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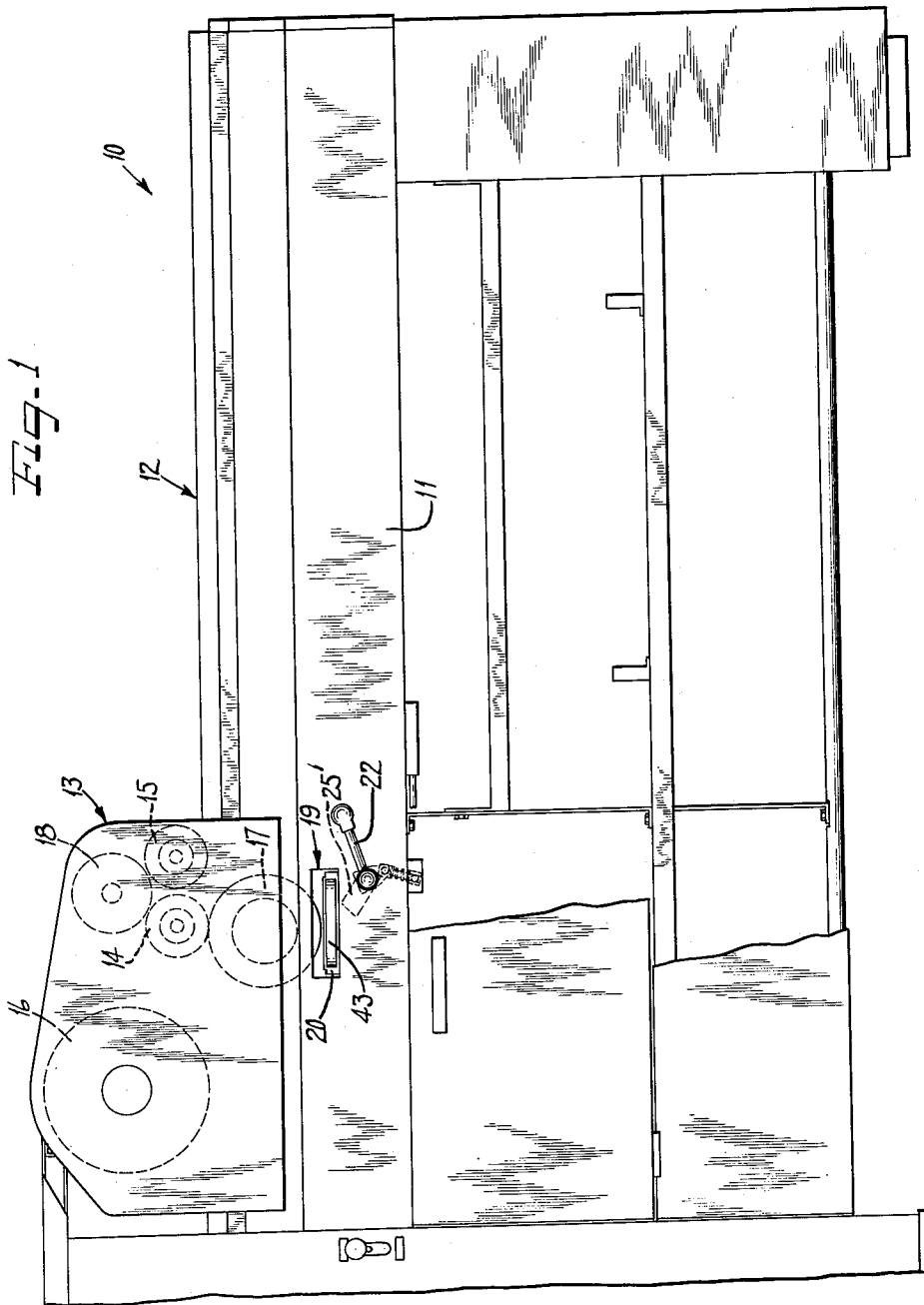
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2,985,103

