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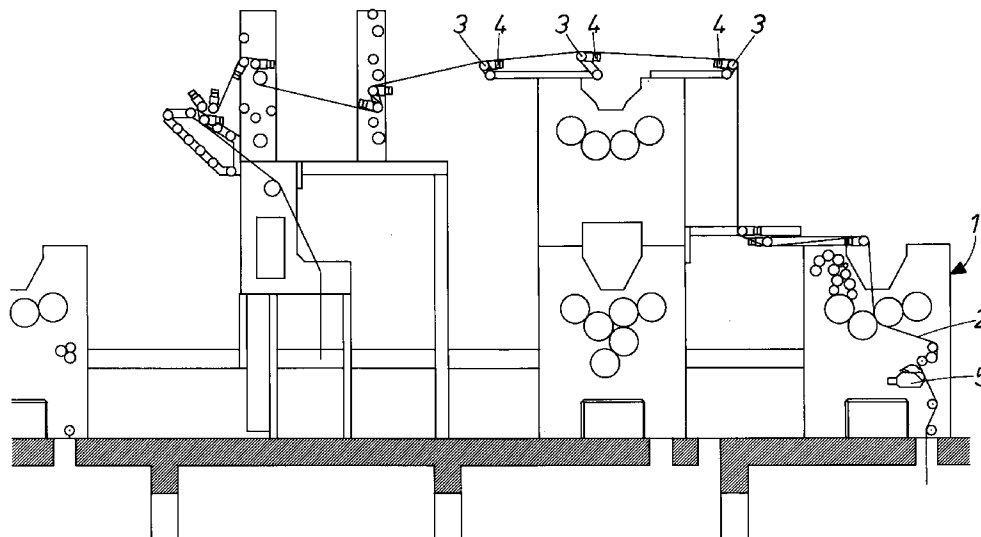
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(54) A method and device for cleaning guide rollers in a printing press

(57) In a printing press a paper web (2) is lead over guide rollers (3). In order to clean these rollers the position of each of them is determined, whereupon the web in continuous motion is centrally provided by means of an applicator (5) with a length of washing solution and is

transferred to the rollers, and each roller is braked pulsewise, when an appropriate part of the length reaches it.



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Description

Technical Field

The present invention relates to a method and device for cleaning guide rollers in a printing press, a paper web being lead over these rollers.

Background of the Invention

A printing press is often provided with a large number of guide rollers, over which the web is lead to further processes after printing. The total number of such rollers is often many times greater than the number used in a certain application.

The rollers used will after a certain running time cause set-off problems by being dirtied with printing ink residues, paper fibres and so forth and need to be cleaned.

Conventionally, the web can be removed from the printing press and the used rollers be manually cleaned with a washing solution or cleaning liquid. It goes without saying that such a manual cleaning is laborious and splashy, and after the cleaning the web has again to be lead through the press manually.

The Invention

A far better method of cleaning the utilized guide rollers is according to the invention attained in that

the position of each roller to be cleaned is determined,
the web in continuous motion is provided at a place remote from the rollers with a length of washing solution or cleaning liquid,
the length is transferred to each roller, and
each roller is braked pulsewise, when an appropriate part of said length passes over it.

More precisely, the position of each roller to be cleaned (in the form of x/y coordinates in a printing press related coordinate system), the diameter of the roller, and the web speed are supplied to a computer for determining a proper roller braking sequence for obtaining an optimal cleaning result.

At the sliding movement of the web over the braked rollers a certain web tension is built up, which ultimately may lead to a web break. Accordingly, only a limited number of rollers may be braked at the same time.

As said, an operating sequence for obtaining best possible cleaning result is determined. This sequence may involve more than said maximum number of rollers, but for avoiding web break they are not allowed to be braked concurrently.

The x/y coordinates and the diameter of each roller in the press can be pre-entered in the computer together with a corresponding ordinal number. For a

certain set-up only the ordinal numbers for the rollers used need to be entered in the computer in the order they are engaged by the web.

The length of washing solution on the web is preferably applied by means of an applicator remote from the rollers in the printing press.

The above defined process means that washing solution in a certain length is applied on the web and transported to each roller to be cleaned. The rotating roller will be provided with washing solution from the web. The cleaning effect is greatly enhanced by pulsewise braking of the roller, so that it will be rubbed and cleaned. If desired for improving the cleaning and drying of the roller, pulsewise braking of the roller may also occur, when a dry part of the web has reached the roller.

The Drawing

The invention will be described in further detail below reference being made to the accompanying drawing showing a printing press embodying the invention.

Description of a Preferred Embodiment

An example of a printing press is shown in the drawing. This press has a number of printing units 1, each having an ink train, a dampener arrangement, a plate cylinder and a blanket cylinder in the case of an offset press. (It has to be noted, however, that the invention is applicable to different types of printing presses.) A paper web 2 passes the blanket cylinder in the printing unit 1, where it is printed.

