

PATENT SPECIFICATION

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(54) INK DUCT FOR OFFSET OR RELIEF PRINTING PRESSES

(71) We, HEIDELBERGER DRUCKMASCHINEN AKTIENGESELLSCHAFT, a body corporate organised under the laws of the Federal Republic of Germany of 69 Heidelberg, Alte Appelheimer Strasse 15-21, Postfach 102940, Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to ink ducts for offset or relief printing presses.

Conventional ink ducts include an ink dosing device which is adjustable with reference to the doctor roller to form an inking gap. The adjustment is often effected in zones by means of separately adjustable elements.

Known ink ducts of this type are normally provided with a fountain screw made of spring steel extending along the length of the ink duct, which is adjustable with reference to the doctor roller by means of zone screws, while the spacing between each fountain screw zone and the doctor roller determines the thickness of the ink film in that zone. In these cases, the ink is present in the wedge-shaped space between the fountain screw and the doctor roller. Due to the different rotary movement of the doctor roller and the variable zone adjustment of the fountain screw and variations of consistency in the ink, different hydrodynamic forces come into play which have varying effects on the doctor roller, upon the fountain screw, the ink duct and hence upon the thickness of the ink film.

Instead of the zone screws generally known, other adjusting elements have been proposed (U.S. Patent Specification No. 3041968 and German Patent Specification No. 2406940) for regulating the fountain screw in zones. These ink dosing devices again suffer from the disadvantage that the

different hydrodynamic forces produce an immediate effect in a variation of the adjusted ink film thickness. This has the consequence that in all known ink dosing devices the ink film formed by the gap between fountain screw and doctor roller is not reproducible. But the reproducibility of the ink film is an indispensable necessity particularly for modern constructions of printing presses, more particularly if they are equipped for remote control of the ink zones.

The fountain screws, with their multiple bracings against the ink zone screws, constitute a statically undetermined structure. Due to the variation in the hydrodynamic forces, the fountain screw is loaded and deformed differently, which leads immediately to a variation in the ink film thickness. Likewise the local influence of a zone screw is found to influence the ink film thickness at the adjacent zone screws, because the fountain screw consisting of a spring steel band changes its position as a whole due to distortion. Another additional problem results from the fact that the ink duct on the one hand and the doctor roller on the other hand cannot be constructed as rigidly as is desired. Now, if it is necessary to feed little or no ink to one specific point across the width of the printing press, then at that point the static pressure of the ink must first of all be overcome and then the fountain screw must be adjusted closely to the doctor roller. This brings substantial forces into play. The consequence is that doctor roller and ink duct sag, depending upon the local infeed of the fountain screw. This inevitably causes a great increase in the ink film thickness at the adjacent zones. This again destroys any reproducibility.

The disadvantage of all the known constructions is that attempts are made to adjust a gap to a few hundredths of a milli-

metre thick between the ultimately elastic parts, ink doctor roller on the one hand and fountain screw or ink duct on the other. It is impossible for this gap to be maintained constant under the different service conditions. Influences such as different ink temperature or non-circularity of the ink doctor have an additional adverse effect upon the constancy of the ink gap.

It is the aim of the invention to develop an ink duct having an ink dosing device adjustable with reference to the doctor roller, which ensures not only a sensitive regulation by zones of the ink supply, an absolute reproducibility of the interval adjusted each time between the dosing service and the doctor roller, and hence of the ink film thickness supplied, independently of the respective service conditions.

According to the present invention, there is provided an ink duct assembly for offset or relief printing machines comprising a doctor roller and ink metering means adapted to adjustably control the amount of ink applied to the doctor roller, said ink metering means comprising a multiplicity of axially arranged ink metering elements resiliently engaging directly or indirectly the doctor roller, said elements each having a support portion adapted to continuously engage the roller and a metering portion adapted to be variably spaced from the roller to permit ink to pass thereon, each element being associated with an adjustment member adapted to move the element bodily to vary the spacing of the metering portion from the roller. Due to the resilient bracing and hence guidance of the adjusting elements on the doctor roller, all variations and fluctuations of the ink film thickness—as they occur in the case of the known constructions—are eliminated. The bracing regions of the adjusting elements and their guidance against the doctor roller thus create the basic conditions for an adjustment of the dosing region which is reproducible at any time and hence a sensitive determination by zones of the ink gap. Consequently differently hydrodynamic forces of the ink, sagging of the doctor roller and of the ink duct, a circularity of the doctor roller and other above-described defects of the known devices can no longer result in a variation in the ink film thickness.

