July 19, 1966 H. R. DICKERSON 3,261,288

ANTISMEAR JACKET FOR TRANSFER DRUM

Filed June 8, 1964 2 Sheets-Sheet 1

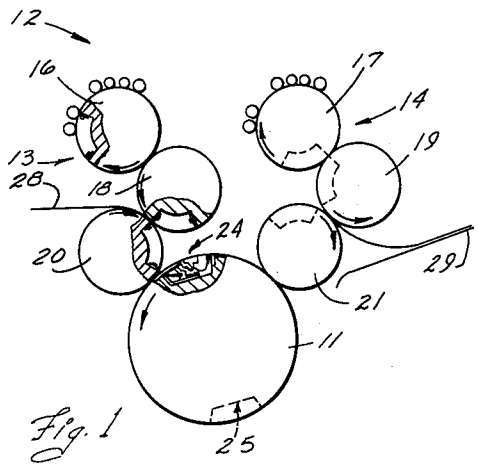


Fig. 1

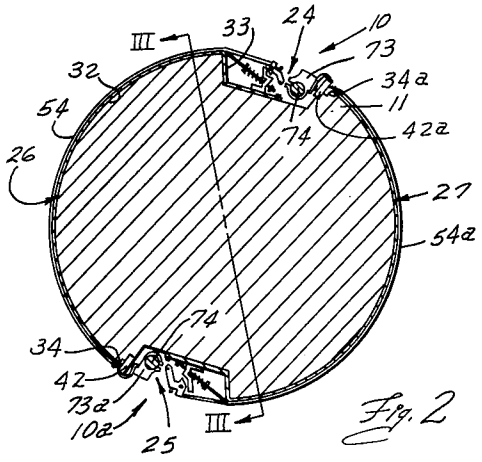


Fig. 2

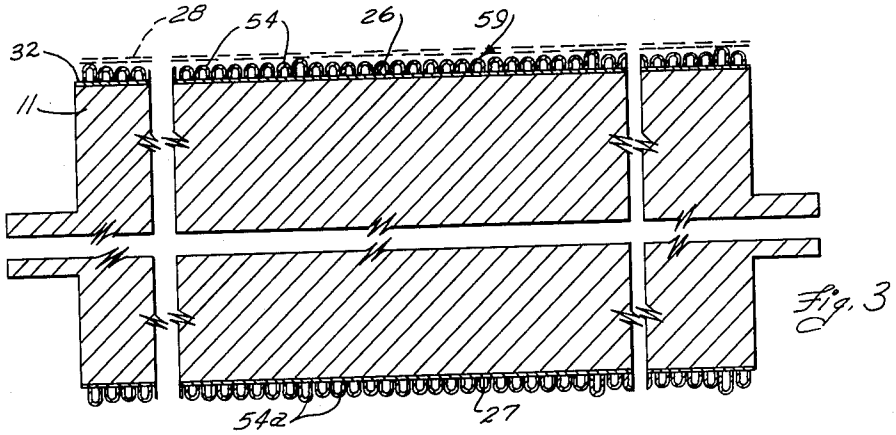


Fig. 3

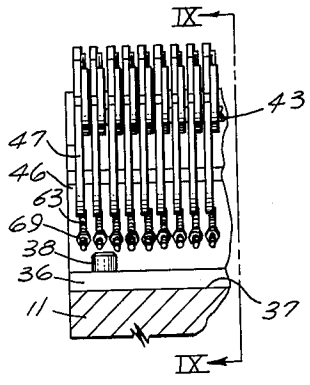


Fig. 5

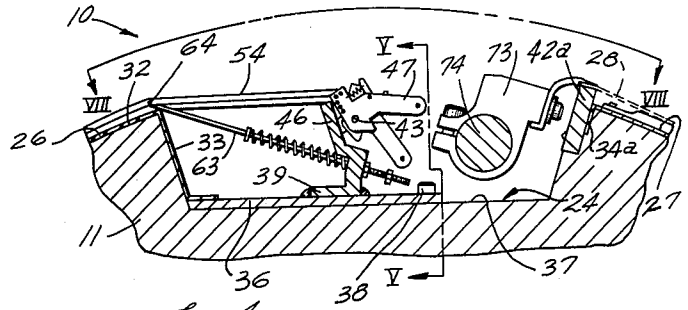


Fig. 4

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ANTISMEAR JACKET FOR TRANSFER DRUM

