Feb. 2, 1954 T. R. ZIEBELL 2,667,832

MEANS FOR SECURING PRINTING PLATES TO THEIR CYLINDERS

Filed Nov. 2, 1951

FIG. 1

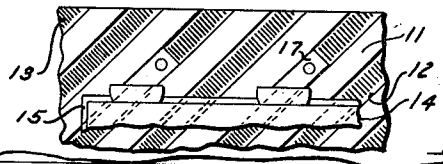


FIG. 2

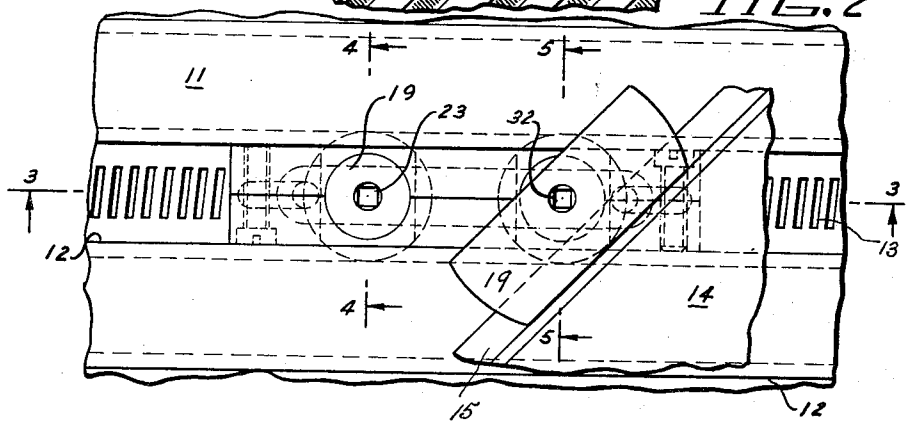


FIG. 3

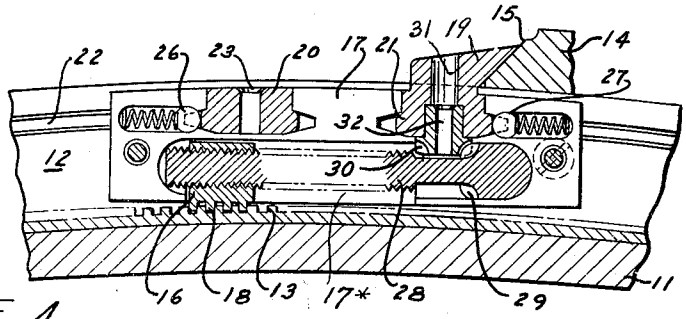


FIG. 4

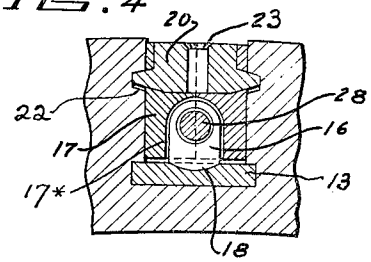


FIG. 5

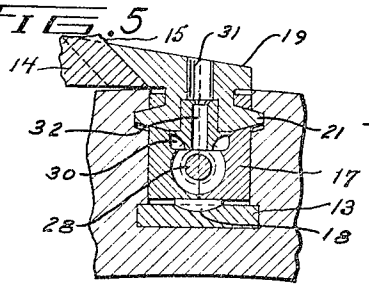


FIG. 6

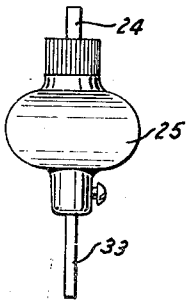
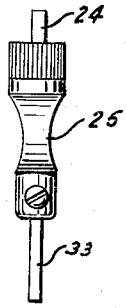


FIG. 7



INVENTOR.
Theodore R. Ziebell
BY
Brown & Brown
Attorneys

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MEANS FOR SECURING PRINTING PLATES TO THEIR CYLINDERS

Theodore R. Ziebell, Milwaukee, Wis., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., a corporation of Delaware

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8 Claims. (Cl. 101—378)

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This invention relates to means for securing printing plates to their cylinders.

In plate securing means used in high speed rotary presses where the plate hooks are propelled along the cylinder grooves to and from their plate engaging positions by worm gears carried by the hooks and engaging the cylinder racks, the cylinder racks frequently become worn and broken because of the necessarily limited engagement of only one or two of the teeth of the worm gears with the teeth of the cylinder racks.

This invention is directed to means for overcoming these rack failures by providing a plate hook comprising coacting stationary and movable members, the stationary member having a row of teeth for extended engagement with the teeth of a cylinder rack to prevent endwise movement of the stationary member; the jaw carrying movable member being slidable along the stationary member to secure the plate to its cylinder.

