(54) Rotating brush cleaner system
Waschvorrichtung mit rotierender Bürste
Système de nettoyage avec brosse rotative

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Description

This invention relates to a printing system with apparatus for cleaning printing press components.

Devices employed in the printing industry become contaminated with debris such as ink and lint. This problem occurs whether the printing is on paper or fabrics. The debris also forms, to varying degrees, on all kinds of printing equipment. For example, offset printing has become the predominant printing method in the newspaper publishing industry.

Offset printing presses typically employ a blanket cylinder, that is to say, a rubber cylinder or a rubber-covered cylinder, for the purposes of receiving inked images from a printing plate. The inked images are then offset onto paper passed between the blanket cylinders or impression cylinder and blanket surface. Continuous printing is made possible by wrapping a print plate or a plurality of printing plates around the surface of a plate cylinder designed for rotation in contact with the blanket cylinder.

In operating blanket-to-blanket presses, a web of paper passes between two blanket cylinders mounted such that one blanket cylinder serves as an impression cylinder for the other. This results in “perfecting” which is simultaneous printing on both sides of the web of paper. Continuous offset printing is adversely affected by dust and lint from the web of paper which tend to accumulate on the blanket cylinder(s). This dust and lint reduces the quality of the printed product. The accumulation of dust, lint or ink on a blanket cylinder thus presents a serious annoyance and necessitates undesirable downtime for cleaning. The problem is especially acute in the newspaper industry, when, in response to the rising cost of newsprint stock, less expensive grades of paper having higher lint content often are substituted for more expensive grades.

The problem of collection of debris such as ink, dust and lint on printing devices is not limited to offset printing. It occurs in press equipment in general. For example, it occurs on Anilox Rollers, Flexo Plate Cylinders and Plates, pipe rollers in newspaper presses, metal decorating press blanket cylinders, rollers and impression cylinders, Gravure press cylinders and rollers, Flexo press cylinders and rollers, and textile printing plates, blankets and rollers. The problem of cleaning equipment is well known as indicated by prior efforts for printing equipment cleaner devices.

In some types of printing, sheets are cut and stacked prior to printing. The sheets are prevented from sticking by application of a dusty material such as corn starch. Use of corn starch laden sheets provides another source of debris.

Previously known vacuum devices for cleaning blanket cylinders involved wet vacuum systems for removing debris. In these systems, segments of the blanket cylinder are continually immersed and cleaned with a solvent. See, for example, U.S. Pat. Nos. 3,049,997 and 3,309,993 to Grembechi et al. and U.S. Pat. No. 3,835,779 to Ross et al. The present invention avoids the need for solvents by employing a completely dry system for removing debris.

Dry systems are known per se, and an example according to the precharactered part of claim 1 is described in our EP-A-0389565. In this prior printing system, a movable component such as a printing blanket is cleaned by a rotating dry brush means which is mounted for displacement between an operative position engaging the component and an inoperative position. Means are provided for removing debris from the brush means, which comprises a vacuum source.

An alternative debris removal process is disclosed in IBM Technical Disclosure Bulletin, "Cleaner to Developer Toner Recycling," Eide and Witte, Vol. 21, No. 5, October 1978, pp 1784-1785 that discloses the use of only a slight vacuum caused by the rotation of the brush.

The invention, in a first aspect is characterised in that the brush means is configured so that when in said operative position it is rotated by virtue of its engagement with said moving component and a member engages the brush means for impeding the rotation thereof such as to produce a relative sliding motion between the brush means and the moving component to produce said cleaning thereof, and for dislodging debris from the brush means.

Furthermore, in accordance with the invention from another aspect the brush means comprises a rotary brush so configured that when in said operative position it is rotated by virtue of its engagement with said moving component in such a manner as to produce a rotary brushing action over the surface of said component to produce cleaning thereof.

