March 22, 1949. J. E. MEYER 2,465,252

PRINTING PLATE STOPS FOR SPIRALLY GROOVED CYLINDERS

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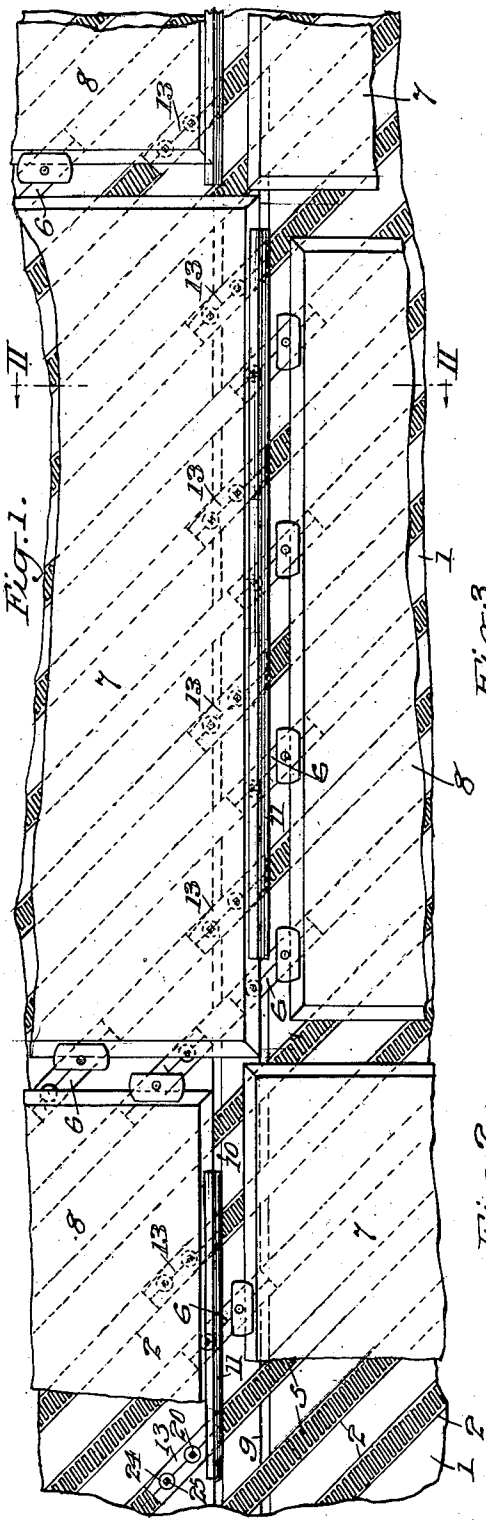


Fig. 1.

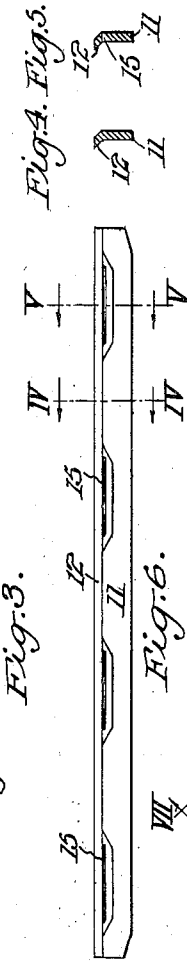


Fig. 3.

Fig. 4.

Fig. 5.

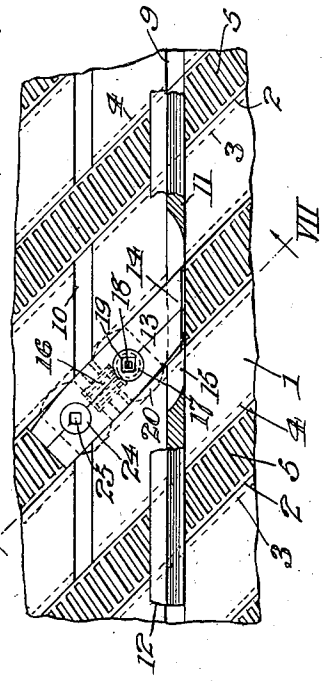


Fig. 6.

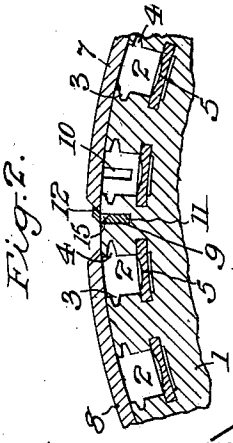


Fig. 2.