In order to eliminate any fouling of the adjusting elements, they are preferably covered by an elastic film fixed to the ink duct, through which the bracing regions are in permanent contact with the doctor roller. The elastic film may consist of plastics, rubber, a thin steel foil or the like. It is in approximately tangential contact with the ink doctor. It is pressed permanently towards the doctor roller at the contact points

of the bracing regions. Between or beside the latter the film can be deformed according to the adjustment of the dosing regions—i.e. can lift off the doctor roller and adapt itself to the dosing regions and thus permits the desired passage of ink in these regions.

The film is thus no longer comparable to a fountain screw of the conventional type, because, with the known fountain screw, it was necessary to adopt a compromise between its rigidity and the elasticity to permit an adjustment. In the case of the film used in the invention, the rigidity can be totally dispensed with, whereas the elasticity can be optimally dimensioned.

In one embodiment of the invention, the adjusting elements under the film are constructed cylindrically and rotatably in the peripheral direction, exhibit one or more bracing surfaces and the dosing surfaces are constructed beside the bracing surfaces as eccentric turned grooves. The dosing surfaces can of course also be provided cam-shaped etc. The cylindrical adjusting elements are constructed with a small diameter and make possible through the eccentric dosing surfaces a sensitive and reproducible adjustment of the ink film thickness, whilst the additional advantage is obtained that the surface exerting the pressure is small and consequently the hydrodynamic forces are weak.

In another embodiment of the invention, the adjusting elements are constructed as slidable flat pieces which exhibit one or more bracing surfaces, beside which the dosing surfaces are constructed as wedge-shaped recesses. This embodiment differs only in its design from the cylindrical adjusting elements and presents the same advantages as the latter.

In another embodiment of the invention, which does in fact differ in design from the foregoing, but employs the same basic idea, the adjusting elements are of cylindrical construction and are pivotable about an axis perpendicular to their longitudinal axis and about a tangent point with reference to the longitudinal axis of the doctor roller during the bracing against the doctor roller through the elastic film. Due to the pivoting in the tangential direction the radii of the doctor roller and of the cylindrical adjusting elements move away from each other, whereby an ink gap is produced. This gap can be adjusted in its magnitude according to the pivot angle. The tangent point about which the cylindrical adjusting elements are pivoted is in this case always resiliently in contact with the doctor roller through the elastic film. This embodiment is extremely simple in its structural design and hence favourable as to cost.

The inventive idea of the bracing and guiding the adjusting elements against the

doctor roller can also be embodied without the use of a foil or film. In one such embodiment, the adjusting elements are constructed as slidable flat pieces which as
 5 bracing surfaces are in direct tangential contact by one side with the doctor roller, are slidable tangentially to the doctor roller and exhibit in their front region a wiping edge, immediately behind which a cavity
 10 extending obliquely inwards commences as dosing surface, which occupies the width of the respective adjusting element except for one or more narrow bridges as spacing surfaces, and that the adjusting elements are
 15 always in contact with the envelope surface of the doctor roller in the region of the bridges by the force of springs, while the springs are braced against a crossmember. This alternative solution likewise avoids the
 20 deficiencies of the known construction and solves the aim adopted completely without the use of a film. It is only necessary in this case to accept a slight fouling of the adjusting elements. But the structural
 25 advantage of this embodiment lies in the fact that the crossmember with the adjusting elements can easily be pivoted away from the doctor roller—e.g. for the purpose of cleansing—without the ink being
 30 removed out of the ink duct.

Various exemplary embodiments of the invention will now be described with reference to the accompanying drawings, wherein:

35 Fig. 1 shows in side elevation an ink duct with ink roller,

Fig. 2 shows an enlarged cross-section through the ink duct of Fig. 1,

40 Fig. 3 shows a partial elevation made according to the arrow 3 in Fig. 2,

Fig. 4 shows a partial cross-section through an alternative embodiment incorporating flat adjusting elements,

45 Fig. 5 shows a partial elevation of a flat adjusting element taken along the arrow 5 of Fig. 4,

Fig. 6 shows a cross-section through a flat adjusting element taken along the arrow 6 of Fig. 5,

50 Fig. 7 shows a cross-section through alternative embodiment incorporating tangentially pivotable adjusting elements.

55 Fig. 8 shows a partial elevation of the adjusting elements taken along the arrow 8 in Fig. 7,

Fig. 9 shows a partial cross-section through an alternate embodiment of an ink duct,

60 Fig. 10 shows a partial cross-section through an alternate embodiment of an ink duct with a different bearing system for the adjusting elements,

Fig. 11 shows a cross-section through an alternate embodiment of an ink duct,

65 Fig. 12 shows a partial cross-section

through an alternate embodiment tangentially slidable adjusting elements.