Filed June 8, 1964 2 Sheets-Sheet 2

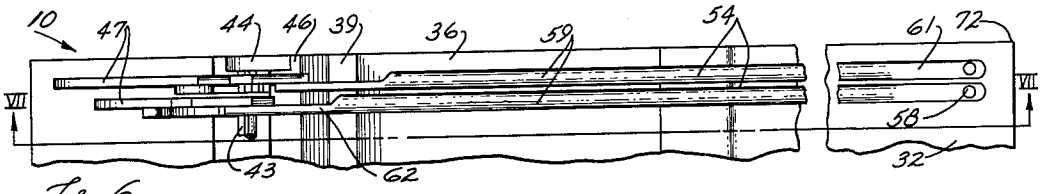


Fig. 6

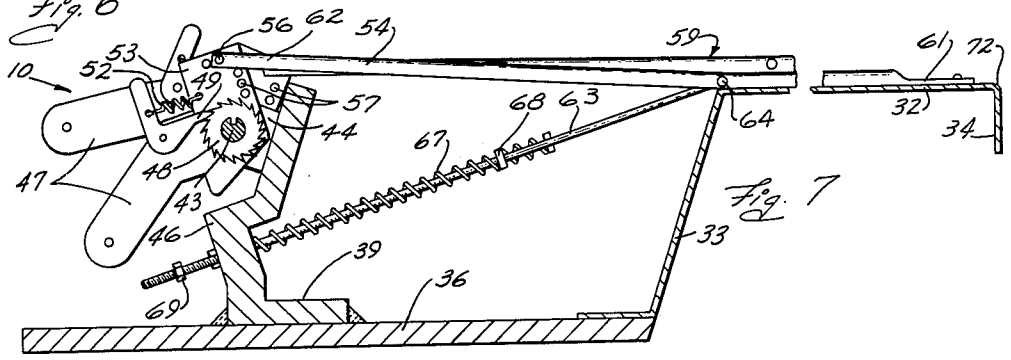


Fig. 7

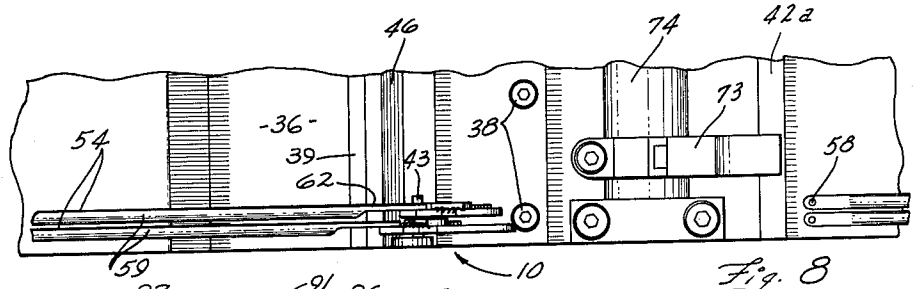


Fig. 8

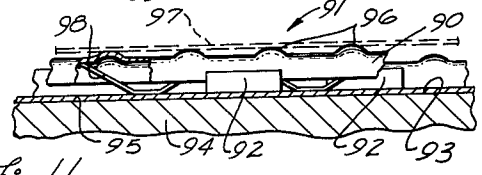


Fig. 11

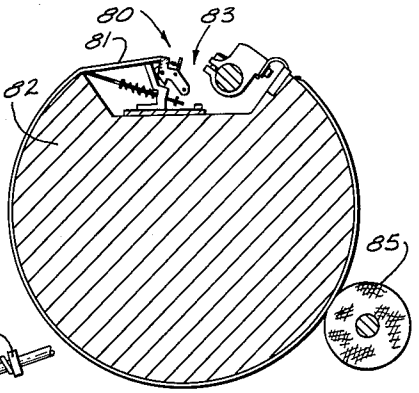


Fig. 10

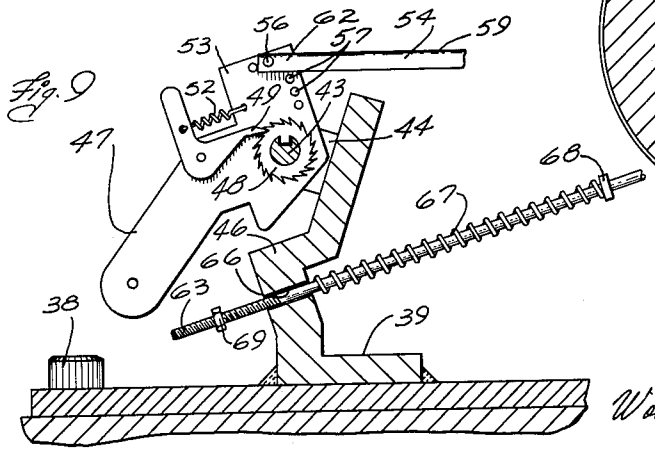


Fig. 9

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3,261,288

ANTISMEAR JACKET FOR TRANSFER DRUM

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Filed June 8, 1964, Ser. No. 373,430
5 Claims. (Cl. 101—420)