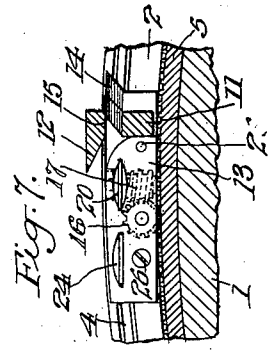


Fig. 7.

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Fig. 8.

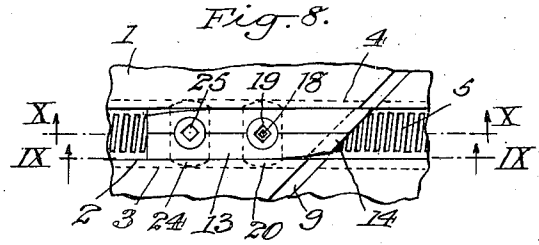


Fig. 9.

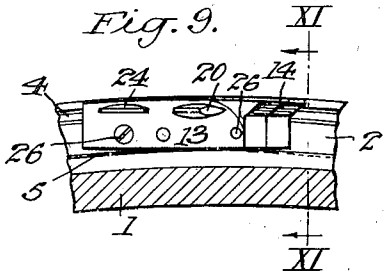


Fig. 11.

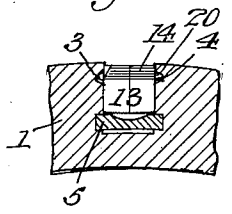


Fig. 10.

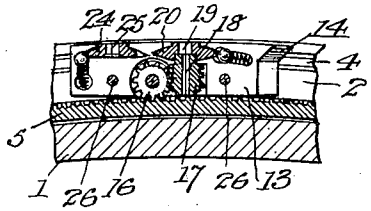


Fig. 15.

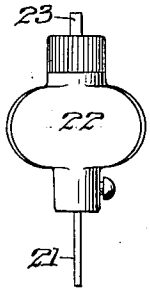


Fig. 16.

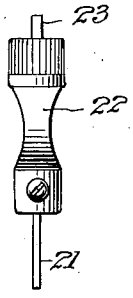


Fig. 12.

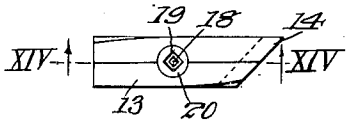


Fig. 13.

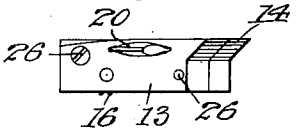
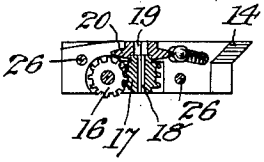


Fig. 14.



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Patented Mar. 22, 1949 2,465,252

UNITED STATES PATENT OFFICE

2,465,252

PRINTING PLATE STOPS FOR SPIRALLY GROOVED CYLINDERS

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Application February 1, 1946, Serial No. 644,688

7 Claims. (Cl. 101—388)

1

In rotary printing presses running at high speeds and employing spirally grooved cylinders it has been found desirable to provide fixed driving stops for the printing plates, which stops are located in position to prevent any slight circumferential creeping or shifting movement of the printing plates due to the crowd of printing pressure on the said plates.

The object of my invention is to provide effective means for removably seating these plate stops in the cylinder, and to provide suitable means for locking the stops to the cylinder.

My invention includes blade-like stops seated in narrow straight grooves which intersect the spiral grooves in the cylinder, said narrow straight grooves being parallel with the axis of rotation of the cylinder, novel devices being provided for locking the stops to the cylinder.

My invention also includes the arrangement of the narrow straight grooves in pairs so that the plate stops may be used as driving stops for clamping the rear edges of circumferentially longer and shorter full length plates, as bleed and non-bleed plates, to the cylinder.

My invention also includes providing the stop clamps with manually operated propelling means whereby the clamps may be moved along the spiral grooves into positions to engage the driving stops for clamping them to the cylinder at predetermined intersections of the spiral and narrow straight grooves.

My invention includes more specifically in providing the blade-like driving stops with elongated tapered slots spaced along the same and providing the stop clamps with diagonally disposed beveled noses arranged in position to enter said slots and thereby wedge the stops down into their narrow straight grooves for clamping the stops to the cylinder against displacement thereon.

My invention also includes the provision of manually operated locks mounted in the stop clamps in position to be turned to secure the clamps firmly to the cylinder in their stop locking positions.