Fig. 13 shows an elevation of an adjusting element taken along the arrow 12 in Fig. 11 and

70 Fig. 14 shows a cross-section through an adjusting element taken along the arrow 13 in Fig. 12.

In offset or relief printing presses, as is known, a doctor roller 2 is associated with the ink duct 1, between which the ink 3 is filled in a wedge-shaped compartment. Ink is then fed in a thin ink film from the doctor roller 2 through the siphon roller 4 through the inking roller 5, by which it is transferred into an inking unit not shown (Fig. 1). For this process the ink film can be adapted to particular requirements through the intermediary of an ink dosing device. To permit the ink duct 1 to be cleaned, it is pivotable away through a pivot joint 7. The length of the ink duct 1 and of the rollers is dimensioned in conformity with the paper format to be printed. As is known, the ink duct 1 and the rollers are mounted at both ends in printing press side walls, not shown.

The ink dosing device 6 is constituted by wide zone adjusting elements 8 which are arranged closely juxtaposed and extend across the width of the ink duct 1. In the exemplary embodiment illustrated in Fig. 2, the adjusting elements 8 are of cylindrical construction and rotatable in the peripheral direction. Associated with each adjusting element is a spring 9 which embraces the latter and presses against the doctor roller 2. The springs 9 are fixed to the ink duct 1 by means of a cover strip 10 which serves as a stop means for the springs 9 in the open state of the ink duct 1. The adjusting elements 8 are covered by an elastic film 11 which is in turn fixed in its upper region 12 to the ink duct 1. The pressure of the springs 9 is thus transmitted through the adjusting elements 8 and the film 11 to the doctor roller 2.

Considered in the axial direction of the doctor roller 2, bracing regions 13 and dosing regions 14 are arranged mutually juxtaposed on the adjusting elements 8 (Fig. 3). The bracing regions 13 are always in contact through the film 11 with the doctor roller 2 even when the adjusting elements 8 are adjusted. The dosing regions 14 are adjustable to a variable interval with reference to the doctor roller 2, so that their instantaneous interval from the doctor roller determines the ink gap in that zone.

In the exemplary embodiment illustrated in Figs. 2 and 3, the adjusting elements 8 are of cylindrical construction and exhibit one or more narrow bracing surfaces as bracing regions 13. The dosing areas 16 are constructed as eccentric turned grooves

beside the bracing surfaces 15. By rotating the adjusting elements 8, the particular interval with reference to the doctor roller 2 can be adjusted in the region of the dosing surfaces 16 and the ink gap in that zone can thus be determined. The farther the eccentric turned groove of the dosing surface 16 recedes with reference to the bracing surface 15, the greater does the ink gap become. In this case the elastic film 11 is raised from the surface of the doctor roller 2 by the static pressure of the ink 3 and is urged against the dosing surface 16, depending upon the position of the latter. The ink gap thereby determined in this region determines the thickness of the ink film and hence the quantity of ink to be transferred into the inking unit.

For the rotation of the adjusting elements 8, a bifurcate arm 17 is attached to them which is coupled through a slit 18 to the bolt 19 of an adjusting nut 20. The adjusting nut 20 is in turn secured on the screw-threaded part 21 of a set screw 22 which is mounted rotatably in the ink duct 1. By rotating the set screw 22, the adjusting nut 20 can be displaced and the arm 17 thus pivoted through the angle α . In this case the arm 17 pivots in a slot 23 of the spring 9. The pivoting range of the arm 17 thus determines the range of adjustment of the adjusting element 8.

The arrangement of the bracing surfaces 15 and of the dosing surfaces 16 on the adjusting elements 8 may be made in the manner illustrated in Fig. 3—i.e. that the bracing surfaces 15 are staggered inwards with reference to the length of an adjusting element 8. Any desired other arrangements are also possible—e.g. that the narrow bracing surfaces 15 are arranged at the end of an adjusting element 8 on both sides and are thus in contact with the respective bracing surface of the adjacent element. The width of a bracing surface 15 is adequately dimensioned at approximately 1 to 3 mm.

The film 11 extends along the length of the ink duct 1 and normally extends on both sides to under the closure pieces 24 for the wedge-shaped compartment for the ink 3.

