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(54) Abstract Title: **Transport apparatus for printing plates**

(57) The invention concerns a method and an apparatus for the handling of printing plates (6, 7), in particular in the field of an imaging device (14) for imaging the printing plates (6, 7).

Printing plates (6, 7) are moved from a first process station (11-16) to a second process station (11-16) by means of a printing plate receptacle (1), wherein the process stations (11-16) are all arranged around a centre shaft (4) on a cylinder shell surface (10) and can all be opened by the printing plate receptacle (1) as with a distributor for input or output.

An apparatus for handling printing plates (6, 7) is proposed, with a printing plate receptacle (1) including receiving decks (2, 3) for printing plates (6, 7) which are parallel, coupled together and pivotable about a common rotary shaft (4), which printing plate receptacle (1) is located in the area around the process stations (11-16) and suitable for transporting at least one printing plate (6, 7) from a first process station (11-16) to a second process station (11-16).

Thus different types of printing plate can be handled both manually, automatically or partly automatically in a less complex structure.

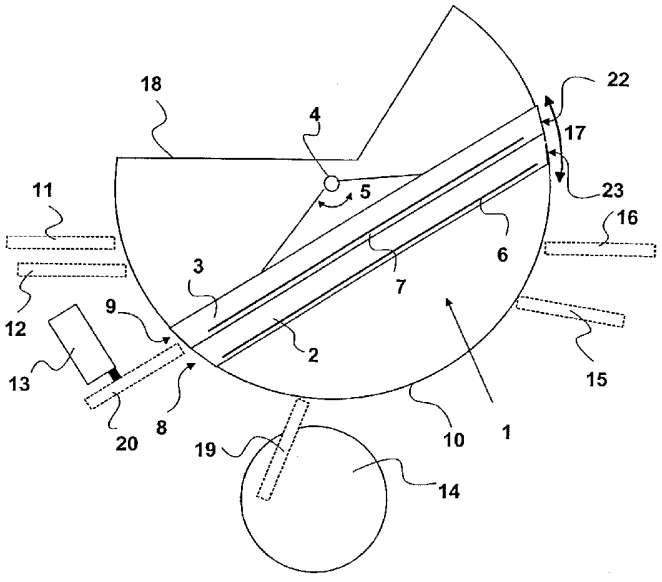

Fig. 1

GB 2 409 189 A

GB 2409189 A continuation

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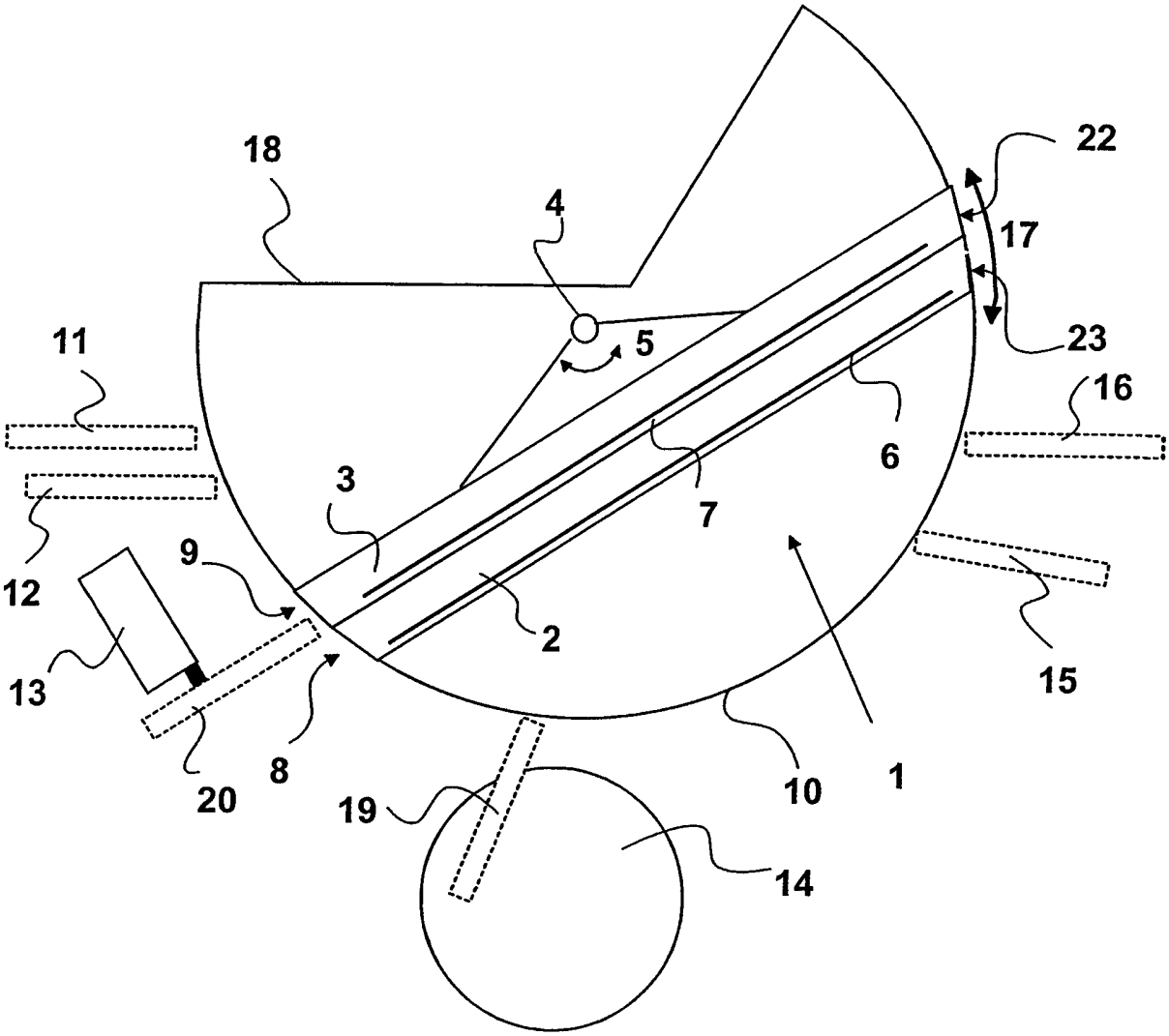
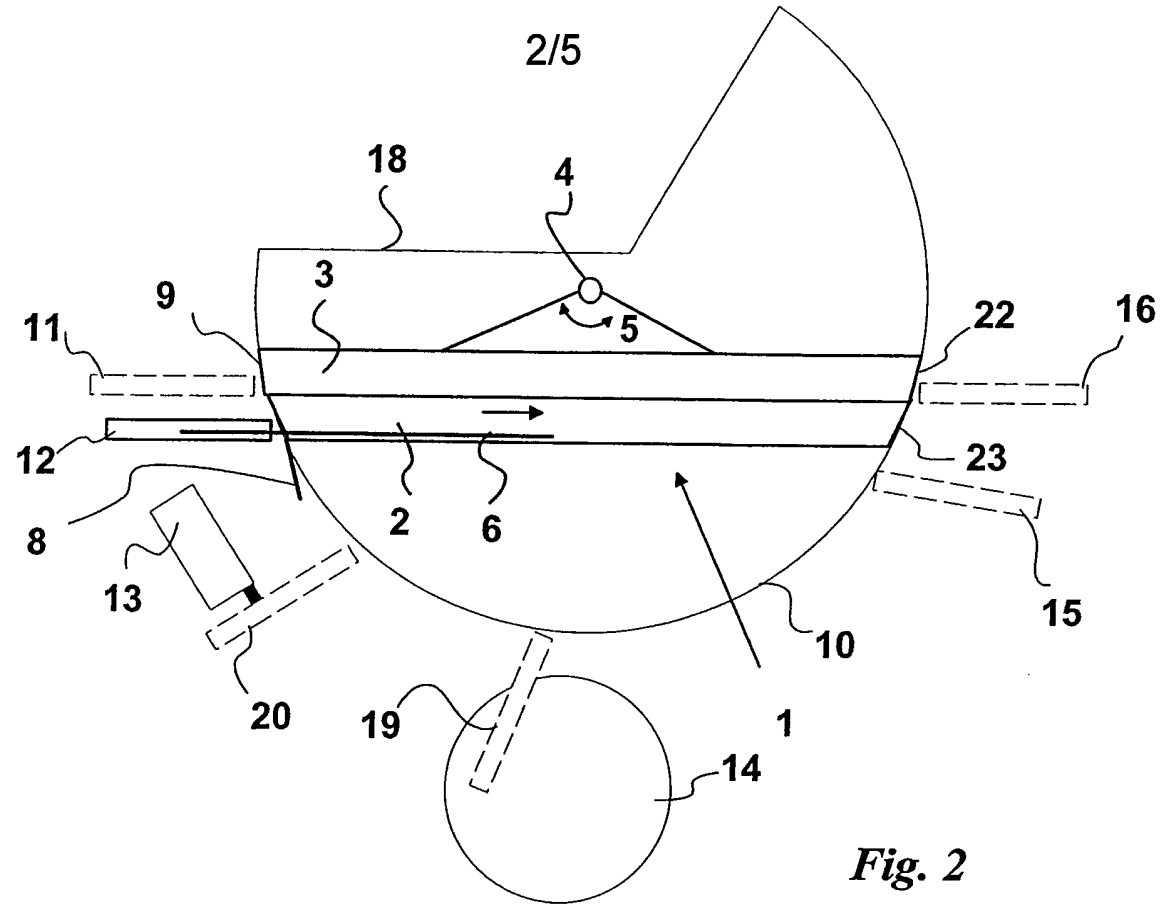