This invention is also directed to novel features of construction whereby the manually operated adjusting screw which connects the stationary and movable hook members is rotatably mounted against endwise movment in the movable hook member and has a screw threaded engagement with the stationary member.

This invention is also directed to a plate hook in which gearing is provided for operatively connecting the adjusting screw with a removable key or other suitable instrument.

A practical embodiment of my invention is represented in the accompanying drawings, in which

Fig. 1 represents a detail plan view showing a portion of printing plate secured to its cylinder;

Fig. 2 represents a similar view on a much larger scale;

Fig. 3 represents a detail longitudinal section taken in the plane of the line 3—3 of Fig. 2;

Fig. 4 represents a detail cross section taken in the plane of the line 4—4 of Fig. 2;

Fig. 5 represents a detail cross section taken in the plane of the line 5—5 of Fig. 2;

Fig. 6 represents a side view of a key suitable for use in operating the movable hook member and for turning one of the locks which slidably hold the movable member in its cylinder groove; and

Fig. 7 represents an edge view of the said key.

The grooved base on which the printing plates are to be secured is shown as a plate cylinder 11 having spaced undercut grooves 12 provided along their bottoms with toothed racks 13.

The curved printing plate 14 is shown as provided with a bevel edge 15.

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The plate hook for use in securing the printing plate 14 on the cylinder 11 is shown as comprising a stationary member 16 and a movable member 17.

The stationary member 16 is shown as provided with a row of teeth 18 along its bottom for extended engagement with the teeth of the cylinder groove rack 13 to lock the stationary member against endwise movement along the cylinder groove 12 when the plate hook has been inserted into the said groove at the desired position along the same adjacent the bevel edge 15 of the printing plate 14.

The movable member 17 of the plate hook carries a plate engaging jaw 19 for securing the plate on the cylinder under compression. This movable member 17 has a longitudinal bottom groove 17* which houses the stationary member 16; the said walls of the said groove slidably engaging the side walls of the stationary member.

The manually operated means for slidably holding the movable member 17 in its cylinder groove 12 is shown as a pair of turnable double winged locks 20, 21 mounted near the ends of the said movable member and arranged to be turned into and out of the small grooves 22 along the side walls of the cylinder groove 12. The turnable lock 21 is formed integral with the plate engaging jaw 19. The turnable lock 20 is shown as having an angular bore 23 for receiving the shank 24 of a suitable key 25 for turning the said lock into and out of its sliding engagement with the side grooves 22.

The turnable lock 21 of the combined jaw and lock 19, 21 may be turned into and out of sliding engagement with the side grooves 22 by manually turning the jaw 19.

The usual spring pressed balls 26, 27 may be employed to frictionally engage the locks 20 and 21 to yieldingly hold them in their withdrawn and extended positions.

The manually operated means for sliding the movable hook member along the stationary hook member 16 which is housed therein is constructed, arranged and operated as follows:

An adjusting screw 28 operatively connects the two hook members 16, 17, the head of the said screw being rotatably mounted against endwise movement in the movable member 17 and the threaded shank of the said screw being passed through and having a screw threaded engagement with the stationary member 16 of the said hook within said bottom groove 17*.

The adjusting screw 28 has integral therewith a bevel gear 29 which meshes with a bevel gear 30, whose shank is rotatably mounted in the en-

larged portion of the axial bore 31 through the combined jaw and lock 19, 21. This bevel gear 30 has a small axial angular bore 32 for receiving the shank 33 on key 25 which may be inserted through the bore 30 into said bore 32 for turning the bevel gear 30.

In operation, the plate hooks are inserted into the cylinder grooves 12 in proper positions to cause the rows of teeth 18 of the stationary hook member 16 to bring the plate jaws 19 carried by the movable hook member 17 into close proximity to the bevel edges 15 of the printing plate 14. The jaw 19 of each plate hook may then be turned to cause its double winged lock 21 to slidably engage the side grooves 22. The shank 24 of the key 25 may then be inserted into the angular bore 23 to turn the double winged lock 20 to also slidably engage the side grooves 22. The shank 33 of the key 25 may then be inserted into the angular bore 32 of the gear 30 to turn it and its meshing gear 29, which is integral with the adjusting screw 28, and thereby cause the screw, because of its threaded engagement with the stationary hook member 16, to slide the movable hook member 17 along the stationary hook member 16 to bring the bevel edge of the plate hook jaw 19 into engagement with the bevel edge 15 of the plate 14 to hold the plate firmly on the cylinder under compression. It will be understood that while the plate holding means is herein shown and described in association with a curved printing plate and a spirally grooved cylinder, the plate holding means may be employed in connection with plates and their bases of any character within the scope of this invention.