The brush means may comprise a spiral brush. The action of the spiral brush in combination with the movement of the component is such as to loosen dust and lint from the component. The dust and lint may be then drawn into a vacuum system which may include a housing that surrounds the spiral brush. The interference of bristles on the spiral brush with the component causes each bristle to flex radially, flicking the debris and lint off the component and to the vacuum source area. In addition to radial flicking, the spiral in the brush causes lateral movement of bristles as the brush rotates, thus effecting additional cleaning.

The spiral brush may also be segmented to allow portions to be independently engaged and disengaged as needed. Alternatively, the brush may be laterally adjustable so that it can align with printing components of varying dimensions.

The frequency of engagement and operation of the rotating brush of this invention may be adjustable by a press operator in response to various anticipated or observed parameters such as lint content of the paper stock and length of the press run.

Further features and advantages of the system according to the invention will be apparent to those skilled in the art in light of the following description of
preferred embodiments in connection with the accompanying drawings, in which

FIGURE 1 is a side perspective view, in partial cross-section, of a rotating brush cleaner system constructed in accordance with one embodiment of the present invention;
FIGURE 2 is a side view of the rotating brush cleaner system in the engaged position;
FIGURE 3 is a side view of the rotating brush cleaner system in the disengaged position;
FIGURE 4 is an enlarged side view, in cross-section, of the rotating brush cleaner system in accordance with one embodiment of the present invention;
FIGURE 5 is a front view in cross-section of a brush assembly having segmented brushes wound in the same direction;
FIGURE 6 is a front view in cross-section of a brush assembly having laterally adjustable brushes;
FIGURE 6A is a side view in cross-section of a brush assembly having an adjustable flicker blade;
FIGURE 7 is a front perspective view of a brush assembly having segmented brushes wound in opposite directions.

Referring now to the drawings, and, in particular, to Figure 1, there is shown a rotating brush cleaner system. The rotating brush cleaner, shown generally at 20, includes at least one spiral brush 24, a housing 40 and an airflow means 41.

The rotating brush cleaner is mounted in operative association with a blanket cylinder 28, generally parallel to a longitudinal axis of the blanket cylinder. Rotating brush cleaner mounting brackets 30 are attached to the press frame (not shown) generally outside either end of the blanket cylinder 28. Pivoting arms 34 connect the rotating brush cleaner 20 with mounting brackets 30. These pivoting arms 34 serve to carry the rotating brush cleaner 20 and are pivotal about pin 36.

The rotating brush cleaner is generally pivotal between two operative positions. Pivoting of said arms 34 between these positions is affected by a plurality of actuators 38 attached to pivot arms 34. Preferably, the actuator employed is a pneumatic actuator, although manual, electrical or hydraulic actuators can be used if desired. Conventionally, a pneumatic actuator is used because compressed air is commonly available in the press rooms.

In the first operative position, rotating brush cleaner 20 is biased away from the blanket cylinder 28 to facilitate, for example, replacement of the spiral brushes and/or repair or maintenance of the machine.

In the second operative position, the rotating brush cleaner 20 is held in contact with the surface of the blanket cylinder 28. In this second position, the rotating brush cleaner can affect cleaning and removal of the lint and debris from the blanket cylinder.

The vacuum portion of one embodiment of the rotating brush cleaner 20 is generally comprised of a substantially U-shaped housing 40 extending along the length of the blanket cylinder and a spiral brush 24. The spiral brush 24 is mounted inside housing 40 which in turn is mounted to pivot arms 34.

In the engaged second position, the spiral brush 24 is driven by the blanket cylinder 28 and thus, rotates in the same direction as the blanket cylinder 28. The amount of interference the spiral brush 24 and blanket cylinder 28 have in the engaged second position can be varied, as required, to improve the ability of the spiral brush 24 to loosen and remove lint and debris from the blanket cylinder.