Fig. 1


18
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16
12
23
8
2
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15
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19
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14

Fig. 2

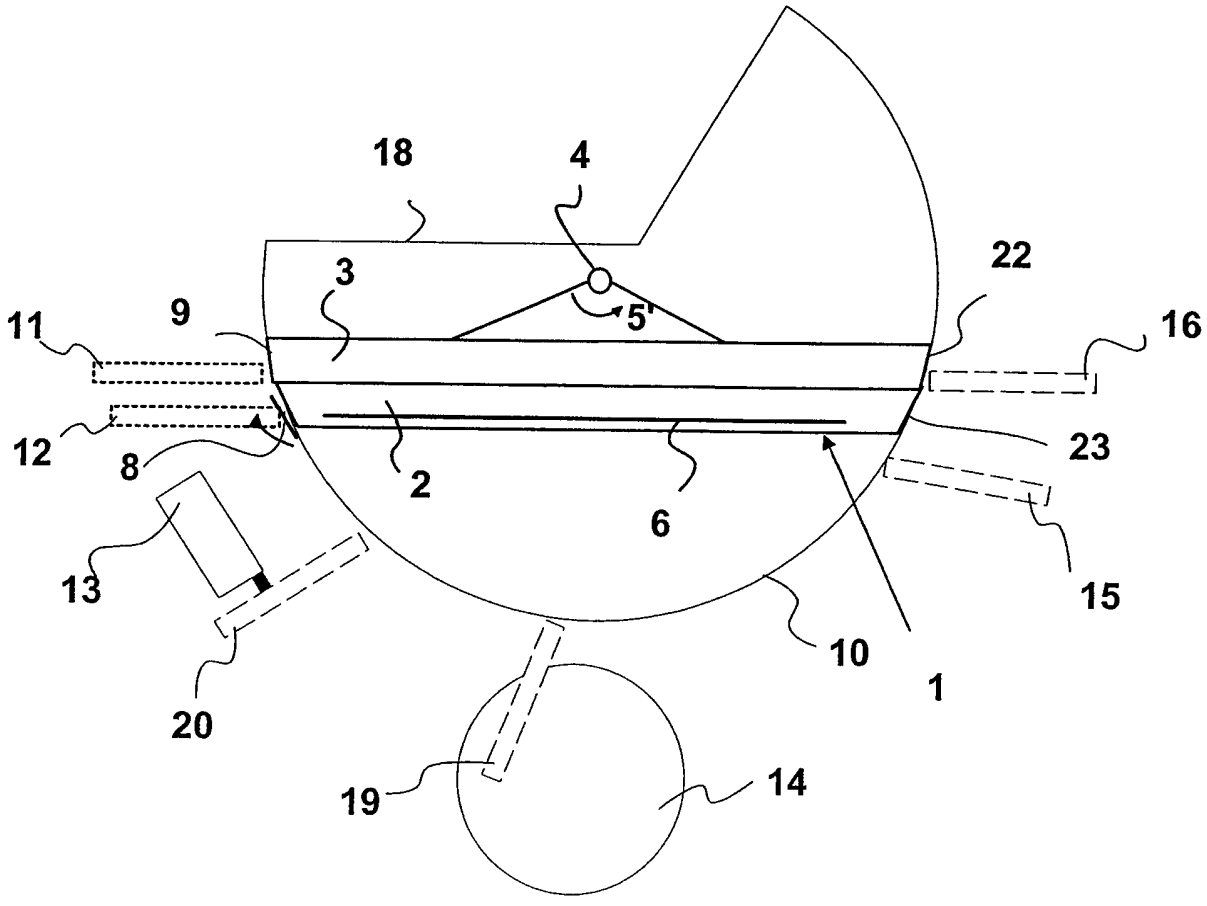
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Fig. 3