AUTOMATIC INKING SYSTEM WASH-UP

Filed Aug. 21, 1958

3 Sheets-Sheet 1



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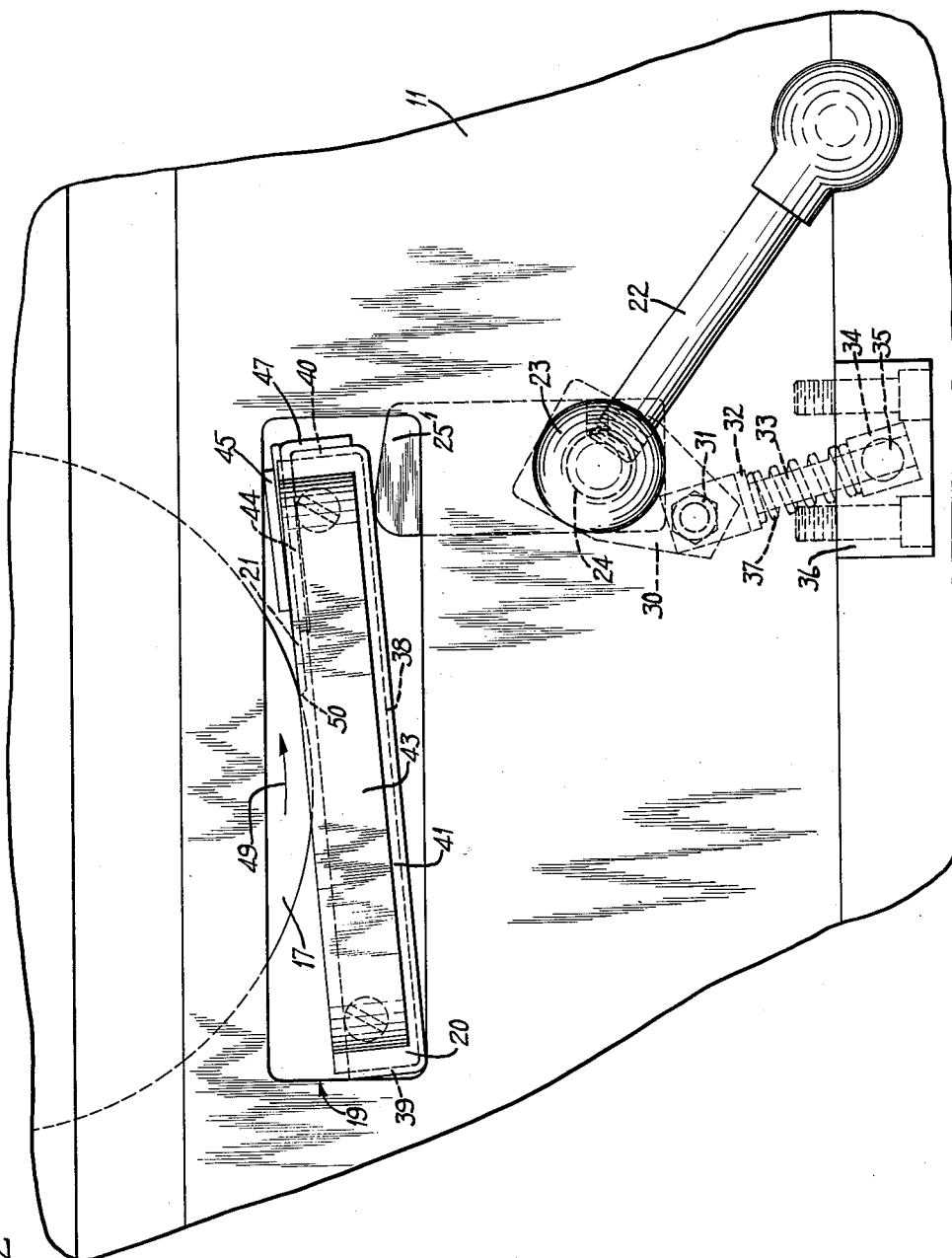
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Fig. 2