This invention relates in general to an apparatus for preventing smearing on a freshly printed sheet passing through a printing machine and, more particularly, to a type of such apparatus adapted for use on a transfer drum or cylinder between two units of printing cylinders in a rotary sheet-fed offset press.

It has been common knowledge in the printing industry for many years that the smearing of freshly printed sheets has been a serious problem. In fact, it still produces staggering losses in some types of machines and on certain types of jobs. For example, this problem has been particularly acute in multicolor, rotary sheet-fed offset presses where the freshly printed surface must engage the peripheral surface of the transfer drum as the printed sheet is moved from one unit of printing cylinders to the next. Even where some effort is made to minimize such smearing, considerable losses are still experienced and, moreover, the final product is often smeared anyway. Many attempts have been made to overcome this smearing problem on transfer drums or the like, but no satisfactory solution has been developed, insofar as I am aware.

For example, attempts have been made to use air pressure to hold the printed surface away from the transfer drum during the transfer operation. However, it is very difficult to control sheet material while air is being applied thereto, and it can result in movement of the sheet which not only creates smearing but also tends to throw the sheet out of register for the following printing operations. Moreover, it requires a very special type of transfer drum which must be installed upon the machine at a very high cost.

In another attempt to solve this problem, printers have applied to the surface of the transfer drum strips of materials which are designed to engage unprinted portions of the printed sheet for the particular printing job being run at any given time. However, the obvious difficulty with this method is that the unprinted areas are usually in a different place for each job. Accordingly, these spacing strips must be changed for each job at a very high cost in time and materials. In most multicolor offset printing operations, a few hours of down time for the purpose of providing and/or locating spacing elements on the transfer drum would absorb a substantial part of the profit in the job.

It occasionally happens that a piece of material upon which printing is being applied by a rotary sheet-fed press is either defective or becomes bent or folded during the printing operation so that it produces an oversize thickness in a particular region which will pass through the printing press unless it is promptly detected and removed. Thus, it is important that any type of antismear jacket used on a rotary sheet-fed printing press must be capable of receiving an oversize thickness without injury to the jacket and without upsetting the normal operation of the press. Insofar as I am aware, many of the antismear devices which have been previously provided for the transfer drum on a rotary sheet-fed offset press would be adversely affected by the movement of an oversized thickness of material between the transfer drum and, for example, the impression cylinder.

While the invention will be described herein as it applies to a multi-unit or multicolor rotary sheet-fed offset printing press, it will be recognized that the principles of the invention can be adapted for use in a flat bed printing press where the sheet of printed materials must move across a surface after it has been printed and, moreover, could be applied to other types of printing presses where the freshly printed sheet must move with its printed surface adjacent another surface whereby smearing may occur.

Accordingly, a primary object of this invention has been the provision of an antismear apparatus or jacket for preventing the smearing of a freshly printed sheet as it passes through a printing machine and particularly to a type of jacket which is adapted for mounting upon the transfer drum between two units of printing cylinders in a rotary sheet-fed offset printing press.

A further object of this invention has been the provision of an antismear jacket, as aforesaid, which can be mounted upon the transfer drum, for example, of an existing offset press without materially modifying the structure of the transfer drum or press and without altering its operation; and wherein said antismear jacket can be installed upon the transfer drum of the press without requiring a major shutdown of the press and, therefore, without materially interfering with operating schedules of said press.

A further object of this invention has been the provision of an antismear jacket, as aforesaid, which is arranged to engage selected parts of the freshly printed side of a printed sheet as it is moved by a transfer drum, the contact with the printed side being along narrow lines or a series of points along such lines so that smearing is generally avoided or is at least maintained at an absolute minimum commensurate with supporting the printed sheet with the necessary firmness to move it from one unit of printing cylinders to the next; and wherein the line of contact or the line of points of contact or multiples of such lines can be quickly changed as, for example, in several minutes, whereby the transfer drum can be adjusted for antismear operation with respect to a different printing job in less time than it requires to prepare the remainder of the machine for the new printing job.