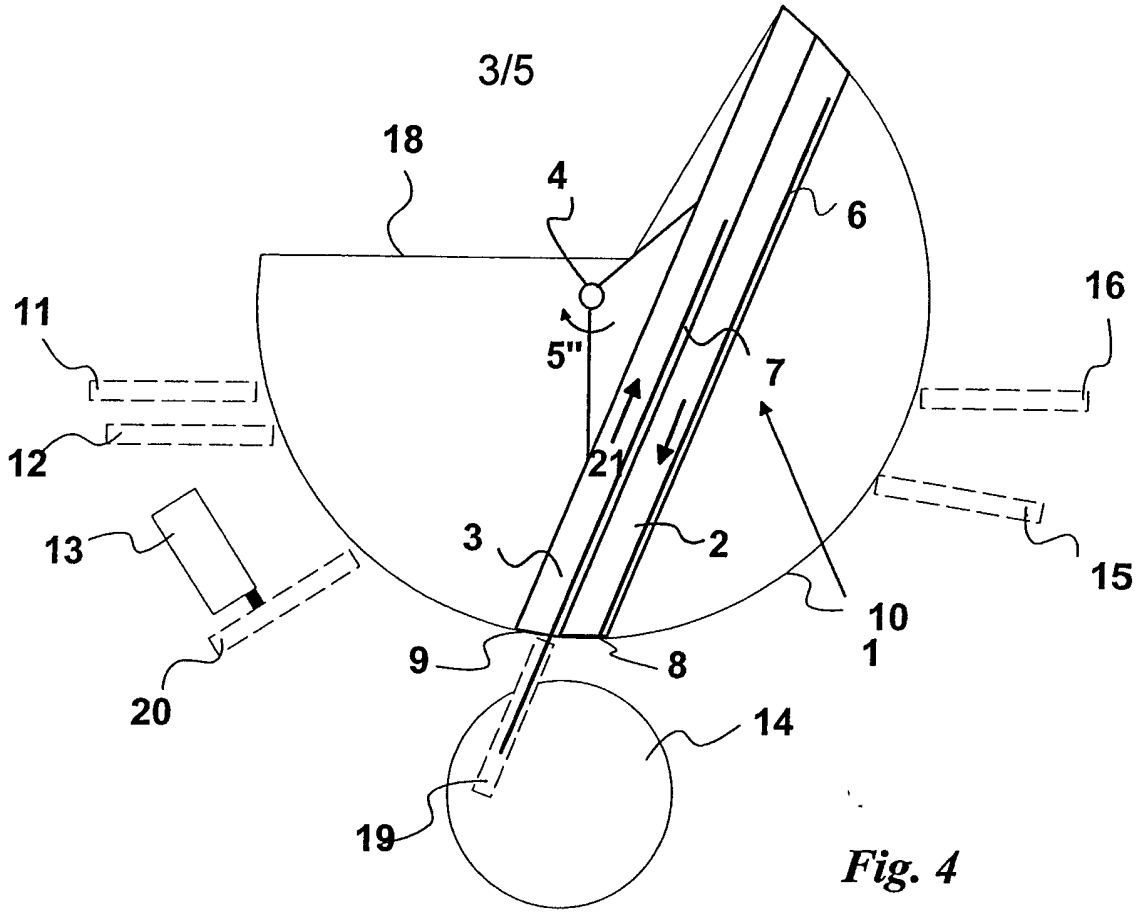
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Fig. 4

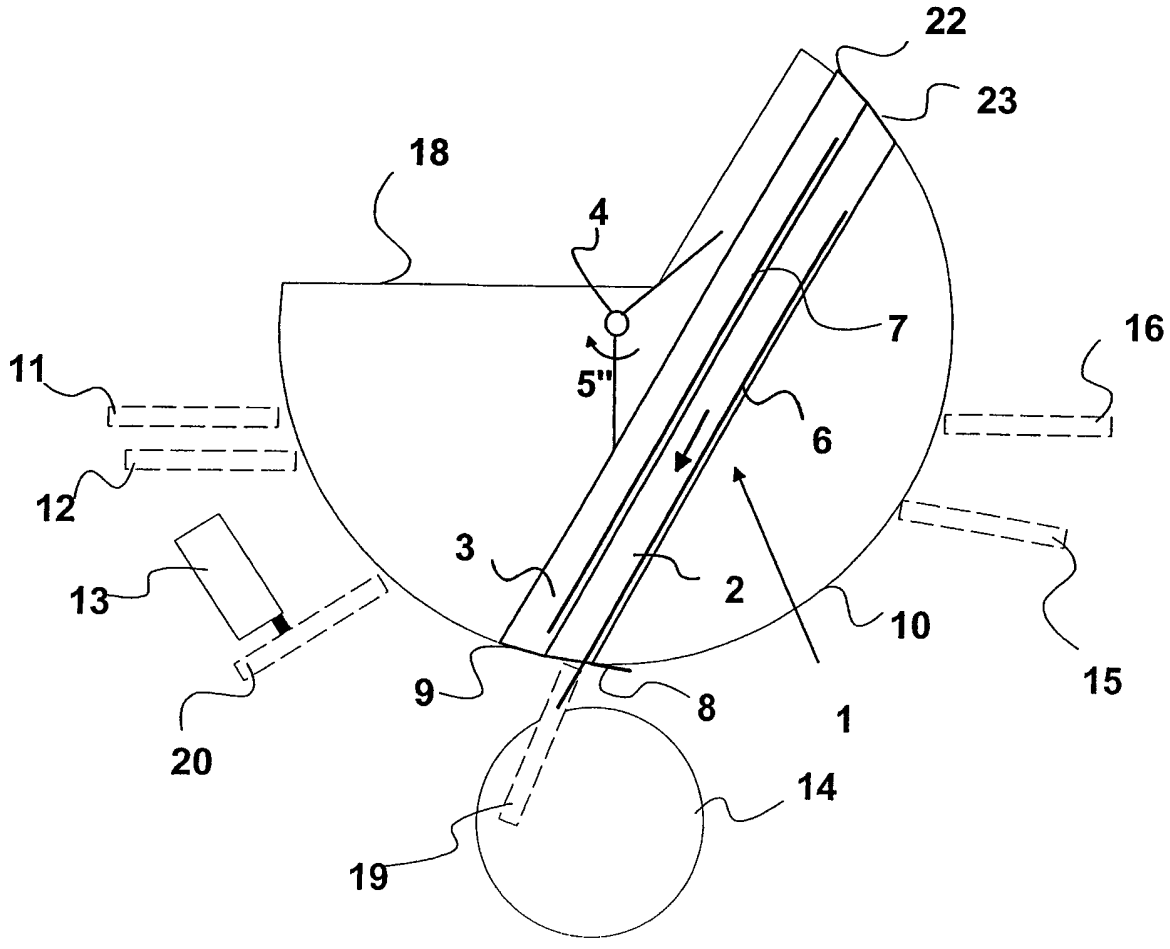
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Fig. 5

