker blades 20 and gears 21 which are in mesh with the internal gear 22 for rotating the tucker blades as the cylinder and plate rotate together. On the edge of the plate are provided gear teeth 23. A shaft 24 extends through the cylinder parallel with the shaft 7. This shaft 24 is provided with gear teeth 25 at the end thereof in mesh with the gear teeth 23 on the edge of the plate 12, so that rotation of the shaft 24 will, through the meshing of the gear teeth 23 and 25, adjust the position of the plate 12 rotatorily with reference to the cylinder 1. Each plate may be provided with gear teeth similar to the gear teeth 23, and the shaft 24 may be provided with intermeshing teeth similar to the gear teeth 25.

A crank arm 26 is provided on the shaft 24. At its free end is provided a swivel connection 27 mounted in the aperture 28 and held in place by a screw 29 and a washer 30. At the other end is provided a fork 31.

Within the bore 11 I provide a control rod 32, free for axial movement in the bore 11. At the inner end of the rod 32 the shaft 7 is cut away, as at 37, so that the pin 33 on the rod may extend through the opening 37 to engage the operating parts of my device. At the outer end of the control rod 32 I provide a neck 38 which provides a shoulder 39 to engage a shifting element 40 which is swiveled on the neck 38 of the rod 32 with a running fit. The inner end of the shifting element, through a washer 41, abuts against the shoulder or seat 39 on the end of the control rod 32. A bore 42 is provided in the shifting element 40, and a cap 43 is bolted with bolt 44 on the end of the control rod 32. This cap serves as a seat to engage the shoulder 45 on the shifting element 40. A screw-threaded mounting 46 is provided on the frame 9, having screw threads 47 engaging the screw threads 48 on the shifting element 40, so that turning the shifting element 40 will move the control rod 32 axially in the bore 11 while the cylinder 1 is rotating.

A bolt 50 is provided in the cylinder having its axis extending at right angles to the axis of the control rod 32. A bell crank 51 is pivoted on the bolt 50. One end 52 of the bell crank is provided with a slot 53 into which the pin 33 extends, so that a sliding connection between the bell crank 51 and the control rod 32 is provided so that movement of the control rod axially in

the bore 11 operates the bell crank by rotating it about the bolt 50. The other end 54 of the bell crank 51 is provided with a swivel connection 55 formed with a fork 56 provided with an aperture 57 for a pin 58. A link 59 is provided, one end of the link being apertured for the pin 58 and fastened in the fork 56. The other end of the link is apertured to fit in the fork 31 on the crank arm 26 where it is held by a pin 60 passing through the aperture 61 in the fork 31.

The operation of my device is as follows: When it is desired to shift the tucker blades 20 with reference to the folding cylinder 1, movement of the shifting element 40 causes an axial movement of the control rod 32. In Fig. 2 I show the control rod pulled out which will place the parts in the position there shown. In Fig. 4 I show the control rod pushed in, putting the bell crank 51 in the position shown. This movement pushes through the link 59 against the crank arm 26, rotating the shaft 24 in a clockwise direction, when viewed in Fig. 1, which will tend to move the tucker blades rotatorily with reference to the cylinder 1. Any intermediate position can be attained, and two positions of the device are shown, one in full lines and one in dotted lines in Fig. 3. It will be appreciated that without stopping the cylinder it is possible to adjust the position of the tucker blades and that this is accomplished through a very simple mechanism which can be made inexpensively and which will operate positively.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a folding apparatus of the class described, the combination of a frame, a rotary folding cylinder journaled in said frame and having an axial bore, plates associated with said cylinder for rotation therewith, said plates carrying rotary tucker blades, a shaft in said cylinder substantially parallel to the axis thereof, gearing between said shaft and said plates for rotatorily adjusting the position of said plates with reference to said cylinder, a crank arm on said shaft, a control rod in the axial bore in said cylinder movable axially thereof and extending therefrom, a bell crank pivoted in said cylinder on an axis at right angles to the axis of said control rod, a slotted connection between the inner end of said control rod and one end of said bell crank, a link having one end swiveled to the other end of said bell crank, said link having its other end swiveled

to the free end of said crank arm, and means on the outer end of said control rod for shifting said control rod axially in said bore while said cylinder is rotating, whereby the position of said plates may be adjusted while said cylinder and plates are rotating.

2. In a folding apparatus of the class described, the combination of a frame, a rotary folding cylinder journaled in said frame and having an axial bore, plates associated with said cylinder for rotation therewith, said plates carrying rotary tucker blades, a shaft in said cylinder substantially parallel to the axis thereof, gearing between said shaft and said plates for rotatorily adjusting the position of said plates with reference to said cylinder, a crank arm on said shaft, a control rod in the axial bore in said cylinder movable axially thereof and extending therefrom, a bell crank pivoted in said cylinder on an axis at right angles to the axis of said control rod, a connection between the inner end of said control rod and one end of said bell crank whereby axial movement of said control rod will actuate said bell crank about its pivot, a link having one end swiveled to the other end of said bell crank, said link having its other end swiveled to the free end of said crank arm, and means on the outer end of said control rod for shifting said control rod axially in said bore while said cylinder is rotating, whereby the position of said plates may be adjusted while said cylinder and plates are rotating.

3. In a folding apparatus of the class described, the combination of a frame, a rotary folding cylinder journaled in said frame and having an axial bore, plates associated with said cylinder for rotation therewith, said plates carrying rotary tucker blades, a shaft in said cylinder substantially parallel to the axis thereof, gearing between said shaft and said plates for rotatorily adjusting the position of said plates with reference to said cylinder, a crank arm on said shaft, a control rod in the axial bore in said cylinder movable axially thereof and extending therefrom, a connection between the end of the crank arm and the control rod including a link whereby axial movement of said control rod rotates said shaft, and means on the outer end of said control rod for shifting said control rod axially in said bore while said cylinder is rotating, whereby the position of said plates may be adjusted while said cylinder and plates are rotating.

GODFREY H. SCHMIDT.