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Fig-3

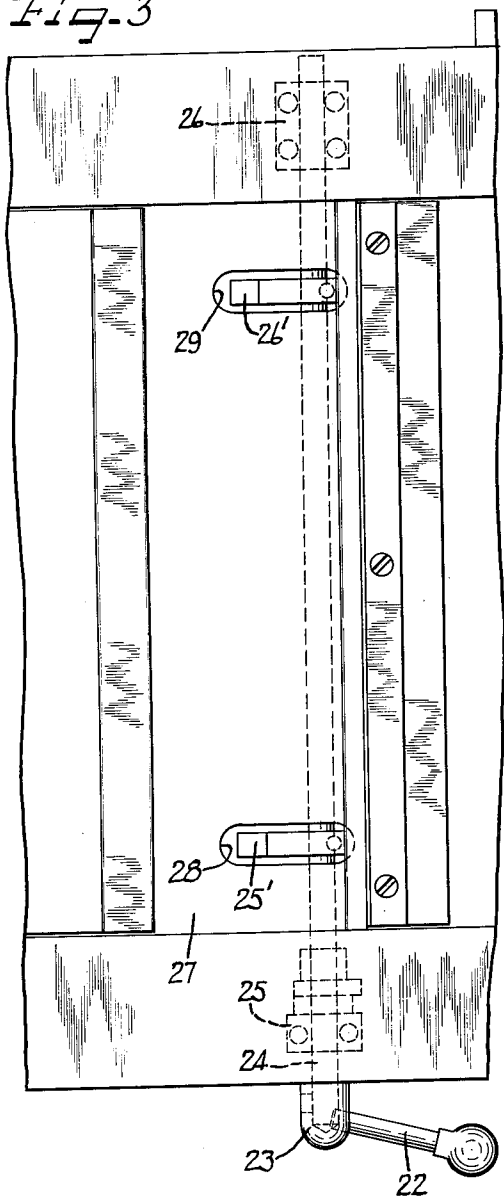
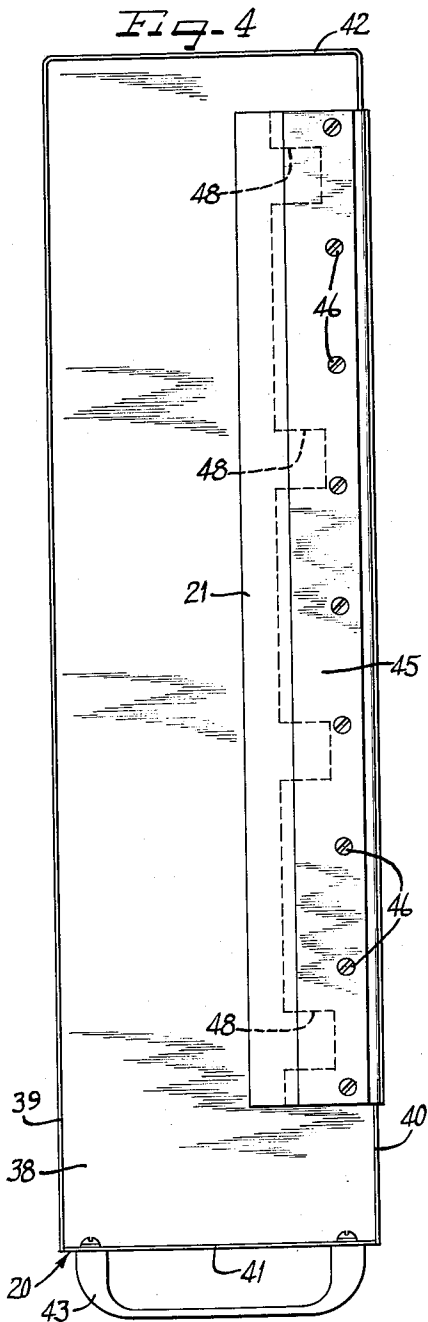


Fig-4



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## AUTOMATIC INKING SYSTEM WASH-UP

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4 Claims. (Cl. 101-425)

This invention was evolved with the general object of providing a printing press inking system by which ink may be quickly and efficiently removed automatically from an inking roll system without any of the mess and bother normally associated with such removal.