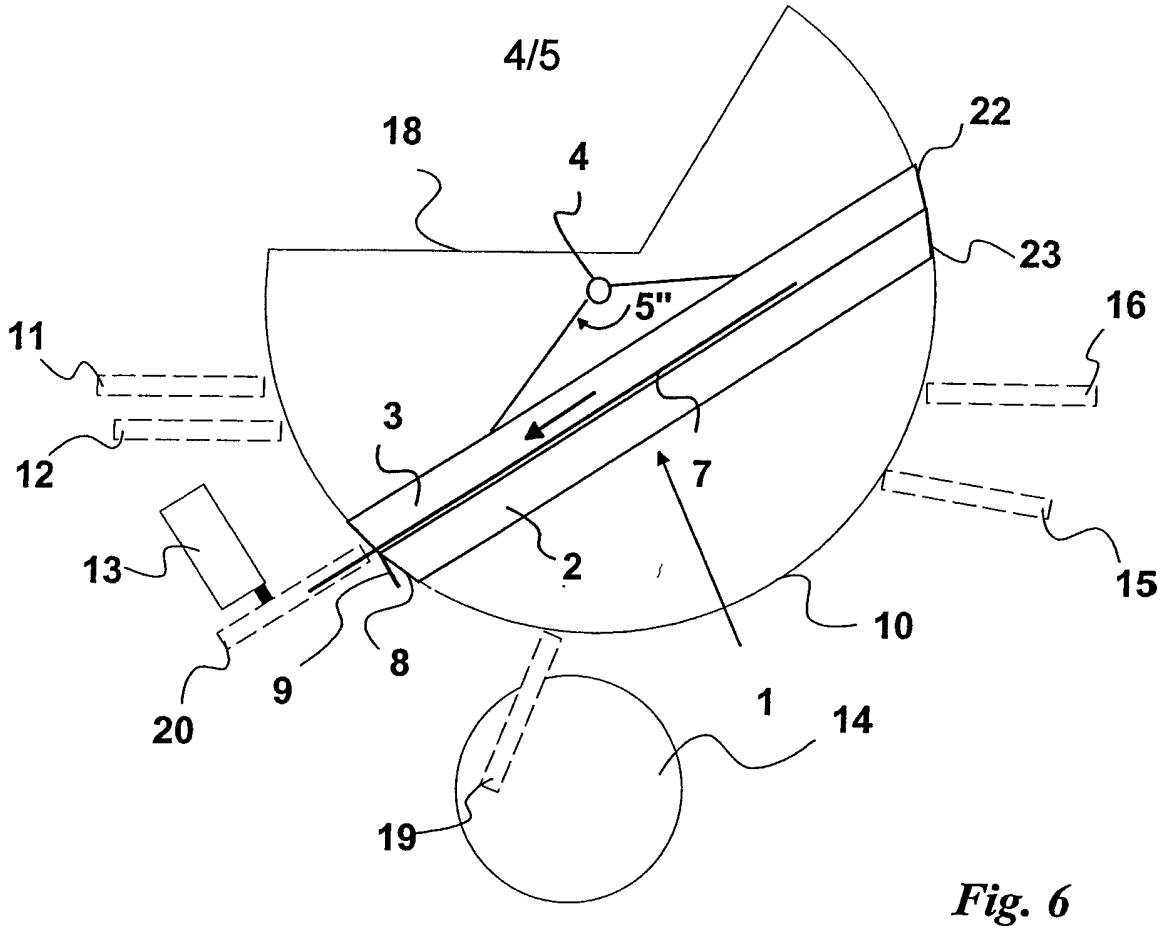
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Fig. 6

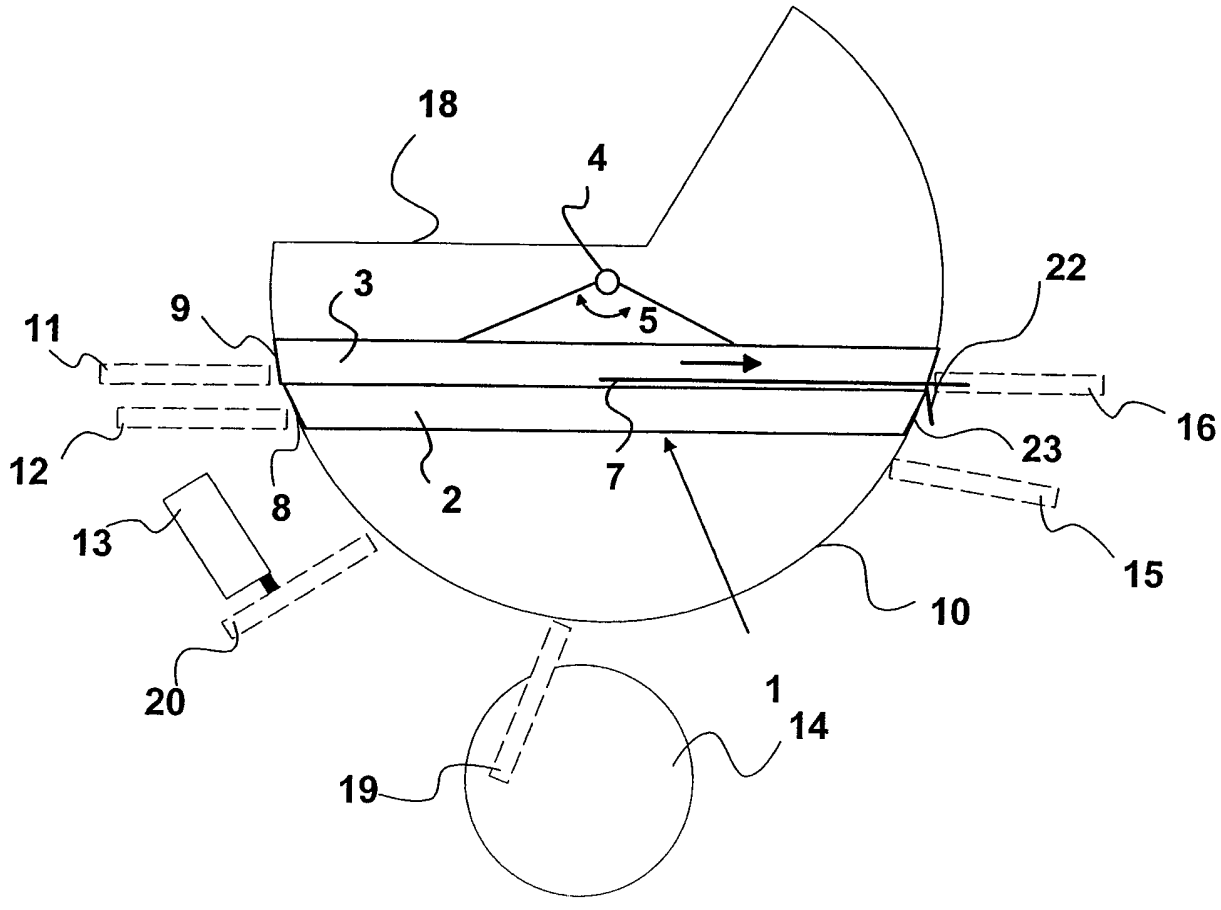
18
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Fig. 7