Referring now to FIG. 5 there is shown an alternate embodiment for the rotating brush cleaner. In FIG. 5, the brush holder 62 is segmented to allow individual sections to be lifted so as not to contact the blanket cylinder during cleaning. Segmenting can be desirable since newspaper blanket cylinders are generally set up in quarters or pages; i.e., a web can be double width (full blanket) or single width (half blanket). If a single width is used, ink can get onto the cylinder that does not have web covering it. When that occurs, ink can foul a continuous brush in the non-web area. Segmenting the brushes, preferably into four sections, permits the brushes in the unused area to be lifted away. The rotating brush cleaner may be segmented into as many sections as desired to provide for maximum versatility. Also, lifting the brushes may be accomplished by any effective means and can be done either manually, as shown, pneumatically, electrically or mechanically.

In the case of commercial web presses, segmenting of the brushes may not be feasible. This is because the web being operated on may vary greatly in width. For such applications the brush assembly can be made laterally adjustable along the width of the blanket cylinder. See FIG. 6. In the embodiment shown in FIG. 6, brush holder 68 is slideably mounted within housing 70 along slots 72. Locking means 74 serve to maintain the brushes in the desired lateral location. In this fashion the brushes may be aligned for the particular application to be performed.

A variety of materials can be used for spiral brushes 24, provided that they do not damage the surface of the blanket cylinder 28. These materials include both natural and synthetic fibers. The spiral brushes can be spiraled in different directions and can range in pitch from about 0.3 to 2.5 cm (1/8 inch to 1 inch), preferably 0.3 to 0.9 cm (1/8 inch to 3/8 inch). The stiffness of the bristles can be varied by choosing different length and diameter bristles. In varying the spiral angle and bristle diameter of the spiral brushes, the speed of rotation of these brushes in the engaged second position is varied. The spiral wound, round brushes can also vary in diameter; preferably the diameter is 5 to 7.5 cm (2 inches to 3 inches).

Housing 40, (FIG. 4) in the form of an inverted U-shaped channel, has a top surface 44 and parallel sides, 46 and 48 respectively. Housing 40 is mounted between pivot arms 34 in a downward position with the open end facing the blanket cylinder 28. Alternatively, U-shaped
housing 40 may be mounted forward or backward relative to the centerline of the blanket cylinder 28 as desired.

A fliercker blade 82 (Fig. 4) is mounted to the surface of housing 40 and is parallel to sides 46 and 48 of the housing. The fliercker blade 82 engages spiral brush 24 and can be adjusted, as in Figure 6A, to vary its interference with spiral brush 24. By varying the interference, the speed of rotation of the spiral brush can be varied. When the speed of the rotating spiral brush 24 is differentially slower than the speed of the rotating blanket cylinder, removal of lint and debris is more effectively accomplished.

Flexible wipers 50 (Fig. 4) are positioned at the ends of sides 46 and 48 of housing 40 and serve to contact the surface of blanket cylinder 28 to provide sealing surfaces in contact with the blanket cylinder when the rotating brush cleaner is engaged.

Loosened lint and debris 52 (Fig. 4) are removed from the interior of housing 40 by means of an airflow source, such as by vacuum or air pressure. An airflow generating machine 41 (Fig. 1) is connected to port 58 in housing 40 by hose 56. Lint and debris 52 are conveyed through hose 56 by means of the airflow to be deposited in an appropriate disposal unit (not shown).

In FIG. 7 there is shown an alternate embodiment for the rotating brush cleaner. Spiral brushes are segmented into four segments in housing 40. The two brushes 92 and 94 contained in the left side of housing 40 are spiraled so that the rotation of the brushes drives the debris to port 90 on the left end of housing 40.

The two brushes 96 and 98 in the right side of housing 40 are spiraled in the opposite direction so that the same mechanical and windage effect drives the debris to a second port 91 on the right end of housing 40. In this way, the rotating brushes remove the debris and drive it to the ports for better removal. Also the spiraling on the brushes can be altered to direct flow of the debris in different directions; for example, to only one end of the housing.

Referring now to Figures 2-4, there is shown the general operation of the blanket cleaner in accordance with the blanket to blanket press embodiment of the present invention. A web of imprinting material 60 passes between counterrotating blanket cylinders 28 and is imprinted on both front and rear sides of the web.