An exemplary application of the invention is to a proof or test press of the type including a carriage reciprocable along a bed with form rollers in the carriage for applying ink to a form supported by the bed, an impression cylinder journaled by the carriage for engagement with an inking form after ink is applied thereto by the form rollers, and an inking drum journaled in the frame of the machine to underlie and engage at least one of the form rollers in one position of the carriage. The system may also include an axially reciprocable vibrator roll journaled in the carriage for engagement with the upper side of the form rollers. To distribute ink, the inking drum is driven to cause transfer of ink from one cylinder or roller to another and after a period of time, the ink will be uniformly distributed on the form rollers.

After use of the press, it is usually desirable to remove ink from the cylinders, particularly when it is desired to change from one color of ink to another. The removal of the ink has heretofore been a messy and time-consuming procedure.

According to this invention, a flexible blade is provided having an edge for engaging the periphery of one of the cylinders of the inking system, preferably the inking drum of a press such as above described. The blade is disposed at an angle such as to deflect ink from the drum with a smooth scraping action, and means are provided adjacent the blade for supporting absorbent material to receive the deflected ink. With this system, it is found that the ink can be removed from all of the rollers of the system in a short period of time. It is usually desirable to apply a small amount of solvent before or during the removal process.

The absorbent material is preferably supported in a pan which also serves to support the blade. Thus after removal of the ink from the cylinders, the pan may be removed, to permit disposal of the absorbent material. The pan may then, of course, be wiped clean.

In accordance with another feature of the invention, means are provided for lifting the pan to move the blade into and out of engagement with the inking drum.

This invention contemplates other and more specific objects, features and advantages which will become more fully apparent from the following detailed description taken in conjunction with the accompanying drawings which illustrate a preferred embodiment and in which:

Figure 1 is a side elevational view of a printing press utilizing the automatic ink system wash-up of this invention;

Figure 2 is an enlarged elevational view of the wash-up system, showing the pan elevated to an operative position with the blade engaged with the inking drum;

Figure 3 is a plan view of a portion of the machine

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with the inking drum and pan removed, to show the position of cams used for actuating the pan; and

Figure 4 is a plan view of the pan.

Reference numeral 10 generally designates a printing press utilizing the automatic ink system wash-up of this invention. The press 10 comprises a main frame 11 having a form-supporting bed on the upper side thereof, and a carriage 13 reciprocable along the bed. A pair of form rollers 14 and 15 are arranged to engage and apply ink to a form supported in the bed 12, after which the form is engaged by paper carried on an impression cylinder 16.

To distribute ink over the form rollers 14 and 15, an inking drum 17 is journaled in the frame 11 to engage the form roller 14 in the position of the carriage 13 as illustrated, and an axially reciprocable vibrator roll 18 is disposed over the form rollers 14 and 15 to engage the same. Suitable means are provided in the frame 11 for driving the inking drum 17 and after a period of time, the ink will be uniformly distributed over the surfaces of the form rollers 14 and 15. The ink may be initially dabbed on one or more of the rollers or cylinders 14, 15 or 18.

According to this invention, means are provided for automatically removing ink from the cylinders of the inking system. In particular, a slot 19 is provided in the frame 11 under the inking drum 17 to receive a pan 20 in which ink-absorbent material is disposed. The pan 20 carries a blade 21 of flexible material having an edge arranged to engage the underside of the inking drum 17 along the length thereof, at an angle such as to deflect ink from the drum 17 to the absorbent material within the pan 20 with a smooth scraping action.

As illustrated in Figure 1, the pan is normally positioned in a slot 19 with the blade 21 out of engagement with the inking drum 17. When it is desired to remove ink from the cylinders of the inking assembly, a handle 22 is rotated in a clockwise direction to a position as illustrated in Figure 2, to cause one side of the pan 20 to be lifted to engage the edge of blade 21 with the inking drum 17.

The handle 22 has a hub 23 secured to one end of a shaft 24 journaled by bearings 25 and 26 in the frame 11 for rotation about an axis parallel to the axis of the drum 17. The shaft 24 carries a pair of cams 25' and 26' which underlie portions of the pan 20 adjacent the opposite ends thereof when it is disposed within the slot 19. The cams 25' and 26' are normally positioned below a plate 27 which defines the bottom of the slot 19 and a supporting surface for the pan 20, but when the handle 22 is rotated clockwise from the position of Figure 1 to the position of Figure 2, the cams 25' and 26' move upwardly through openings 28 and 29 in the plate 27 to engage the pan 20 and lift it to the operative position of Figure 2.