A further object of this invention has been the provision of an antismear jacket, as aforesaid, which is easily adapted to a variety of different installations and uses, which can be operated by any person capable of operating a printing press, which can be installed by any person capable of maintaining a printing press, which requires little or no maintenance, which is not readily susceptible to damage, which, particularly in terms of the initial cost of the printing press, adds an almost negligible amount to the cost of the press and is capable of paying for itself in saved time and reduction of waste in a very short period of time.

Other objects and purposes of this invention will become apparent to persons familiar with this type of equipment upon reading the following descriptive material and examining the accompanying drawings, in which:

FIGURE 1 is a broken and somewhat schematic, side elevational view of an offset printing press showing one application of the invention.

FIGURE 2 is a transaxial, cross-sectional view of a transfer drum having a pair of antismear jackets mounted thereon.

FIGURE 3 is a broken sectional view taken along the line III—III in FIGURE 2.

FIGURE 4 is an enlarged fragment of the structure shown in FIGURE 2.

FIGURE 5 is an enlarged sectional view taken along the line V—V in FIGURE 4.

FIGURE 6 is a broken fragment of an antismear jacket in its substantially flat position.

FIGURE 7 is a sectional view taken along the line VII—VII in FIGURE 6.

FIGURE 8 is a broken plan view substantially as taken from the line VIII—VIII in FIGURE 4.

FIGURE 9 is a sectional view substantially as taken along the line IX—IX in FIGURE 5.

FIGURE 10 is a transaxial, cross-sectional view of a transfer drum utilizing a single antismear jacket.

FIGURE 11 is a fragment of the jacket appearing in FIGURE 10.

For convenience of illustration, the terms "upper," "lower" and words of similar import will have reference to the antismear jacket or parts thereof, when said jacket is in its substantially flat position, as appearing in FIGURES 4, 7 and 9. The terms "front" and "rear" or "leading" and "trailing" will have reference, respectively, to the right and left ends of the antismear jacket or the portions of the drum to which it is attached as appearing in FIGURES 6 and 7. The terms "inner," "outer" and derivatives thereof will have reference to the geometric center of the transfer drum and parts of the antismear jacket, as applied to the transfer drum.

General construction

The objects and purposes of the invention, including those set forth above, have been met by providing a plurality of parallel and closely spaced elements and associated parts capable of locating said elements substantially within the same plane, or adjacent a single curved surface. In one preferred embodiment, said elements are mounted upon a substantially flat sheet of material to form a single jacket or assembly which can be quickly secured upon the peripheral surface of an existing transfer drum, for example.

More specifically, one end of each element is secured to the sheet material substantially along a line near one edge thereof and the opposite ends of said elements are connected to devices for selectively moving said opposite ends between two positions, In one position of an opposite end, the respective element is held snugly against the adjacent surface of the sheet material, particularly when it is mounted upon a transfer drum. In the other position, the element is spaced a selected distance substantially throughout its length away from the adjacent surface of the sheet material. Each element is connected to a mechanism for resiliently urging the elements into the raised position, and to a device for releasably opposing such urging.

While the specific apparatus disclosed hereinafter with respect to the antismear jacket is designed for use on the transfer drum of a multiunit, rotary sheet-fed offset printing press, it will be recognized that the same principles can be adapted to other types of printing machines. Moreover, while the elements are designed in this particular disclosure for extension around the axis of the transfer drum, it will be apparent that, by minor modification, the elements can be arranged for extension lengthwise of the drum and parallel with its axis.

Detailed description

The antismear apparatus **10** (FIGURES 2 and 3), which illustrates one embodiment of the invention, is particularly adapted for mounting upon the transfer drum **11** of a rotary sheet-fed offset printing press **12**, a portion of which is schematically shown in FIGURE 1. Since a transfer drum is usually used between two units of printing cylinders in a multicolor offset printing press, FIGURE 1 discloses similar units **13** and **14** having plate cylinders **16** and **17**, blanket cylinders **18** and **19**, and impression cylinders **20** and **21**, respectively. Generally speaking, the afore-mentioned parts of the offset press **12** may be substantially conventional and, therefore, may be found in a number of existing, offset printing machines, such as those mentioned in my copending patent application Serial No. 300 890, filed August 8, 1963, for

a "Printing Machine and Method," now Patent No. 3,172,359.