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

Fig. 1 represents a detail plan view of a cylinder having spaced spiral grooves intersected by narrow straight grooves circumferentially longer and shorter full size printing plates being shown clamped to the cylinder in staggered order;

Fig. 2 represents a section taken in the plane of the line II—II of Fig. 1;

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Fig. 3 represents a front view of one of the plate stops;

Fig. 4 represents a section taken in the plane of the line IV—IV of Fig. 3;

Fig. 5 represents a section taken in the plane of the line V—V of Fig. 3;

Fig. 6 represents, on an enlarged scale, a detail plan view partly in section of the cylinder with the printing plate removed to show more clearly the fixed removable driving stop and its locking clamp;

Fig. 7 represents a section taken in the plane of the line VII—VII of Fig. 6;

Fig. 8 represents a detail plan view of the cylinder and one of the stop locking clamps;

Fig. 9 represents a section taken in the plane of the line IX—IX of Fig. 8;

Fig. 10 represents a section taken in the plane of the line X—X of Fig. 8;

Fig. 11 represents a cross section taken in the plane of the line XI—XI of Fig. 9;

Fig. 12 represents a plan view of a stop locking clamp having a single locking means;

Fig. 13 represents a side view of the same;

Fig. 14 represents a section taken in the plane of the line XIV—XIV of Fig. 12;

Fig. 15 represents a side view of a key designed to propel and lock the stop locking clamp; and

Fig. 16 represents an edge view of the key.

The plate cylinder 1 is shown as having the usual annular series of equally spaced spiral grooves 2 with their side grooves 3 and 4 and bottom racks 5.

The plate clamps 6 which form a part of the means for securing the printing plates to the cylinder 1 may be of any well known or approved type, such, for instance, as that shown in the United States patent to Sweet dated December 10, 1940, and numbered 2,224,555.

My invention is herein shown as used in connection with full sized printing plates 7 and 8 of greater and lesser circumferential lengths, as, for instance, bleed and non-bleed plates, arranged in staggered order on the spirally grooved cylinder. In this arrangement the cylinder 1 has an annular series of pairs of adjacent narrow straight grooves 9 and 10 which intersect the spiral grooves 2, one pair only of these narrow straight grooves being shown in the accompanying drawings.

The means which I have shown for preventing the circumferential creeping or shifting movement of the printing plates on the cylinder includes the following elements.

Fixed thin blade-like stops 11 are removably

seated in the narrow straight groove 9 in position to engage the alined rear edges of the longer printing plates 7 and to act as driving stops therefor. Other similar driving stops 11 are removably seated in their straight narrow groove 10 in position to engage the alined rear edges of the shorter printing plates 8.

It will be noted that these blade-like plate stops 11 extend approximately the widths of their respective printing plates and that these stops are provided with beveled surfaces 12 along their outer edges for overlapping the beveled rear edges of their respective printing plates to clamp them to the cylinder.

The means which I have provided for locking the driving stops 11 to the cylinder 1 against displacement thereon includes a plurality of stop engaging and locking clamps 13 which slidably fit with and are manually propelled along the spiral grooves 2 into and out of interlocking engagement with the plate stops 11 at predetermined intersections of the spiral and straight grooves, as follows.

These stop locking clamps 13 are provided with diagonally disposed noses 14 projecting from the leading ends of the clamps, said noses having beveled undersides and being preferably slightly tapered to readily enter elongated correspondingly tapered elongated slots 15 spaced along the plate stops 11 to match the groove intersections and force the stops down into their narrow straight grooves for securing the stops fixedly to the cylinder. These elongated slots 15 are shown, in the present instance, as spaced apart so that the stops may be so seated in their narrow straight grooves that the said slots 15 will be positioned at the intersections of the narrow straight grooves with every second spiral groove 2, to permit the stop clamps 13 to be moved along the said spiral grooves 2 to bring their beveled noses 14 into engagement with said elongated slots 15 at said groove intersections.

These clamps 13 are shown as manually propelled along within the spiral grooves 2 and locked to the cylinder in their stop locking positions, as follows.

A rack engaging worm gear 16 is mounted in each of the clamps 13 in position to be driven by a worm 17 also mounted in the clamp. The smaller non-circular bore 18 of the worm 17 opens, through the larger non-circular bore 19 of a two-winged lock 20, to the top of the clamp, for the reception of the smaller non-circular shank 21 of a key 22, the turning of which key serving, in this instance, to rotate the worm and worm gear to coact with the rack 5 to move the clamp along its circular groove 2 into and out of its stop locking position.

The two wings of the lock 20 may be turned into locking engagement with the side grooves 3 and 4 of the spiral groove 2 for locking the clamp 13 to the cylinder. This is accomplished by the insertion of a larger sized non-circular shank 23 of the key 22 into the larger non-circular bore 19 of the said lock, and the turning of the said key.

A second two-winged lock 24 is shown as mounted in the clamp 13, the non-circular bore 25 of which lock opens through the top of the clamp where it may be engaged by the non-circular shank 23 of the key 22, to be turned into and out of its locking engagement with the walls of the side grooves 3 and 4.