Over-center locking means are provided for releasably locking the handle 22 and connected parts in either the position of Figure 1 or the position of Figure 2. In particular, an arm 30 is secured to and extends downwardly from the shaft 24 and is pivotably secured by a bolt 31 to a bracket 32 which carries a pin 33 extending downwardly into an opening in a block 34 which is secured on a shaft 35 pivotal in a bearing 36 carried by the frame 11. The pin 33 is freely movable in the opening of the block 34. A coiled compression spring 37 is disposed about the pin 33 to act between the bracket 32 and the block 34. In the position of the handle 22 as illustrated in Figure 1, the axis of the bolt 31 is to the right of a line through the axes of the shafts 24 and 35, and the compressive action of the spring 37 opposes clockwise movement of the handle 22. In the position as illustrated

in Figure 2, the axis of the bolt 31 is to the left of a line through the axes of the shafts 24 and 35, and the compressive action of the spring 37 opposes counterclockwise movement of the handle 22.

Referring now to Figure 4, the pan 20 comprises a bottom 38, a pair of side walls 39 and 40 and a pair of end walls 41 and 42. A handle 43 is attached to the end wall 41 for insertion and removal of the pan 20.

To support the blade 21, a plate 44 extends inwardly from the side wall 40 in space generally parallel relation to the bottom 38. A strip 45 is disposed over the blade 21 and is connected to the plate 44 by a series of screws 46, so as to thus clamp and securely hold the blade 21 between strip 45 and plate 44.

To secure the plate 44 to the side wall 40, it may preferably have an integral downwardly extending flange 47 secured to the outer surface of the wall 40. Preferably, the flange 47 is secured to wall 40 by a spot-welding method, and to facilitate engagement of the welding electrodes with the inside surfaces of the wall 40, the plate 44 is provided with a series of cut-out portions 48.

The blade 21 should project in a direction opposite the direction of movement of the peripheral portion of the drum with which it is engaged, the direction of rotation of drum 17 being indicated by arrow 49. It is also desirable that the lower edge of the blade 21 be beveled, as indicated by reference numeral 50, to facilitate removal and deflection of the ink into the absorbent material within the pan 20. The angle of engagement of the blade 21 and the drum periphery should be small, preferably on the order of 10°. It is also desirable that the blade 21 project beyond the inner edge of the plate 44, as well as the inner edge of strip 45, a distance sufficient to provide flexibility and promote uniform engagement with the periphery of the drum along the length thereof. Thus the inner edge of the blade 21 should be intermediate the inner edge of the plate 44 and a plane which is normal to the plate 44 and which extends through the axis of the drum 17.

It is also important that the blade be tilted downwardly as illustrated in Figure 2, so that the ink is deflected off the edge and down into the absorbent material, not over the entire surface of the blade, and the blade therefore will stay comparatively clean as only the edge will contact ink.

The blade 21 may be of any flexible elastomeric material, preferably one having self-lubricating properties, and most preferably of nylon which has good self-lubricating properties and at the same time has sufficient hardness to permit formation of the beveled edge 50.

The blade 21 would not need to be supported by the pan 20, and could be separately supported. It is preferably supported by the pan 20, however, since by so supporting the blade, it can be readily moved into operative position by the simple expedient of lifting one side of the pan 20. Also, the absorbent material may be slipped in under the blade 21 to directly receive ink deflected from the drum 17 with a minimum of any splashing action. A further advantage of the illustrated arrangement is that when the pan is removed for disposal of the absorbent material, the blade 21 is removed at the same time and can be readily wiped clean.

It will be understood that modifications and variations may be effected without departing from the spirit and scope of the novel concepts of this invention.