The transfer drum or cylinder **11** is provided with a pair of parallel wells **24** and **25** which extend lengthwise of the drum on diametrically opposite sides thereof. The wells divide the peripheral surface of the transfer drum into two sheet engaging or transfer surfaces **26** and **27**, which extend between the wells **25** and **25** on opposite sides of the drum **11**, the circumferential length of each surface being approximately equal to the circumferential length of the unbroken part of the peripheral surface on each of the impression cylinders **20** and **21**. Accordingly, a piece of sheet stock **28** (FIGURES 1 and 3) may be transferred from the impression cylinder **20** to the impression cylinder **21** by the transfer drum **11** and thence, for example, to a discharge device **29** which conveys the printed sheet stock **28** to the discharge end of the printing machine. Additional units of printing cylinders and transfer drums could be provided on both sides of those specifically disclosed.

Since the transfer drum has two transfer surfaces **26** and **27**, it can transfer two printed sheets from one unit to the next during each revolution of the transfer drum. Accordingly, a pair of antismear apparatuses **10** and **10***a*, which may be identical, are mounted upon transfer drum **11**. However, since the two antismear apparatuses **10** and **10***a* may be identical, only one such apparatus will be described and it will be understood that such description also applies to the other antismear apparatus.

As shown in FIGURES 4, 6 and 7, the antismear apparatus **10** is comprised of a base sheet or plate **32** which is preferably as wide as the transfer drum **11** and somewhat longer than the circumferential length of the transfer surface **26**. The opposite, circumferential end portions of the base sheet **32** are bent to form flanges **33** and **34** which extend in approximately the same direction inwardly away from the sheet **32** for reception into the wells **24** and **25**, respectively. The base sheet **32** may be fabricated from sheet metal and is sufficiently flexible that it can be wrapped around and held snugly against the transfer surface **26** of the drum **11**.

The free edge of the flanges **33** (FIGURE 4) is rigidly secured, as by welding, to an elongated, substantially rigid mounting plate **36** which is tightly held against the bottom wall **37** of the well **24** by means, such as the screws **38**. An elongated support beam **39** having a substantially L-shaped cross section (FIGURES 4 and 9) is rigidly secured to, and extends lengthwise of, the mounting plate **36** approximately midway between the lengthwise edges thereof.

The flange **34** is tightly held, as shown in FIGURE 4 with respect to the end portion **34***a*, against a sidewall of the well **25** (FIGURE 2) by means of the elongated gripper pad **42**.

The pivot rod **43** is mounted by means of rod supports, one of which is shown at **44** in FIGURE 9, upon the upright flange **46** of the beam **39**. A plurality of preferably identical and approximately L-shaped levers **47** are pivotally mounted near the apex of each upon the pivot shaft **43** at closely spaced intervals lengthwise thereof. A ratchet wheel **48** is rigidly secured to the shaft **43** adjacent each lever **47**. An L-shaped pawl **49** is pivotally supported upon each lever **47** for engagement with the teeth of one ratchet wheel **48** whereby rotation of said lever **47** with respect to said shaft **43** in a clockwise direction as appearing in FIGURE 9, or a counter-clockwise direction as appearing in FIGURE 4, is positively prevented. A spring **52** is connected between the pawl **49** and the upright arm **53** on the lever **47** whereby said pawl **49** is continuously urged into engagement with the ratchet wheel **48**.

A plurality of elongated, resiliently flexible spacing elements **54** are pivotally secured at one end of each by a pivot pin **56** (FIGURE 9) to the free end of the upright arm **53** on a lever **47**. A plurality of openings **57** may be provided in the arm **53** to adjust the location of the pivot

pin 56 in accordance with the needs of a particular installation The other end of each spacing element 54, which is preferably made of steel, is secured, as by means of the rivets 58, to the base sheet 32 adjacent the flange 34 (FIGURES 6 and 7).

Throughout most of its length, each spacing element 54 is substantially channel shaped (FIGURE 3) whereby strength and substantially uniform curvature lengthwise thereof are achieved. However, it will be recognized that other cross-sectional shapes and types of material may be used in the elements 54. Thus, the specific shapes and materials mentioned above are for illustrative purposes only. The bottom side 59 on each element, which is preferably arcuate transversely thereof, is located on the radially outer side thereof to provide a relatively thin line of contact with the surface of the sheet stock 28 (FIGURE 3) supported thereby.