In the course of this imprinting operation, lint and debris 52 from the web 60 accumulate on the surface of the blanket cylinders 28 and, is allowed to remain thereon, tend to reduce the overall quality of the printed product.

In order to remove this lint and debris from the surface of the blanket cylinders 28, rotating brush cleaners 20, generally located atop the blanket cylinders 28, are biased against the cylinders by biasing means in the form of actuators 38. Generally, it is not necessary that the rotating brush cleaners 20 be continuously in contact with blanket cylinders 28 throughout the imprinting operation, however, where an excessive amount of lint and debris accumulate rather quickly, it may be desirable to leave them engaged during operation of the press. Under normal operating conditions the rotating brush cleaners 20 are periodically actuated against the blanket cylinders for a predetermined time to effect cleaning of the surface.

Periodic operation of the blanket cleaner of this invention may be controlled by conventional timing mechanisms related either to rotation of the presses or on command of the operator. In any case, the operation of the actuator is controlled so that when blanket cleaning is desired, the actuator 38 is operated so that the cleaner is moved from the disengaged position (Figure 3) to the engaged position (Figure 2). In the engaged position the spiral brushes 24 are brought into contact with the surface of blanket cylinder 28. The spiral brushes 24 are utilized to remove debris and lint from the blanket cylinder 28, and after a predetermined number of rotations, the actuator 38 is operated to cause the rotating brush cleaner to disengage as shown in Figure 3.

While engaged, lint and debris that are loosened and dislodged by the brushes 24 are drawn off and disposed of by the vacuum system. This effectively removes the lint and debris from the blanket cylinder during the imprinting operation. The particular embodiment just described is preferred because of the ease of installation and adjustment provided by the construction described. For example, the various working parts are located physically above the blanket cylinder 28, and thus are readily accessible both for installation and maintenance.

The rotating brush cleaner can be employed in the printing industry to clean a wide variety of press and printing equipment in general. Examples of such equipment include the following: blanket cylinders, impression cylinder, Anilox rollers, Flexo plate cylinders and plate, pipe rollers in newspaper presses, metal decorating press blanket cylinders, rollers, and impression cylinders, Gravure press cylinders or rollers, Flexo press cylinders or rollers, and textile printing plates, blankets or rollers, or gripper bar cleaners. Possibilities for cleaning in the graphic arts field are vast and encompass the following areas: lithography (offset), Flexography, Gravure, Intaglio and letter press.

The foregoing is considered as illustrative only of the present invention and it is not limited to the particular embodiments discussed herein. Various changes, substitutions and modifications may be made thereto by those skilled in the art without departing from the scope of the invention defined by the appended claims.

Claims

1. A printing system, comprising a movable component (28), rotating dry brush means (24) for cleaning the component of dirt and lint, the brush means (24) being mounted for displacement between an operative position engaging the component (28) for producing cleaning thereof and an inoperative position away from the component, and means (40, 41) for removing debris from the brush means character-
ised in that the brush means (24) is configured so
that when in said operative position it is rotated by
virtue of its engagement with said moving compo-
nent (28), and a member (82) engages the brush
means for impeding the rotation thereof such as to
produce a relative sliding motion between the brush
means (24) and the moving component (28) to pro-
duce said cleaning thereof, and for dislodging debris
from the brush means.

2. A printing system according to claim 1 wherein the
brush means (24) comprises a spiral brush, and the
member (82) comprises a flicker blade engaging
bristles of the brush.

3. A system according to claim 2 wherein said flicker
blade (82) is adjustable to increase or decrease the
interference of said flicker blade with said spiral
brush (24) to control the rotational speed of the spiral
brush.

4. A system according to claim 3 wherein said spiral
brush has a spiral angle and bristle diameter
selected to set the speed of rotation of said spiral
brush relative to the speed of movement of the mov-
able component, separately from the speed control
produced by adjustment of the flicker blade.