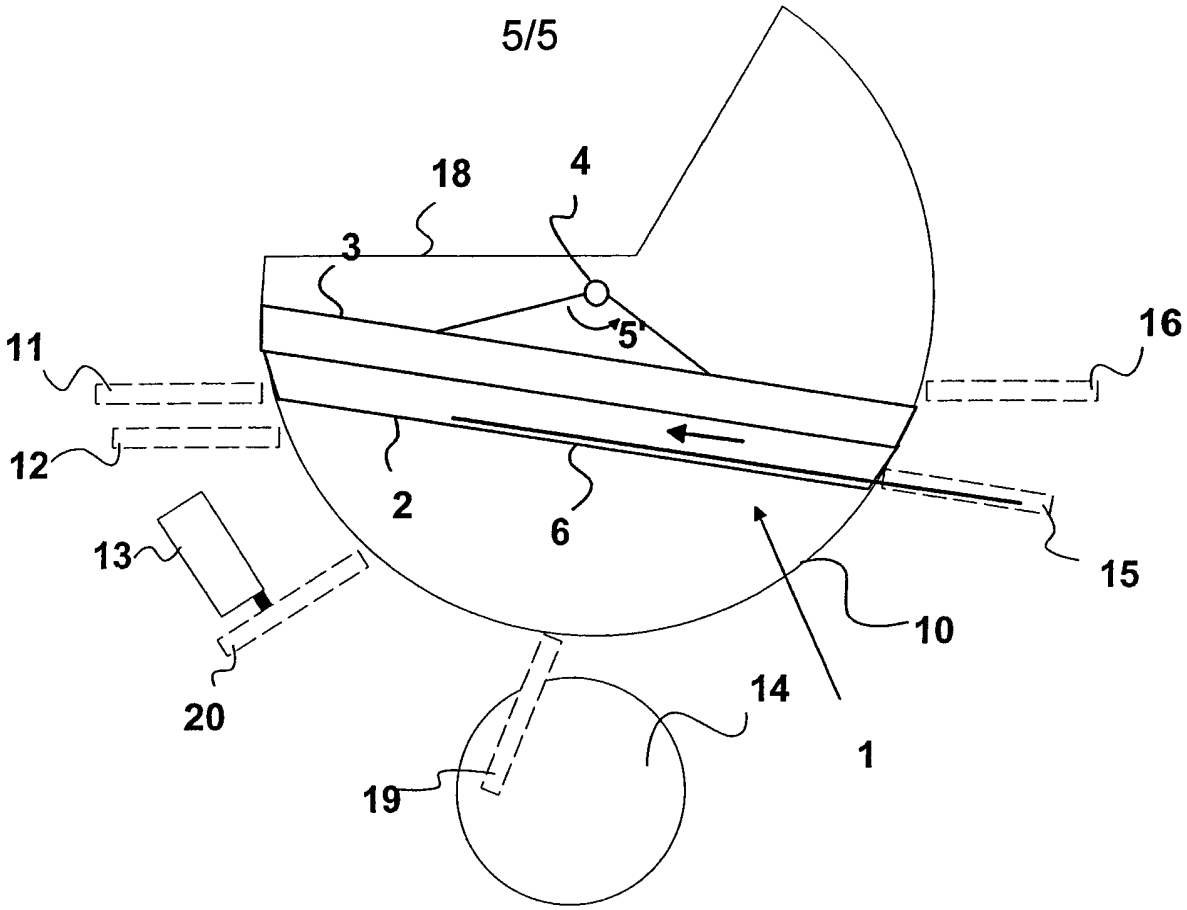

Fig. 8

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Description

Transport apparatus for printing plates

The invention concerns a method and an apparatus for the handling of printing plates, in particular in the field of an imaging device for imaging the printing plates.

Before printing blocks, e.g. printing plates, can be used in printing processes such as offset printing, they must be imaged. For the imaging of these printing plates, imaging devices such as external-drum image-setters, internal-drum image-setters or the like are used.

For imaging, the printing plates are introduced into the imaging device. The printing plates can for this purpose be inserted singly by hand, or they can be taken automatically from a cassette for printing plates. This cassette can in turn be taken from a cassette store. For automatic or semi-automatic loading of an imaging device, for example, single-cassette loaders (SCL) and multi-cassette loaders (MCL) can be used. Into a single-cassette loader is loaded a cassette which comes from a multi-cassette loader or has been delivered manually to the SCL. Within the SCL, a printing plate is then singled out from the cassette and delivered to the imaging device. A cassette can also be delivered manually to the SCL in a semi-automatic process.

Depending on the plate used, different imaging devices are necessary. The plates can differ e.g. with respect to the necessary wavelength of exposure. The respective imaging devices must then have corresponding exposure heads which include laser diodes having the matching wavelength, for example.

After imaging, it may be necessary for the printing plate also to be transported to a developing unit (processor). This may be the case when the surface layer of the printing plate was not removed by ablation during exposure in order to produce a printed image.

By development, depending on the type of plate, the exposed or unexposed areas of the surface layer are removed. Various chemicals or even different developing units may be necessary for this.

If the printing plate has been developed, it is transported to a printing press, mounted in a corresponding imaging cylinder, and can then be used in a printing operation.

If the printed image is produced in an ablative imaging process, then subsequent development of the printing plate is not necessary and the plate can be mounted in the printing press immediately (without process).