The embodiment according to Figure 4 differs from Figure 2 substantially only in the construction of the ink dosing device 6. Here the adjusting elements 25 are constructed as slidable flat pieces which exhibit one or more bracing surfaces 26. Immediately beside the bracing surfaces 26, dosing surfaces 27 are constructed as recesses extending inwards in wedge-shape conformation (Figure 5 and 6).

These adjusting elements 25 are also arranged closely juxtaposed along the length of the ink duct 1. They are urged with their bracing surfaces 26 against the film

11, and the latter in turn against the doctor roller 2, by the force of the spring 28. In the region of the adjusting elements 25 the film 11 is supported by a cover strip 29 which serves simultaneously as stop means for the adjusting elements when the ink duct 1 is pivoted away. A set screw 30, upon the rotation of which a screwthread 31 slides the relevant adjusting element 25, serves for the tangential sliding of the adjusting elements 25. In the retracted position of the adjusting element 25 illustrated in Figure 4 its continuous front edge 32 is in contact with the film 11 and thus with the doctor roller 2, so that in this case no ink can be transferred into the inking unit. If the adjusting element 25 is now slid to the left in the example illustrated, then it is in contact with the film 11 solely by its bracing surface 26 and in the region of the wedge-shaped dosing surfaces the film 11 lifts off the doctor roller 2 and contacts the dosing surfaces, so that an adjustable ink film can be transferred. A maximum in this respect is obtained in the position shown by chain dotted lines. Again with this construction of the adjusting element 25 the bracing surface 26 may be arranged as desired.

The embodiment according to Figure 7 differs from the previous ones in the construction of the ink dosing device 6. Here the adjusting elements 33 are of cylindrical construction and exhibit no recesses for dosing surfaces. The adjusting elements 33 are fixed in the prolongation between the centre point of the doctor roller 2 and that of the adjusting elements 33 to a bolt 34 which is mounted rotatably in the ink duct 1. A handle 35 serves for its rotation and is pivotable through the angle α and is locked through the intermediary of a spring plate 36 which is fixed to the ink duct 1.

The adjusting element 33 is urged through the film 11 against the doctor roller 2 by a compression spring 37. When the adjusting element 33 occupies its initial position, in which its longitudinal axis extends parallel to the longitudinal axis of the doctor roller 2, as is illustrated for the lower adjusting element 33 in Figure 8, it is in contact through the film 11 with the doctor roller along its entire length, whereby the ink feed in this zone is stopped. When the adjusting elements 33 are pivoted tangentially to the doctor roller 2 by the angle α , the ends of the adjusting elements 33 are displaced with reference to the doctor roller 2 and their contact surfaces move apart. This creates the gap α , by the variable width of which the thickness of the ink film to be transferred into the ink unit can likewise be adjusted. In this case the adjusting element 33 is always in contact, through the film 11, with the doctor roller

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2 by its tangent point 38. The pivoting of the adjusting elements 33 thus always occurs about this tangent point 38.

Figure 9 shows a mounting of the adjusting element 8 in the ink duct 1 on a surface 39 oriented in wedge-shape to the doctor roller 2. The compression spring 40 here acts through a pressure piece 41 upon the adjusting element 8 so that it is urged through the film 11 against the doctor roller 2 by the surface 39 extending in wedge-shaped configuration to the doctor roller 2. Here again the rotation of the adjusting element 8 is effected through the intermediary of arms 42 through the angle α .

In Figure 10 the adjusting element 8 is urged through the film 11 against the doctor roller 2 by a leaf-spring 43. The leaf-spring 43 is fixed to the ink duct 1 by means of a bar 44. In its front region it carries a stop 45 for the adjusting element 8. The functioning and adjustment of the adjusting element 8 occurs in the manner described.

The exemplary embodiment illustrated in Figure 11 employs an ink dosing device 6 as shown in Figure 2. The adjusting elements 8 are here mounted in pressure bars 58 subdivided by zones, which are masked by the film 11 and which each exhibit in its front region a recess 59 for the adjusting element 8. The pressure bars 58 are attached loosely to the ink duct 1 by the screws 60 so that the compression springs 61, through the pressure bars 58, urge the adjusting elements 8 against the film 11 and hence against the doctor roller 2. The masking means 62 is so constructed that it prevents the adjusting elements 8 from falling out when the ink duct is pivoted away. Here again the operative principle of the ink dosing device 6 corresponds to the exemplary embodiments described previously.