The opposite ends 61 and 62 of each spacing element are preferably flattened so that they lie in substantially perpendicular planes. That is, the flattened end 61 of each spacing element 54 is substantially parallel with the base sheet 32 to which it is secured. The opposite end 62 of each spacing element is flattened so that it is substantially parallel with the flat surface of the arm 53 on a lever 47. Accordingly, each element is able to flex more readily away from the base sheet 32 adjacent its connection to the base sheet than at any other point lengthwise thereof. This flexion may be encouraged by prebending the end portions 61 slightly away from the sheet 32. The flat end 62 occupies about the same amount of space occupied by the lever 47 whereby the spacing between adjacent elements 54 can be held to a minimum, depending largely upon the requirements for operating clearance between the elements 54. That is, no additional space need be provided to allow for the levers 47.

A plurality of guide rods 63 (FIGURES 4 and 7) are are each pivotally connected at one end of each to a spacing element 54 by a pivot pin 64 near the flange 33. The other end of each guide rod 63 is slideably received through an opening 66 in the flange 46 (FIGURE 9). A spiral spring 67 is sleeved upon each rod 63 and is held under compression between the flange 46 and a collar 68 secured on said rod 63, whereby said rod is urged out of the well 24. Said other end of each rod 63 is threaded and engaged by a nut 69 for limiting and adjusting the movement of said rod by the spring 67. Each rod 63 bears against the corner 72 between the base sheet 32 and the flange 33 when its associated spacing element is in its raised position, as appearing in FIGURE 4. This arrangement tends to hold the spacing element at a substantially uniform distance away from the base sheet 32 from the guide rod 63 to a point near the flat end 61 thereof.

A plurality of grippers 73 (FIGURE 8) are secured upon and are simultaneously movable with the gripper shaft 74 so that their tips engage the outer edge of the gripper pad 42 in a substantially conventional manner. Referring to the apparatus 10 (FIGURE 4), the gripper pad 42*a* is disposed slightly outwardly of the surface 27. Thus, a sheet of material 28 engaged between the grippers 73 and the gripper pad 42*a* is held away from the adjacent portions of the spacing elements 54*a* where they tend to remain somewhat closer to the base sheet 32 than at any other point lengthwise thereof. This arrangement also applies to the corresponding parts of the apparatus 10. The antismear apparatus 10*a* (FIGURE 2) may be substantially identical in other respects to the antismear apparatus 10 described above.

Operation

In a preferred embodiment of the invention, the antismear apparatus 10 (FIGURES 6 and 7) or 10*a* (FIGURE 2) will be preassembled as appearing in FIGURES 6 and 7 prior to installation. However, as discussed hereinafter with respect to the disclosure in FIGURE 10, the various parts of the antismear apparatus can be mounted directly upon the transfer drum so that the base sheet 32 is unnecessary, particularly where the press is being equipped with the antismear apparatus at its point of manufacture. Nevertheless, even under such circumstances, it may be desirable to include the base sheet 32 to simplify the maintenance of the apparatus 10. That is, it might be somewhat easier and require less "down" time to replace an entire antismear apparatus, when repairs are needed in some cases, than it would to repair the apparatus while it is on the machine.

Under normal circumstances, the antismear apparatus will be designed for a transfer drum having a particular diameter and having a transfer surface of a particular axial and circumferential size. Accordingly, installation of the antismear apparatus can be quickly effected by fastening the mounting plate 36 in the well 24, for example, and then wrapping the base sheet 32 around the peripheral surface 26 until the flange 34 can be clamped between one side of the well 25 and the gripper pad 42. Minor adjustments of the nut 69 on the guide rod 63 and of the connection between the end 62 of the spacing element 54 and its lever 47 may be required for the particular installation. However, with experience these adjustments can generally be made in advance of the installation.

Normally the mounting of the antismear apparatus 10 upon the transfer drum 11 will not adversely affect its operation or the operation of the offset press 12 of which the transfer drum is a part. Accordingly, a printing operation can be promptly commenced in which a piece of sheet stock 28 printed by the printing cylinders in the first unit 13 can be transferred by the drum 11 to the printing cylinders in the second unit 14 (FIGURE 1) with either no smearing whatsoever or an almost negligible amount of same.

More specifically, the operator determines which parts of the surface on the printed sheet can be engaged along a line lengthwise thereof without contacting the printing on such sheet. Upon selecting such lines, he then manually operates the pawls 49 on the levers 47 controlling those spacing elements extending along said lines. Counter-clockwise movement of the pawl 49, as appearing in FIGURE 9, will permit the spiral spring 67 on its associated guide rod 63 to urge its corresponding spacing element 54 rightwardly (FIGURES 7 and 9) and thereby rotate the lever 47 around the pivot shaft 43 in a clockwise direction. When the nut 69 engages the upright flange 46, as shown in FIGURE 4, the spacing element 54 will be in its raised position for engagement with the noninked portion of the printed sheet.