Before or after the printing plate has been imaged, it may also be necessary for register holes to be punched in the printing plate. For this, the printing plate is then transported to a corresponding punching device. The register holes serve for alignment of the printing plate with the correct register in the printing press or in the imaging device. In particular, different register holes can be provided for the printing press and the imaging device. Also, different printing presses can predetermine different register holes.

In a method for the handling of printing plates, in particular in the field of an imaging device for imaging the printing plates, it must therefore be ensured that the printing plates are moved between the various stations

which they pass through until they are mounted in a printing press.

If different types of printing plate are used, it is to be ensured that these plates are treated according to type. For this, it may be necessary for the plates then to be moved to correspondingly different imaging devices and/or developing devices.

The printing plates can for this purpose be moved manually by an operator between the different stations. For this, it may in particular be the case that the whole process must be carried out in a yellow light range in order that photosensitive plates are not incorrectly exposed.

It is also possible and mostly desirable for the printing plates to be transported automatically back and forth between the different stations. In this case it may be necessary to have separate processing paths for different types of printing plate.

Combinations between an automatic and a manual process are possible too. For instance, a printing plate may be introduced into an imaging device manually and then automatically delivered to a developing device and developed there. It is also possible for a printing plate cassette to be introduced manually into a SCL and for the remainder of the operation to be performed automatically. With these combinations too, different processing paths with respect to the apparatus may be necessary.

In order to move a printing plate automatically between two process stations, in patent US 6,213,020 is described a transport device which transports a printing plate first from a first transport path to a punching device and then to an imaging device. After imaging, the printing plate can then be taken up again by a second

transport path of the transport device. How this transport device is connected to an automatic or semi-automatic processing path, is not described.

A printing plate is transported back and forth between the punching device and the imaging device by the transport device described in US 6,213,020, by tilting the transport device. The transport device is for this purpose connected to an external drive by a complex arrangement of cams and pulleys. This drive generates, via transmissions, a torque on the transport device which is then tilted about a fixed point with which the transport device is connected to an external device. Essentially, the transport device can be tilted between two stable states by this drive.

It is the object of the present invention to indicate a method and an apparatus for the handling of printing plates, in particular in the field of an imaging device for imaging the printing plates, which have a less complex structure, can easily be used in manual, semi-automatic and automatic processing paths, and make it possible to handle a plurality of different types of printing plate in only one structure.

The object of the invention is achieved with respect to the method by the fact that at least one printing plate is at least temporarily moved along one of several paths from a first process station to a second process station by means of a printing plate receptacle, wherein the process stations are in each case one of several process stations which are all arranged around a centre shaft on a cylinder shell surface and can all be accessed or opened by the printing plate receptacle as with a distributor for input or output.

Advantageously, different process stations can be supplied with printing plates by this method. The process

stations can in this case in particular be input stations for input for the printing plate. In addition a distinction can be made between manual input stations and automatic input stations, e.g. consisting of a SCL. Furthermore, output stations (manual and/or automatic) may also be involved.

Process stations may also mean imaging devices, developing devices, punching devices or the like devices. In particular, different process stations of the same type, e.g. developing devices for different printing plates, can be supplied with printing plates.

All combinations of paths between the process stations are to be possible here according to the invention. The printing plates can then be moved on a desired path. For instance, the printing plates can be moved first from an automatic input station to an imaging device, then from this exposure device to a punching device, then to a developing device, and finally to an automatic output station. After a first printing plate, a second printing plate can then be moved to a second imaging device and a second developing device having properties different from the first process stations.

With respect to the method, it is also provided that already partially treated plates can be handled by this method. For example, an already imaged plate can be transferred manually or automatically to the receptacle and then moved on to a second process station for development.

The process stations are, according to the invention, here to be arranged on the shell surface of a cylinder. Hence a maximum number of process stations can be arranged around a common centre shaft, as a result of which a small base area is necessary for this structure.

Printing plates may, according to the invention, be moved from any first process station on this cylinder shell surface to any second process station. This method is distinguished precisely by its high variability as far as the connection of the most varied process stations is concerned.

The method is here not confined to movements of the printing plates to and from input or output stations.

In a further development of the method according to the invention, it is advantageously provided that the paths along which the at least one printing plate can be moved have path ends and path beginnings which are respectively described by secants substantially independent of each other through a circle.

Advantageously, the printing plates are for this purpose moved on paths as short as possible due to the volume encompassed by the cylinder shell surface.

The process stations lie in each case at possible beginnings or ends of paths. Here, even in their alignment they do not have to point in the direction of the centre shaft of the cylinder shell. A movement of the printing plates through the centre shaft is therefore not necessary in order to deliver the printing plate to the process stations.

The object of the invention is further achieved by an apparatus for the handling of printing plates with a printing plate receptacle including at least two receiving decks for printing plates which are parallel to each other, coupled together and pivotable about a common rotary shaft, which printing plate receptacle is located in the area around process stations for the printing plates and suitable for transporting at least one printing plate from a first process station to a second process station, all

the process stations being arranged around a centre shaft on a cylinder shell surface.

Advantageously, with this apparatus, in particular with this printing plate receptacle, the method described can be carried out.

As the printing plates are located in receiving decks, it is particularly favourable for the method according to the invention that the beginnings or ends of paths can be described by respectively independent secants.

A printing plate can easily be transferred from a first process station to a receiving deck in the inner region of the cylinder shell. This is possible if the receiving deck is pivoted up to the process station. According to the invention, the process station and the receiving deck then form a section through the cylinder and so allow easy transport of the printing plate onto the receiving deck. The advantageously pivotable receiving deck can be pivoted within the cylinder shell in such a way that at least one end of the receiving deck points to a second process station. As this process station lies in the direction of a second secant, the printing plate can easily be transferred from the receiving deck to the process station.

In an embodiment of the apparatus according to the invention, it is provided that the rotary shaft of the receiving decks coincides with the centre shaft of the cylinder shell surface. Hence the result that at least one end of a receiving deck always lies in the region of the cylinder shell surface is easily achieved without the receiving deck having to be displaced in one direction. The receiving decks also advantageously remain in the interior of the cylinder shell at any time.

In a further advantageous embodiment, with respect to the apparatus it is provided that the rotary shaft lies outside the plane of the receiving decks, and the receiving decks substantially form a secant through the circle encompassed by the cylinder shell surface.

Advantageously, this makes it possible for the structure to be composed of a section of the cylinder shell. With not too large a number of process stations, a full circle around which lie the process stations is usually not necessary, and so space can be saved. This is the case above all when the whole structure is to be made lightproof, which is desirable for printing plates.