In the various exemplary embodiments of the invention which have been described it is immaterial whether the film 11 is slightly angled from the doctor roller 2, as shown in Figure 2, whether it slightly wraps the doctor roller as in Figure 4, or whether it extends precisely tangentially as in Figure 7. The deformation of the film 11 is not influenced by its elasticity.

Figure 12 shows an exemplary embodiment of the invention wherein the ink duct 46 is arranged beneath the doctor roller 2 and wherein the ink dosing device 6 is mounted on a crossmember 47 of the ink duct 46. Again with this embodiment, a plurality of adjusting elements 48 are arranged along the length of the ink duct, which are each urged towards the doctor roller 2 by a leaf-spring 49 attached to the crossmember 47. In contradistinction to the embodiments previously described, in

this case the adjusting elements 48 are not covered by a film, but are in direct tangential contact by one side 50 with the doctor roller 2. In the front region of the adjusting elements 48 they exhibit a wiping edge 51, immediately behind which an obliquely inwardly oriented recess 52 commences, which is constructed as a dosing surface 53 (Figure 13 and 14). The dosing surfaces occupy the width of the respective adjusting element 48 except for narrow bracing surfaces 54. The bracing surfaces 54 are constructed as narrow bridges and form a plane with the side 50 and with the wiping edge 51.

The adjusting elements 48 are slidable tangentially to the doctor roller 2, while the sliding is effected through a screw-thread 55 and an adjusting nut 56 which is fixed to the crossmember 47 by a rotary bearing. Figure 12 shows the retracted position of the adjusting element 48, in which the wiping edge 51 is in contact with the doctor roller 2 by the force of the leaf-spring 49, so that no ink is transferred into the inking unit in that zone. As the adjusting elements 48 are slid downwards into the position shown by chain dotted lines, the thickness of the ink film increases continuously in conformity with the obliquely inwardly oriented dosing surfaces 53. The position shown in chain dotted lines indicates a maximum. Here again the bracing surfaces 54 may be distributed as desired across the width of the adjusting elements 48.

The dosing surfaces are drawn deeper in the drawings than is necessary in practice, for the sake of immediate clarity. Their depth corresponds in practice approximately to the maximum ink film thickness required.

WHAT WE CLAIM IS:

1. An ink duct assembly for offset or relief printing machines comprising a doctor roller and ink metering means adapted to adjustably control the amount of ink applied to the doctor roller, said ink metering means comprising a multiplicity of axially arranged ink metering elements resiliently engaging directly or indirectly the doctor roller, said elements each having a support portion adapted to continuously engage the roller and a metering portion adapted to be variably spaced from the roller to permit ink to pass thereon, each element being associated with an adjustment member adapted to move the element bodily to vary the spacing of the metering portion from the roller.

2. An ink duct according to claim 1 wherein the adjusting elements are covered by an elastic film fixed to the ink duct through which the bracing regions are in permanent contact with the doctor roller.



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2 by its tangent point 38. The pivoting of the adjusting elements 33 thus always occurs about this tangent point 38.

Figure 9 shows a mounting of the adjusting element 8 in the ink duct 1 on a surface 39 oriented in wedge-shape to the doctor roller 2. The compression spring 40 here acts through a pressure piece 41 upon the adjusting element 8 so that it is urged through the film 11 against the doctor roller 2 by the surface 39 extending in wedge-shaped configuration to the doctor roller 2. Here again the rotation of the adjusting element 8 is effected through the intermediary of arms 42 through the angle α .

In Figure 10 the adjusting element 8 is urged through the film 11 against the doctor roller 2 by a leaf-spring 43. The leaf-spring 43 is fixed to the ink duct 1 by means of a bar 44. In its front region it carries a stop 45 for the adjusting element 8. The functioning and adjustment of the adjusting element 8 occurs in the manner described.

The exemplary embodiment illustrated in Figure 11 employs an ink dosing device 6 as shown in Figure 2. The adjusting elements 8 are here mounted in pressure bars 58 subdivided by zones which are masked by the film 11 and which each exhibit in its front region a recess 59 for the adjusting element 8. The pressure bars 58 are attached loosely to the ink duct 1 by the screws 60 so that the compression springs 61, through the pressure bars 58, urge the adjusting elements 8 against the film 11 and hence against the doctor roller 2. The masking means 62 is so constructed that it prevents the adjusting elements 8 from falling out when the ink duct is pivoted away. Here again the operative principle of the ink dosing device 6 corresponds to the exemplary embodiments described previously.