There may be circumstances under which it is virtually impossible to find a single line along a printed sheet wherein it will be completely clear from printed material. However, it may be possible to find lines wherein the contact with the printed material will occur at a minimum of points. However, the effectiveness of the antismear apparatus will be reduced very little due to the fact that the spacing elements 54 will contact the sheet stock substantially along a single line and, accordingly, will cross any printed matter, such as a letter, in a very small area, which will produce an almost negligible amount of smearing.

After a particular printing operation has been completed, the raised spacing elements can be returned to their lowered positions against the base sheet 32 by rotating in a clockwise direction, as appearing in FIGURE 4, the levers 47 connected to the raised elements. Thereafter, the antismear apparatus can be prepared for another operation merely by releasing the pawls 49 on the appropriate levers 47 controlling those spacing elements 54 which it is desired to raise for the purpose of engaging the sheet stock along an unprinted line and thereby holding the remainder of the printed sheet away from the other spacing elements 54. It will be seen that these adjustments can be made in a matter of minutes.

The spacing elements 54 will, when their pawls are released, tend to arch away uniformly from the base sheet

32 substantially throughout the lengths of said elements 54, except adjacent to the ends 61 thereof secured to the base sheet 32. However, it has been found that the engagement of the sheet stock between the gripper pad 42 and the grippers 73a will tend to hold the leading end of the sheet stock away from the adjacent ends of the spacing elements 54. On a conventional offset press, this spacing from the elements 54 will extend along the sheet stock approximately eight or ten inches. In this distance, the appropriate, released spacing elements 54 will become sufficiently arched away from the base sheet 32 to perform their proper spacing and antismear functions.

Should a piece of folded stock 28 (FIGURE 1) pass between an impression cylinder and the transfer drum 11, no material harm is done since the spacing elements 54 will merely flex downwardly against the base sheet 32 under the folded stock. The spiral spring 67 will resiliently absorb such movement without damage to the guide rod 63, and the lever 47 will be able to rotate in a clockwise direction, as appearing in FIGURE 4, to protect the element 54 and its associated mechanism. If desired, means may be provided for holding the pawl 49 away from the ratchet wheel 48, when its associated element is raised, so that re-engagement thereof will not be effected. However even without such means, it is only necessary to manually release the pawls 49 of the particular spacing elements that are so affected after the above-mentioned movement of the levers. The levers can be numbered so that a quick check can be made to see that the proper elements 54 are raised.

Thus, it will be seen that the antismear apparatus is not only capable of performing the desired function, but it is also capable of absorbing the type of harsh treatment to which the remainder of the machine may occasionally be subjected.

Modified structure

As mentioned above, FIGURE 10 illustrates an antismear apparatus 80 which is substantially similar to the antismear apparatus 10 (FIGURES 6 and 7) except that there is no base sheet corresponding to the base sheet 32. That is, the spacing elements 81 are mounted directly upon the transfer drum 82 adjacent one side of the single well 83 therein. However, in all other respects, the antismear apparatus 80 may be substantially the same as the antismear apparatus 10 both in construction and in operation.

FIGURE 11 illustrates spacing elements 90 for an antismear apparatus 91 in which the said elements would run substantially parallel with the axis of the transfer drum. In such case, and to avoid the undesirable effects of friction, inertia and centrifugal force, a plurality of spacers 92 are secured to and extend away from the base sheet 95, which is mounted upon the surface 93 of the drum 94 between each pair of adjacent spacing elements. The fastening of the spacing elements 90 upon the drum 94 at the opposite axial ends thereof could be substantially the same as provided in the mounting of the spacing elements in the antismear apparatus 10. However, leaf springs 98 may be mounted within the channel of each element 90 at selected points lengthwise of said element to urge the element away from the base sheet 95 and into its raised position. It will also be seen that this type of construction could also be applied to a flat bed press to accomplish substantially the same ends.

In conventional offset presses, the peripheral surfaces of the transfer drum and the impression cylinder are spaced about one-fourth of an inch from each other at their nearest points. This provides ample space for the apparatus 10 or the apparatus 80, when the spacing elements thereof are in their raised positions.