5. A system according to any preceding claim wherein
the movable component (28) comprises a blanket
cylinder.

6. A system according to any preceding claim wherein
the brush means is mounted in a housing (40), and
actuator means (38) are provided to move the hous-
ing between the operative and inoperative positions
for the brush means (24).

7. A system according to claim 6 wherein the debris
removing means includes air flow means (41) cou-
ted to the housing (40) to extract debris therefrom.

8. A system according to claim 7 including sealing
means (50) for producing a seal between edges of
the housing (40) and the movable component (28),
when in the operative position.

9. A system according to claim 6, 7 or 8 wherein said
brush means (24) is adjustable relative to said hous-
ing (40)

10. A system according to claim 9 wherein said brush
means (24) is segmented into sections, which sec-
tions are separably moveable between a first posi-
tion away from said movable component (28) and a
second position adjacent said movable component.

11. A system according to claim 10 wherein the brush
segments comprise spiral brushes (24) that are all
spiralled in the same direction.

12. A system according to claim 10 wherein the brush
segments include at least two spiral brushes (24)
that are spiralled in opposite directions.

13. A printing system, comprising a movable component
(28), brush means (24) for cleaning the component,
the brush means (24) being mounted for displace-
ment between an operative position engaging the
component (28) for producing cleaning thereof and
an inoperative position away from the component,
and means (40, 41) for removing debris from the
brush means characterised in that the brush
means (24) comprises a rotary brush so configured
that when in said operative position it is rotated by
virtue of its engagement with said moving compo-
nent (28) in such a manner as to produce a rotary
brushing action over the surface of said component
to produce cleaning thereof.

14. A printing system according to claim 13 including
means (82) for impeding rotation of the brush means
(24) such as to produce a relative sliding motion
between the brush means (24) and the moving com-
ponent (28) to produce said cleaning thereof.

15. A printing system according to claim 14 wherein the
brush means (24) comprises a spiral brush, and the
impeding means (82) comprises a flicker blade
engaging bristles of the brush.

Patentansprüche

1. Drucksystem, das ein bewegliches Bauelement
(28), eine rotierende Trockenbürsteinrichtung (24)
zum Reinigen des Bauelementes von Schmutz und
Linters, wobei die Bürsteinrichtung (24) für eine Ver-
stellung zwischen einer Ein-Stellung, in der sie an
dem Bauelement (28) angreift, um dessen Reini-
gung zu bewirken, und einer von dem Bauelement
entfernten Aus-Stellung angebracht ist, und eine
Einrichtung (40, 41) zum Entfernen von Rückstän-
den von der Bürsteinrichtung aufweist, dadurch
gekennzeichnet, daß die Bürsteinrichtung (24) so
gestaltet ist, daß sie auf Grund ihres Angreifens an
dem sich bewegenden Bauelement (28) gedreht
wird, wenn sie sich in der Ein-Stellung befindet, und
dazu an der Bürsteinrichtung ein Element (82) zum
Hemmen ihrer Drehung, so daß eine relative Gleit-
bewegung zwischen der Bürsteinrichtung (24) und
dem sich bewegenden Bauelement (28) hervorge-
rufen wird, um dessen Reinigung zu bewirken, und
zum Verlagern von Rückständen von der Bürstein-
richtung angreift.
2. Drucksystem gemäß Anspruch 1, wobei die Bürsteinrichtung (24) eine Spiralbürste aufweist und das Element (82) ein Schlagblatt aufweist, das an Borden der Bürste angreift.

3. System gemäß Anspruch 2, wobei das Schlagblatt (82) einstellbar ist, um die gegenseitige Beeinflussung des Schlagblattes und der Spiralbürste (24) einzustellen, um die Drehgeschwindigkeit der Spiralbürste zu steuern.

4. System gemäß Anspruch 3, wobei die Spiralbürste einen Spiralwinkel und einen Borstendurchmesser aufweist, die ausgewählt werden, um die Drehgeschwindigkeit der Spiralbürste in bezug auf die Bewegungsgeschwindigkeit des beweglichen Bauelementes getrennt von der Geschwindigkeitsteuerung einzustellen, die durch die Einstellung des Schlagblattes bewirkt wird.