With a rotary shaft in the plane of a receiving deck, a shell surface would always be swept by pivoting the receiving decks, which has no space advantage unless the whole of the cylinder shell surface has to be available for process stations. With a rotary shaft outside the plane, a part-circle can be swept, which is advantageous for space. Then all the necessary process stations can be accommodated on the part-cylinder surface.

Due to the at least two receiving decks of the printing plate receptacles parallel to each other and coupled together according to the invention, it is advantageously possible to perform a further advantageous step of the method which provides that at least two printing plates can be transported substantially simultaneously. These at least two printing plates can here be accommodated in the at least two receiving decks. Nor do they have to be transported simultaneously on the same paths by the apparatus. According to the invention, it may be provided that e.g. a first printing plate is transported to a first process station and then a second printing plate is transferred from a third process station to the printing

plate receptacle, while the first printing plate is delivered to a second process station or is still located in the first receiving deck. It is also possible that a first printing plate which has been transferred by the input station is present in a first receiving deck, and then the printing plate receptacle is pivoted so that a second printing plate can be transferred to the second receiving deck while the first printing plate is still in the first receiving deck.

In a further advantageous step of the method, it is provided that alignment of the printing plate is at least assisted by its own weight.

An alignment method of this kind needs advantageously at the very least less complex displacement mechanisms within the printing plate receptacle. According to the invention, it may be provided that alignment at least in one direction is assisted by the weight.

With respect to the apparatus it is provided that the receiving decks respectively have two opposed openings which can be pivoted up to process stations on the cylinder shell surface.

As a result, the space requirements for the printing plate receptacle are still further restricted. In order to transport a printing plate from a first process station to a second process station, it is not necessary for the receiving deck which has received the printing plate to be pivoted through angles which are greater than 90°. The printing plate can then if necessary leave the receiving deck through the opening which is opposite the side through which the printing plate was received.

Advantageously, in a development with respect to the apparatus it is provided that at least one, preferably both receiving decks have a pivotable stop for avoiding

accidental unloading and for possible alignment of the printing plates.

To transport printing plates into or out of a receiving deck, the stops can be pivoted out of the way. Advantageously, for movements of the receiving decks they are pivoted into the path of the printing plates in such a way that the latter cannot slide out of the receiving decks even in oblique positions. In this case they will encounter the stops. Advantageously, by means of these pivotable stops, alignment of the printing plates can be at least assisted by their weight. The receiving deck can here be pivoted so far that the printing plate begins to slide and slides against the stops and is then aligned thereon in at least one direction.

A practical example from which can also be seen further inventive characteristics, but to which the invention is not confined in its scope, is shown in the drawings. They show:

Fig. 1 a schematic structure of an apparatus according to the invention with a pivotable printing plate receptacle,

Fig. 2 the printing plate receptacle from Fig. 1 when the printing plate receptacle is loaded with a first printing plate,

Fig. 3 the printing plate receptacle when the first printing plate is loaded, with closing stop,

Fig. 4 the printing plate receptacle upon receipt of a second printing plate from an imaging device and simultaneous alignment of the first printing plate,

Fig. 5 the printing plate receptacle during unloading of the first printing plate for mounting in an imaging device,

Fig. 6 the printing plate receptacle during transport of the second printing plate to a punching device,

Fig. 7 the printing plate receptacle during transfer of the second printing plate to an automatic output station,

Fig. 8 the printing plate receptacle in case of alternative loading via an automatic input station.

In Fig. 1 is shown schematically the general structure of an apparatus according to the invention.

A printing plate receptacle 1 includes two receiving decks 2 and 3. The receiving decks 2 and 3 are coupled together and rigidly connected to a rotary shaft 4. The printing plate receptacle 1 and hence the receiving decks 2 and 3 are pivotable about the rotary shaft 4 in the direction of the arrow 5.

Printing plates 6 and 7 can be received in the receiving decks 2 and 3. The receiving decks 2 and 3 have stops 8, 9 and 22, 23 with which the openings of the receiving decks 2 and 3 can be closed. In this view, the receiving decks 2, 3 are closed with the stops 8, 9 and 22, 23.

Around the printing plate receptacle 1 on a surface 10 are arranged several process stations 11 to 16. The surface 10 is not of a material nature, it encompasses a part-cylinder which is formed by the possible positions of the printing plate receptacle 1. The printing plate receptacle 1 can, by pivoting the receiving decks 2 and 3 in the direction of the arrow 17, control the different process stations 11 to 16. The surface 10 therefore forms at least a part of a cylinder shell surface. On this surface 10 can be provided further process stations in addition to the process stations 11 to 16 shown.

The printing plate receptacle 1 is encompassed by elements not shown further here, which protect against incidence of light and help to prevent people intervening in the interior of the structure. At the top it can be bounded by a cover 18, for example.

The process stations 11 to 16 are substantially shown by a transport path of the printing plates 6 and 7 in broken lines outside the printing plate receptacle 1.

The process stations 11 and 12 are here supposed to be input or output stations: the manual input station 11 and the manual output station 12.

The process stations 15, 16 form the input and output stations for automatic loading and unloading of the printing plate receptacle: the automatic output station 16 and the automatic input station 15. The input station 15 can be adjoined by a SCL, not shown, for example. This SCL then singles out printing plates 6, 7 from a cassette, not shown, and then delivers them to the printing plate receptacle 1. If printing plates 6, 7 are conveyed out of the printing plate receptacle 1, then they can be transported by an automatic transport system which is not shown here either, through the automatic output station 16. For this the transport system can have, for example, rollers for the purpose of printing plate transport.

The process station 14 is here to form an imaging device 14 for imaging the printing plates 6, 7. The printing plates 6, 7 can be delivered by a printing plate delivery means 19 to the imaging device 14. In the imaging device 14 the printing plates 6, 7 are then mounted and can be imaged.

The process station 13 here forms a punching device 13 for punching register holes in the printing plates 6, 7. It

has a printing plate delivery means 20 for the delivery of printing plates 6, 7 to the punching device 13.

Further process stations, not shown here, can be, for example, developing devices for developing the imaged printing plates 6, 7.

Further devices, for example, developing devices, for the treatment of the printing plates 6, 7 can also be provided behind the transport system, not shown, and so after transfer to the automatic output station 16 taken up to the latter. The printing plates 6, 7 can then, after treatment in one of these devices, again be delivered to the printing plate receptacle, for example, via the input station 15. In particular, the output station 16 can also be constructed in such a way that it can also act as the input station and so can also deliver printing plates 6, 7 to the printing plate receptacle 1. It can then, for example, transfer printing plates 6, 7 after treatment out of the further devices back to the printing plate receptacle 1.