If desired, the second two-winged lock may be omitted, as shown in Figs. 12 to 14 inclusive. It will be noted that the stop clamps 13 are shown as divided longitudinally into half members for permitting the ready mounting of the propelling and locking elements contained therein, suitable screws 26 being provided for fastening these two half members together.

It will also be noted that the tops of the stop clamps 13 do not project beyond the periphery of the cylinder where they would interfere with the desired positioning of the printing plates on the cylinder.

It will be understood that before a printing plate is positioned on the cylinder the fixed stop 11 is seated in its narrow straight groove and locked rigidly to the cylinder by the clamps 13. The printing plate may then be positioned on the cylinder with its rear edge engaged by the said stop. The usual plate clamps 6 may then be inserted into their required spiral grooves and propelled or otherwise moved along the same into clamping engagement with the remaining edges of the plate. This procedure may be repeated until the plating of the cylinder is completed.

It will also be noted that the narrow straight grooves are shallower than the spiral grooves 2 so as not to interfere with the racks 5 therein.

While I have shown the narrow straight grooves in the cylinder arranged in pairs for the seating of driving stops for circumferentially longer and shorter full sized printing plates it is obvious that where the full sized printing plates are all of the same circumferential length one only of each pair of these narrow straight grooves would be used for seating the plate driving stops.

It will also be evident that either the clamps provided with two locks, as shown in Figs. 1 to 10 inclusive, or the clamps provided with a single lock as shown in Figs. 12 to 14 inclusive may be used, or a combination of the clamps.

Where the printing plates are irregular or not of full size the fixed plate stops and their clamps may be omitted and the usual plate clamps may be used all around the printing plates, the straight grooves being narrow enough to prevent the material of the plates from dropping down into said groove and thus interfering with the printing surface of the said plates.

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 my invention, and hence I do not intend to be limited to the particular embodiment herein shown and described, but what I claim is:

1. A cylinder having an annular series of spiral grooves and a narrow straight groove intersecting the spiral grooves and means for clamping a printing plate to the cylinder including a fixed plate stop removably seated in said narrow straight groove in position to clamp the rear edge of the printing plate to the cylinder, and devices located at predetermined intersections of the said spiral and narrow straight grooves along the rear edge of the printing plate for locking the plate stop to the cylinder.

2. A cylinder having an annular series of spiral grooves and a pair of adjacent narrow straight grooves intersecting the spiral grooves and means for clamping full size printing plates of greater and lesser circumferential lengths to the cylinder including fixed plate stops removably seated in the narrow straight grooves in positions to clamp the rear edges of their respective printing

plates to the cylinder, and clamps located in the spiral grooves for engaging the plate stops at predetermined groove intersections to lock the plate stops to the cylinder.

3. A cylinder having an annular series of spiral grooves and an annular series of narrow straight grooves intersecting the spiral grooves and means for clamping printing plates to the cylinder including fixed plate stops removably seated in the narrow straight grooves in positions to clamp the rear edges of the printing plates to the cylinder, and clamps located in the spiral grooves for engaging the plate stops at predetermined groove intersections to lock the plate stops to the cylinder.

4. A cylinder having an annular series of spiral grooves and an annular series of pairs of narrow straight grooves intersecting the spiral grooves and means for clamping full size printing plates of greater and lesser circumferential lengths to the cylinder including fixed plate stops removably seated in the narrow straight grooves in positions to clamp the rear edges of their respective printing plates to the cylinder, and clamps located in the spiral grooves for engaging the plate stops at predetermined groove intersections to lock the plate stops to the cylinders.

5. A cylinder having an annular series of spiral grooves and a narrow straight groove intersecting the spiral grooves and means for clamping printing plates to the cylinder including fixed plate stops of blade-like form removably seated in the straight narrow grooves, said stops having slots spaced along the same to match predetermined groove intersections, and clamps located in said spiral grooves provided with noses for engaging said slots to lock the stops to the cylinder.

6. A cylinder having an annular series of spiral grooves and a narrow straight groove intersecting the spiral grooves and means for clamping printing plates to the cylinder including fixed plate stops of blade-like form removably seated in the straight narrow groove, said stops having slots spaced along the same to match predetermined groove intersections, and clamps located in said spiral grooves and provided with diagonally disposed noses engaging said slots for locking the stops to the cylinder.

7. A cylinder having an annular series of spiral grooves and a narrow straight groove intersecting the spiral grooves and means for clamping printing plates to the cylinder including fixed plate stops of blade-like form removably seated in the straight narrow groove, said stops having slots spaced along the same to match predetermined groove intersections, and clamps located in said spiral grooves and provided with diagonally disposed beveled noses engaging said slots for locking the stops to the cylinder.

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