5. System gemäß einem der vorhergehenden Ansprüche, wobei das bewegliche Bauelement (28) einen Gummizylinder aufweist.

6. System gemäß einem der vorhergehenden Ansprüche, wobei die Bürsteinrichtung in einem Gehäuse (40) angebracht ist und Stellmittel (38) vorgesehen sind, um das Gehäuse zwischen der Ein-Stellung und der Aus-Stellung für die Bürsteinrichtung (24) zu bewegen.

7. System gemäß Anspruch 6, wobei die Einrichtung zum Entfernen von Rückständen eine Luftstromeinrichtung (41) aufweist, die mit dem Gehäuse (40) verbunden ist, um Rückstände daraus herauszuziehen.

8. System gemäß Anspruch 7, einschließlich Dichtungsmitteln (50) zur Erzeugung einer Abdichtung zwischen Rändern des Gehäuses (40) und dem beweglichen Bauelement (28) in der Ein-Stellung.

9. System gemäß Anspruch 6, 7 oder 8, wobei die Bürsteinrichtung (24) in bezug auf das Gehäuse (40) einstellbar ist.

10. System gemäß Anspruch 9, wobei die Bürsteinrichtung (24) in Abschnitte segmentiert ist, wobei die Abschnitte trennbar zwischen einer ersten, von dem beweglichen Bauelement (28) entfernten Stellung und einer zweiten Stellung angrenzend an das bewegliche Bauelement beweglich sind.

11. System gemäß Anspruch 10, wobei die Bürstensegmente Spiralbürsten (24) aufweisen, die alle in der gleichen Richtung spiralförmig gewickelt sind.

12. System gemäß Anspruch 10, wobei die Bürstensegmente wenigstens zwei Spiralbürsten (24) umfas-

sen, die in einander entgegengesetzten Richtungen spiralförmig gewickelt sind.

13. Drucksystem, das ein bewegliches Bauelement (28), eine Bürsteinrichtung (24) zum Reinigen des Bauelementes, wobei die Bürsteinrichtung (24) für eine Verstellung zwischen einer Ein-Stellung, in der sie an dem Bauelement (28) angreift, um dessen Reinigung zu bewirken, und einer von dem Bauelement entfernten Aus-Stellung angebracht ist, und eine Einrichtung (40, 41) zum Entfernen von Rückständen von der Bürsteinrichtung aufweist, dadurch gekennzeichnet, daß die Bürsteinrichtung (24) eine Drehbürste aufweist, die so gestaltet ist, daß sie auf Grund ihres Angreifens an dem sich bewegenden Bauelement (28) gedreht wird, wenn sie sich in der Ein-Stellung befindet, auf eine solche Weise, daß auf der Oberfläche des Bauelementes eine Dreh-Bürstwirkung hervorgerufen wird, um dessen Reinigung zu bewirken.

14. Drucksystem gemäß Anspruch 13, einschließlich einer Einrichtung (82) zum Hemmen der Drehung der Bürsteinrichtung (24), um eine relative Gleitbewegung zwischen der Bürsteinrichtung und dem sich bewegenden Bauelement (28) hervorzurufen, um dessen Reinigung zu bewirken.

15. Drucksystem gemäß Anspruch 14, wobei die Bürsteinrichtung (24) eine Spiralbürste aufweist und die Hemmeinrichtung (82) ein Schlagblatt aufweist, das an Borden der Bürste angreift.

Revendications

1. Système d’impression, comprenant un élément mobile (28), des moyens à brosses sèche tournante (24) pour nettoyer l’élément et le débarrasser de la saleté et des peluches, les moyens à brosses (24) étant montés pour un déplacement entre une position de fonctionnement mettant en prise l’élément (28) afin d’effectuer son nettoyage, et une position de repos, à l’écart de l’élément, et des moyens (40, 41) pour éliminer les débris des moyens à brosses, caractérisé en ce que les moyens à brosses (24) sont configurés de façon telle que lorsqu’ils se trouvent dans ladite position de fonctionnement, ils sont mis en rotation grâce à leur prise avec ledit élément mobile (28), et un élément (82) met en prise les moyens à brosses pour gêner leur rotation, de manière à générer un mouvement de glissement relatif entre les moyens à brosses (24) et l’élément mobile (28) afin d’effectuer son dit nettoyage, et pour déloger les débris des moyens à brosses.