Since, as mentioned above, there may be times in which there is absolutely no line along a printed sheet where some printing does not exist, the problem of supporting the sheet without smearing the printing thereon may be

further minimized by providing the outer edge of each spacing element 90 with a plurality of spaced, upward projections 96 which would engage the sheet stock 97 along a line of relatively small points of contact. The arrangement not only reduces the chance of contact between the spacing elements and a printed part of the sheet, but also makes possible the use of a wiping roller 85 (FIGURE 10) which engages the projections 96 during each rotation of the transfer drum and wipes off any ink which might be deposited upon the projections. Any type of conventional, cloth roller could be used for this purpose.

Although particular preferred embodiments of the invention have been disclosed above for illustrative purposes, it will be recognized that variations or modifications of such disclosure, which come within the scope of the appended claims, are fully contemplated.

What is claimed is:

1. In a machine for applying ink indicia to sheet material, said machine including a transfer surface adjacent to which an inked side of said sheet material must be placed before the ink is dry, an apparatus for preventing the smearing of said ink indicia by said surface comprising:

a plurality of substantially parallel elements supported adjacent said surface for movement toward and away from said surface;

means for holding said elements in first positions wherein the sides of said elements remote from said surface are, substantially throughout their lengths, substantially equidistant from said surface; and

means for moving and holding selected ones of said elements away from said surface in second positions where substantial portions of said remote sides of said selected elements are spaced from said surface a substantially uniform distance which is greater than said equal distance.

2. In a printing machine for applying ink indicia to sheet material, said machine having a plurality of cylinders including a transfer cylinder, mechanism for holding the printed side of said sheet material away from the peripheral surface of said transfer cylinder, comprising:

a plurality of spaced, adjacent and substantially parallel elements arranged along the peripheral surface of said transfer cylinder;

means for holding said elements in first positions adjacent said peripheral surface so that the sides of said elements remote from said peripheral surface are all spaced substantially equal distances from said peripheral surface; and

means for selectively moving and holding said elements in second positions away from said peripheral surface, so that said remote sides of said elements are spaced, substantially throughout their lengths, from said peripheral surface a greater distance than said equal distance, whereby said sheet material can be engaged along lines on the printed side thereof where there is no printed indicia.

3. A mechanism according to claim 2 wherein said elements extend circumferentially around and substantially completely cover the peripheral surface of the transfer cylinder;

wherein one end of each element, at corresponding ends thereof, is held with respect to said peripheral surface; and

wherein the other end of each element is movable radially and circumferentially of said peripheral surface.

4. A mechanism according to claim 2 wherein said elements are pivotally connected at corresponding ends thereof to said transfer cylinder adjacent the peripheral surface thereof;

wherein the other end of each element is movable with respect to said peripheral surface; and

wherein said means for holding said elements in said first positions includes a plurality of levers mounted

upon said transfer cylinder and movable around a common axis, and a ratchet and pawl device associated with each lever for releasably preventing said movement in one direction around said axis.

5. In an offset printing press capable of applying inked indicia in a plurality of colors to sheet materials and having a transfer drum for advancing the sheet material from one part of the machine to another before ink indicia is dry on said sheet material, mechanism for preventing smearing of the undry ink as the sheet material is moved by said transfer drum, comprising:

a plurality of elongated, slightly spaced and parallel elements extending circumferentially around and along a substantial portion of the peripheral surface of said transfer drum between the axial ends thereof, each element having a substantially U-shaped cross section opening toward said peripheral surface;

means connecting one end of each one of said elements to said transfer drum near one edge of said peripheral surface, the other ends of said elements being located near the other edge of said surface and being movable with respect to said drum both radially and circumferentially thereof;

a plurality of L-shaped levers pivotally supported adjacent the apex of each on said transfer drum for movement around a common axis parallel with the rotational axis of the drum, each lever being pivotally connected to a said other end of a said element;

pawl and ratchet means for releasably holding said levers against pivotal movement in one direction, whereby said elements are releasably held by said levers in first positions snugly adjacent said peripheral surface of said transfer drum, the radially outer edges of said elements defining a cylindrical surface substantially concentric with, and only slightly larger in diameter than, the diameter of said transfer drum; and

resilient means connected between said transfer drum and each element near said other end thereof and continuously urging said other ends radially away from said peripheral surface and circumferentially away from said pivot axis, so that release of the pawl and ratchet associated with any given element permits movement thereof radially outwardly from said cylindrical surface, whereby said given element will engage the sheet material along an uninked portion thereon and hold the printed indicia away from the adjacent elements.

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