After having been printed, the web continues over a certain number of rollers or guide rollers 3 out of a much greater number of such rollers totally provided in the press. The chosen path for the web depends on the further processing in the press, which may vary widely.

Each such roller 3, over which the web 2 passes in a particular application, is provided with a brake 4, by which it may be brought to a stand-still. This brake 4 may for example be electrically controlled, pneumatically operated and mechanically applied. Other designs are possible.

At the web 2, preferably before or downstream of the printing unit 1, an applicator 5 for washing solution or cleaning liquid is arranged. This applicator is further described in applicant's copending Swedish Patent Application No 9504660-3, and no description is accordingly given here. However, by means of a driven roller thereof a washing solution may be transferred from the applicator 5 to the web 2. When washing solution is not to be transferred, the roller is withdrawn from contact with the web 2.

The device is provided with a computerized control system, whereby a cleaning sequence as described below may be obtained.

The positions of the respective rollers 3 used in a

particular set-up are supplied to the computer in the form of x/y coordinates with a suitable origo in the printing press, for example in the applicator 5. Also positions of rollers and/or bars over which the web is lead but which are not to be cleaned have to be put into the computer. Further data put into the computer are the speed of the web 2 and the diameter of each roller 3 passed by the web 2. The winding angle of the web 2 around each roller 3 is computed by the computer.

Based on the computer data thus created the control system may operate the arrangement in the following way for cleaning each roller 3 used in a particular set-up from paper fibres, printing ink residues and the like:

The web 2 moves with a given speed through the arrangement. The applicator 5 provides the web with a length of washing solution which is either fixed or appropriate with regard to the number of rollers to be cleaned. Based on the input data and the fact that only a limited number of rollers may be braked at a time for avoiding an otherwise occurring web break, the computer determines a certain brake sequence for the roller brakes, so that an optimal cleaning result is obtained. When an appropriate part of the washing solution length reaches a rotating roller 3, washing solution is transferred to the roller. In order to greatly improve the cleaning of the roller by a rubbing effect, the roller is then braked pulsewise by its brake 4.

The washing solution can then together with the dirt be removed by a subsequent dry part of the web 2. The cleaning and drying effect may be improved by pulsewise braking of the roller also at this stage, but the main cleaning effect is obtained in the first stage with the washing solution.

Claims

1. A method for cleaning guide rollers (3) in a printing press, a paper web (2) being lead over these rollers, **characterized** in that

the position of each roller (3) to be cleaned is determined,
the web (2) in continuous motion is provided at a place remote from the rollers with a length of washing solution or cleaning liquid,
the length is transferred to each roller, and
each roller is braked pulsewise, when an appropriate part of said length passes over it.

2. A method according to claim 1, **characterized** in that the position of each roller (3) to be cleaned - in the form of x/y coordinates in a printing press related coordinate system -, the diameter of the roller, and the speed of the web (2) are supplied to a computer for determining a proper roller braking sequence for obtaining an optimal cleaning result.

3. A method according to claim 1 or 2, **characterized** in that the maximum number of concurrently braked rollers (3) is determined for avoiding web break due to increased web tension.

4. A method according to claim 3, **characterized** in that an operating sequence for obtaining best possible cleaning result is determined and that this sequence may involve more than the maximum number of rollers (3), however not braked concurrently.

5. A method according to any of the preceding claims, **characterized** in that initially the x/y coordinates and the diameter of each roller (3) in the press are entered in the computer together with a corresponding ordinal number and that only the ordinal numbers for the rollers used in a certain set-up are entered in the computer in the order they are engaged by the web (2).

6. A method according to claim 1 or 2, **characterized** in that the length of washing solution on the web (2) is applied by means of an applicator (5) remote from the rollers (3) in the printing press.

7. A method according to any of the preceding claims, **characterized** in that the roller (3) to be cleaned is braked by means of a brake (4).

8. A device for cleaning guide rollers (3) in a printing press, a web (2) being lead over these rollers, **characterized** by

an applicator (5) remote from a rollers (3) to be cleaned for applying a length of washing solution or cleaning liquid to the web (2) being in continuous motion,
a computer for storing data about the position of each roller in relation to the applicator and the diameter of each roller and for controlling the operation of the device, and
a roller brake (4) to be applied pulsewise, when an appropriate part of the length of washing solution passes over the respective roller.

9. A device according to claim 8, **characterized** in that the applicator (5) has an applicator roller brought into contact with the web (2), when washing solution is to be applied to the web.

10. A device according to claim 8 or 9, **characterized** in that the roller brake (4) is electrically controlled, pneumatically operated and mechanically applied.