It is evident that various changes may be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of this invention and hence it is not intended to be limited to the particular embodiment shown and described herein.

What I claim is:

1. A cylinder having spaced grooves, a printing plate and a plate hook, said plate hook comprising a stationary member having means for locking it in a cylinder groove against endwise movement, a movable member having a longitudinal bottom groove housing the stationary member, a plate engaging jaw carried by the movable member, a screw located in said bottom groove and operatively connecting the two members and a manually operated gearing for rotating the screw to slide the movable member along the stationary member housed therein for securing the plate on its cylinder.

2. A cylinder having spaced grooves, a printing plate and a plate hook, said plate hook comprising a stationary member having means for locking it in a cylinder groove against endwise movement, a movable member having a longitudinal bottom groove housing the stationary member, a plate engaging jaw carried by the movable member, a screw located in said bottom groove and rotatably mounted against endwise movement in the movable member and threaded into the stationary member, a gear integral with said screw, and a manually operated meshing gear carried by the movable member for rotating the screw to slide the movable member along the stationary member housed therein for securing the hook on its cylinder.

3. A cylinder having spaced grooves, a printing plate and plate hook, said plate hook comprising a stationary member having means for locking it in a cylinder groove against endwise movement, a movable member having a longitudinal bottom groove housing the stationary member, a plate engaging jaw carried by the movable member, means for slidably holding the movable member in its groove, a screw located in said bottom groove and operatively connecting the two members and a manually operated gearing for rotating the screw to slide the movable member along the stationary member housed therein to secure the plate on its cylinder.

4. A cylinder having spaced grooves, a printing plate and a plate hook, said plate hook comprising a stationary member having means for locking it in a cylinder groove against endwise movement, a movable member having a longitudinal bottom groove housing the stationary member, a plate engaging jaw carried by the movable member, means for slidably holding the movable member in its groove, a screw located in said bottom groove and rotatably mounted against endwise movement in the movable member and threaded into the stationary member, a gear integral with the said screw and a manually operated meshing gear for turning the screw to slide the movable member along the stationary member housed therein for securing the plate on its cylinder.

5. A cylinder having spaced undercut grooves provided with toothed racks, a printing plate and a plate hook comprising a stationary member having a row of teeth for extended engagement with one of said racks for locking it against endwise movement in one of said cylinder grooves, a movable member having a longitudinal bottom groove housing the stationary member and provided with two manually turnable locks for slidably holding the hook in its cylinder groove, a plate engaging jaw carried by one of the said locks, and key operated means for sliding the movable member along the stationary member housed therein to secure the plate on its cylinder, said key operated means comprising a screw located in said bottom groove and operatively connecting the two members, a gear integral with the screw and a key engageable meshing gear carried by one of the locks.

6. A cylinder having spaced undercut grooves provided with toothed racks, a printing plate and a plate hook comprising a stationary member having a row of teeth for extended engagement with one of said racks for locking it against endwise movement in one of said cylinder grooves, a movable member having a longitudinal groove housing the stationary member and provided with two manually turnable locks for slidably holding the hook in its cylinder groove, a plate engaging jaw carried by one of the said locks, and key operated means for sliding the movable member along the stationary member housed therein to secure the plate on its cylinder, said key operated means comprising a screw located in said bottom groove and operatively connecting the two members, a gear integral with the screw and a key engageable meshing gear carried by the combined lock and jaw.

7. A printing plate hook comprising a stationary member having means for locking it in a plate cylinder groove against endwise movement therein, a movable member having a longitudinal bottom groove housing the stationary member and provided with two manually turnable locks and a plate engaging jaw combined with one of said locks, a screw located in said bottom groove and operatively connecting the two members, a gear integral with the screw, and a key engage-

able meshing gear rotatably mounted in said combined jaw and lock.

8. A printing plate hook comprising a stationary member provided with a row of teeth for extended engagement with a plate cylinder groove rack to lock the stationary member against endwise movement therein, a movable member having a longitudinal bottom groove housing the stationary member and provided with two manually turnable locks and a plate engaging jaw combined with one of said locks, a screw located in said bottom groove and operatively connecting the two members, a gear integral with the screw, and a key engageable meshing gear rotatably mounted in said combined jaw and lock.

THEODORE R. ZIEBELL.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
809,229	Storm	Jan. 2, 1906
838,039	Miehle	Dec. 11, 1906
998,447	Andrews	July 18, 1911
1,208,721	Rockstroh	Dec. 12, 1916
1,348,663	Pitt et al.	Aug. 3, 1920
1,619,650	Brugmann	Mar. 1, 1927
2,224,555	Sweet	Dec. 10, 1940
2,465,252	Meyer	Mar. 22, 1949