In the various exemplary embodiments of the invention which have been described it is immaterial whether the film 11 is slightly angled from the doctor roller 2, as shown in Figure 2, whether it slightly wraps the doctor roller as in Figure 4, or whether it extends precisely tangentially as in Figure 7. The deformation of the film 11 is not influenced by its elasticity.

Figure 12 shows an exemplary embodiment of the invention wherein the ink duct 46 is arranged beneath the doctor roller 2 and wherein the ink dosing device 6 is mounted on a crossmember 47 of the ink duct 46. Again with this embodiment, a plurality of adjusting elements 48 are arranged along the length of the ink duct, which are each urged towards the doctor roller 2 by a leaf-spring 49 attached to the crossmember 47. In contradistinction to the embodiments previously described, in

this case the adjusting elements 48 are not covered by a film, but are in direct tangential contact by one side 50 with the doctor roller 2. In the front region of the adjusting elements 48 they exhibit a wiping edge 51, immediately behind which an obliquely inwardly oriented recess 52 commences, which is constructed as a dosing surface 53 (Figure 13 and 14). The dosing surfaces occupy the width of the respective adjusting element 48 except for narrow bracing surfaces 54. The bracing surfaces 54 are constructed as narrow bridges and form a plane with the side 50 and with the wiping edge 51.

The adjusting elements 48 are slidable tangentially to the doctor roller 2, while the sliding is effected through a screw-thread 55 and an adjusting nut 56 which is fixed to the crossmember 47 by a rotary bearing. Figure 12 shows the retracted position of the adjusting element 48, in which the wiping edge 51 is in contact with the doctor roller 2 by the force of the leaf-spring 49, so that no ink is transferred into the inking unit in that zone. As the adjusting elements 48 are slid downwards into the position shown by chain dotted lines, the thickness of the ink film increases continuously in conformity with the obliquely inwardly oriented dosing surfaces 53. The position shown in chain dotted lines indicates a maximum. Here again the bracing surfaces 54 may be distributed as desired across the width of the adjusting elements 48.

The dosing surfaces are drawn deeper in the drawings than is necessary in practice, for the sake of immediate clarity. Their depth corresponds in practice approximately to the maximum ink film thickness required.

WHAT WE CLAIM IS:

1. An ink duct assembly for offset or relief printing machines comprising a doctor roller and ink metering means adapted to adjustably control the amount of ink applied to the doctor roller, said ink metering means comprising a multiplicity of axially arranged ink metering elements resiliently engaging directly or indirectly the doctor roller, said elements each having a support portion adapted to continuously engage the roller and a metering portion adapted to be variably spaced from the roller to permit ink to pass thereon, each element being associated with an adjustment member adapted to move the element bodily to vary the spacing of the metering portion from the roller.

2. An ink duct according to claim 1 wherein the adjusting elements are covered by an elastic film fixed to the ink duct through which the bracing regions are in permanent contact with the doctor roller.

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3. An ink duct according to claim 1 or claim 2 wherein the adjusting elements are of cylindrical construction, are rotatable and exhibit one or more narrow bracing surfaces the dosing surfaces being constructed as eccentric grooves besides the bracing surface.
- 5 4. An ink duct according to claim 1 or claim 2 wherein the adjusting elements are constructed as slidable flat pieces which exhibit one or more bracing surfaces beside which the dosing surfaces are constructed as wedge-shaped recesses.
- 10 5. An ink duct according to claim 2 wherein the adjusting elements are of cylindrical construction and are pivotable about an axis perpendicular to their longitudinal axis and about a tangent point with reference to the longitudinal axis of the doctor roller whilst braced against the doctor roller through elastic film.
- 15 6. An ink duct according to claim 1, wherein the adjusting elements are constructed as flat pieces one side of each of which is directly in tangential contact with the doctor roller, the flat pieces being slidable tangentially relative to the doctor roller and exhibiting in their front region a wiping edge immediately behind which an obliquely inwardly extending recess is provided to form a dosing surface which occupies the width of the adjusting element except for one or more narrow bridges forming the bracing surfaces, the adjusting elements in the region of the bracing surfaces being held in direct contact with the envelope surface of the doctor roller by the force of springs braced against a crossmember.
- 30 7. An ink duct substantially as hereinbefore described with reference to Figures 1 to 3, or Figures 4 to 6, or Figures 7 and 8 or Figure 9 or Figure 10, or Figure 11 or Figure 12 to 14 of the drawings.
- 35 8. A printing press incorporating an ink duct according to any one of claims 1 to 7.
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