2. Système d’impression selon la revendication 1, dans lequel les moyens à brosses (24) comprennent une brosse héliocidale, et l’élément (82) comprend une lame oscillante pénétrant les poils de la brosse.
3. Système selon la revendication 2, dans lequel ladite lame oscillante (82) est ajustable pour augmenter ou diminuer l’interférence de ladite lame oscillante avec ladite brosse hélicoidale (24) afin de régler la vitesse de rotation de la brosse hélicoidale.

4. Système selon la revendication 3, dans lequel ladite brosse hélicoidale possède un angle d’hélice et un diamètre de poil sélectionnés pour fixer la vitesse de rotation de ladite brosse hélicoidale par rapport à la vitesse de mouvement de l’élément mobile, indépendamment du réglage de la vitesse produit par l’ajustement de la lame oscillante.

5. Système selon l’une quelconque des revendications précédentes, dans lequel l’élément mobile (28) comprend un cylindre de blanchet.

6. Système selon l’une quelconque des revendications précédentes, dans lequel les moyens à brosse sont montés dans un logement (40) et des moyens à actionner (38) sont prévus pour déplacer le logement entre les positions de fonctionnement et de repos des moyens à brosse (24).

7. Système selon la revendication 6, dans lequel les moyens d’élimination de débris comprennent des moyens de circulation d’air (41) couple aux logements (40) afin d’éviter les débris de celui-ci.

8. Système selon la revendication 7, comprenant des moyens de fermeture étanche (50) pour produire un joint d’étanchéité entre les bords du logement (40) et l’élément mobile (28), lorsqu’il se trouve dans la position de fonctionnement.

9. Système selon la revendication 6, 7 ou 8, dans lequel lesdits moyens à brosse (24) sont ajustables par rapport audit logement (40).

10. Système selon la revendication 9, dans lequel lesdits moyens à brosse (24) sont segmentés en sections, lesquelles sections peuvent se déplacer séparément entre une première position à l’écart du dit élément mobile (28) et une seconde position adjacente audit élément mobile.

11. Système selon la revendication 10, dans lequel les segments de brosse comprennent des brossettes hélicoïdales (24) qui vont toutes en spirale dans le même sens.

12. Système selon la revendication 10, dans lequel les segments de brosse comprennent au moins deux brossettes hélicoïdales (24) qui vont en spirale dans des sens opposés.

13. Système d’impression, comprenant un élément mobile (28), des moyens à brosse (24) pour nettoyer l’élément, les moyens à brosse (24) étant montés pour un déplacement entre une position de fonctionnement mettant en prise l’élément (28) afin d’effectuer son nettoyage et une position de repos à l’écart de l’élément, et des moyens (40, 41) pour éliminer des débris des moyens à brosse, caractérisé en ce que les moyens à brosse (24) comprennent une brosse tournante configurée de façon telle que lorsqu’elle se trouve dans ladite position de fonctionnement, elle est mise en rotation grâce à sa prise avec ledit élément mobile (28) de manière à produire une action de brossage tournant sur la surface dudit élément afin d’effectuer son nettoyage.

14. Système d’impression selon la revendication 13, comprenant des moyens (82) pour générer la rotation des moyens à brosse (24) de manière à produire un mouvement de glissement relatif entre les moyens à brosse (24) et l’élément mobile (28) afin d’effectuer son dit nettoyage.

15. Système d’impression selon la revendication 14, dans lequel les moyens à brosse (24) comprennent une brosse hélicoidale, et les moyens pour générer (82) comprennent une lame oscillante pénétrant les polis de la brosse.