I claim as my invention:

1. In a printing press inking system including a plurality of interengaged cylinders on parallel axes and means for imparting rotation to said cylinders for transfer of ink from one to another; ink cleaning means comprising a flat, elongated, generally rectangular pan arranged to receive scraped off ink and being located closely adjacent to and under a bottom peripheral portion of one of said cylinders and extending along the length thereof, a flexible ink scraping blade mounted and secured

on, and extending along the length of, an edge of the top of said rectangular pan, said blade extending generally horizontally, and downwardly at a small angle, inwardly over the open top of said pan against the direction of cylinder rotation to operatively engage said cylinder to collect ink therefrom directly down into said pan without running over said generally horizontally but slightly upwardly extending blade, and means for moving at least said blade side of said pan up or down relative to said one of said cylinders to swing said blade into or out of operative engagement with the bottom of said one of said cylinders.

2. In a printing press inking system including a plurality of interengageable cylinders on parallel axes and means for imparting rotation to said cylinders for transfer of ink from one to another; ink cleaning means comprising a generally rectangular and elongated pan extending horizontally closely spaced under the bottom of one of said cylinders to collect ink scraped off of the bottom portion of said cylinder, said pan having a substantially horizontally extending bottom wall extending throughout the length of said cylinder and having side and end walls, means to support said pan below said cylinder, said pan having an upper plate secured thereon and extending inwardly from one of its elongated side walls in spaced and generally parallel relation to its bottom wall, a flat ink scraping blade of flexible material extending throughout the length of said pan and of said cylinder and secured and supported on said plate to extend parallel to the bottom of said pan, said blade having an operative inner edge located intermediate the inner edge of said plate and a plane which is normal to said plate and which extends through the axis of said one of said cylinders, and operator adjustable means engaging under a bottom of said blade side of said pan and cooperating with said means to support said pan to raise only one side of said pan and tilt it to thereby raise and tilt said horizontally extending blade mounted on said pan into operative engagement with said cylinder with said blade having its inner operative edge tilted down only slightly from the horizontal so that it extends into engagement with said cylinder against the direction of its rotation and so that ink scraped from said cylinder is deflected directly from said blade down into said pan without running over said blade.

3. In a printing press inking system including a plurality of interengageable cylinders on parallel axes and means for imparting rotation to said cylinders for transfer of ink from one to another; ink cleaning means comprising an entirely removable pan adapted to be removably positioned under one of said cylinders, said pan being of a generally rectangular flat form elongated to extend throughout the length of said cylinder and having a flexible scraper blade carried on one edge, and extending horizontally in over the open top of said pan, said press having a horizontally extending surface to removably support said pan and the blade mounted thereon, a shaft disposed under said pan supporting surface and extending along the length of said pan, cam means carried by said shaft for engagement with the underside of said pan on its blade carrying side to raise said side of said pan and tilt it to swing the blade mounted thereon into operative engagement with said cylinder, said blade, in its operative position carrying its free and operative edge extending downwardly at only a slight angle from the horizontal and against the direction of rotation of said cylinder so that the ink scraped from said cylinder is deflected directly downwardly from said blade without running over said blade, said pan containing disposable ink-absorbent material throughout its length and under said blade to receive the ink deflected thereby whereby said scraped off ink is received only into said absorbent material without dirtying either said blade or said pan and whereby said pan and blade may be removed as a whole for the ready manual removal of said dirty absorbent material without the necessity for any cleaning of said blade or pan.

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4. In a printing press including a frame, a bed on said frame, a carriage reciprocable along said bed, a form roller on said carriage, an inking drum journaled in said frame for engagement with said form roller in one position of said carriage; ink cleaning means comprising a horizontally extending slot in said frame closely below said inking drum, a generally rectangular, flat, and horizontally extending pan extending throughout the length of said inking drum and removably supported in said slot, replaceable ink-absorbent material in said pan, a flat flexible ink scraping blade elongated to extend throughout the length of said drum and carried by the top of a side of said pan to extend horizontally in over the open top of said pan, means to raise at least one side of said pan and tilt it to position the inner operative edge of said blade in operative scraping engagement with the bottom of said inking drum throughout its length with said blade having its free and operative edge extending against the direction of rotation of said inking drum and extending downwardly at only a slight angle from the horizontal whereby

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the ink scraped from said inking drum will be deflected substantially directly downwardly from said blade onto said absorbent material without running over said blade and without dirtying said pan, said pan being removable to permit the ready changing of said replaceable absorbent material.

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