Figs. 2 to 7 show the printing plate receptacle 1 during a method for handling the printing plates 6, 7. It is shown how the printing plates 6, 7 are received in the receiving decks 2 and 3 via the manual input station 12, how the stop 8 closes the receiving deck 2 and how the printing plate receptacle 1 is then pivoted into a position for partial alignment of the printing plate 6 and for receiving the printing plate 7 from the imaging device 14. Next the printing plate receptacle 1 is pivoted into a position from which the printing plate 6 can be transferred to the imaging device 14. Following this, further pivoting takes place, so that the printing plate 7 can be transferred to the punching device 13 and there register holes can be punched. Finally the printing plate receptacle

1 is pivoted through an angle which is sufficient for the second opening of the receiving deck 3 to adjoin the automatic output station 16 and the printing plate 7 can be transferred here.

Alternative methods are possible too. In particular, automatic loading via the input station 15 and manual removal via the manual output station 11, as well as any combinations between manual input and output and automatic input and output of the printing plates 6, 7. Corresponding alternative loading of the printing plate receptacle 1 via an automatic input station 15 is shown in Fig. 8.

In Fig. 2 the stop 8 is pivoted away so that the printing plate 6 can be guided into the receiving deck 2. For this the stop 8 can, according to the invention, also be countersunk in the receiving deck 2. The drawings chosen here serve rather for greater clarity. For loading, the printing plate 6 is inserted manually via the input station 12. The input station 12 can, according to the invention, run horizontally to the bottom, and then it forms an angle of 0° with a horizontal. Other angles may be possible too, depending on the exact position of the process station on the surface 10. The angles of the process stations 11 to 16 shown in the drawings are to apply only symbolically and also indicate only a rough relationship.

Within the receiving deck 2 is located a suction carriage, not shown. The latter takes over the inserted printing plate 6, e.g. upon the user pushing a button, and transports it into the rear region of the receiving deck 2. Then the stop 8 is pivoted in front of the opening of the receiving deck 2. This closing operation is shown in Fig. 3. The stop 8 also protects the plate 6 against accidental unloading.

The printing plate 6 is moved into the region of a rear light barrier within the receiving deck 2 and, after detection of the printing plate 6 by the light barrier, moved forwards again into a further light barrier. On account of the distance travelled, the format of the printing plate can then be determined. The light barriers are not shown here. Following format detection, the printing plate 6 is released by the suction carriage.

In Fig. 4 the printing plate receptacle 1 has been pivoted through an angle of, for example, 63° in the direction of the arrow 5' from Figs. 2 and 3. This angle is selected so that the weight of the printing plate 6 is sufficient to overcome the friction with the bottom of the receiving deck 2. The printing plate 6 then slides towards the closed stop 8 and is aligned here as a result of its own weight.

In the receiving deck 2 is additionally housed a centring device, also not shown further here. It may correspond e.g. to a centring device as proposed in application DE 101 28 057 A1. By means of this centring device the printing plate 6 can then be aligned relative to the imaging device 14.

The imaging device 14 is located on the surface 10 in a position which makes it possible that, at the angle which is selected for aligning the printing plate 6, in this case therefore 63°, the printing plate 7 can be transferred from the imaging device 14 to the receiving deck 3. For this the stop 9 of the receiving deck 3 is pivoted so far that loading becomes possible. The printing plate 7 is then taken over by a suction carriage, not shown here, after it has been at least partially pushed by the imaging device 14 onto the receiving deck 3. The suction carriage then pulls the printing plate 7 in the direction of the arrow 21

completely into the receiving deck 3, and the stop 9 is closed again.

The printing plate receptacle 1 is then pivoted in the direction of the arrow 5" into the position which it occupies in Fig. 5. The angle is about 53° here.

The stop 8 of the receiving deck 2 borders on the printing plate delivery means 19 of the imaging device 14. It is then pivoted open again, and the printing plate 6 is transported by means of the suction carriage out of the receiving deck 2 into the imaging device 14. If the exposure device 14 is, for example, an external-drum image-setter, then it may be provided that the distance which the printing plate is inserted in the imaging device 14 is 20 cm, so that the end of the printing plate 6 lies just in front of contact pins, not shown here, in a clamping bar, also not shown. The suction carriage then releases the printing plate 6, which is applied to the contact pins as a result of the force of gravity. The clamping bar then closes, and the printing plate 6 is mounted in the imaging device 14. This mounting of the printing plate 6 in the imaging device 14 can also vary, depending on the type of imaging device 14. After transfer of the printing plate 6, the stop 8 is pivoted again so that the receiving deck 2 is closed.

If no printing plate 7 was located in the imaging device 14, then there is no printing plate 7 in the receiving deck 3 now either, and the printing plate receptacle 1 is then pivoted in the direction of the arrow 5" so far that it occupies the position from Fig. 2, in order then to take over a first printing plate 6, if any.

But if there is a printing plate 7 in the receiving deck 3, then the printing plate receptacle 1 is pivoted so far in the direction of the arrow 5" that the stop 9 lies

in front of the printing plate delivery means 20 of the punching device 13. This position of the printing plate receptacle is shown in Fig. 6.

The angle to the horizontal can here be 39°, for example. The stop 9 is opened and the suction carriage grips the printing plate 7 and guides it up to the contact pins of the punching device 13. This can be, for example, a distance of 100 mm, so that the distance between the contact pins and the printing plate 7 is about 1 mm. Then the suction carriage releases the printing plate 7. The latter is then aligned on the contact pins of the punching device 13 due to its own weight and can also be laterally aligned by a centring device provided in the punching device 13. To assist centring of the printing plate 7, it may be provided that there are flow holes in the bottom of the receiving deck 3 for forming an air cushion beneath the printing plate 7. Air is forced through these flow holes, so that an air cushion on which the printing plate 7 can easily slide is formed. In this way, centring of the printing plate 7 in the punching device 13 can easily be effected, as there is only little friction resistance. Then register holes are punched in the printing plate 7, serving to mount the printing plate 7 in a printing press. The printing plate 7 is then taken over by the suction carriage again and pulled into the receiving deck 3, the stop 9 is pivoted shut, and the printing plate receptacle 1 is pivoted in the direction of the arrow 5' until it occupies the position which is shown in Fig. 7.

The printing plate receptacle 1 in Fig. 7 occupies an angle of 0° to the horizontal. The stop 9 then borders on the manual output station 11. On the opposite side, the receiving deck 3 with the stop 22 borders on the automatic output station 16. In the case shown here, the stop 22 is

pivoted away and the printing plate 7 is transferred by the suction carriage to rollers, not shown, of the automatic output station 16. Of course, it is also possible for the printing plate 7 to be discharged via the manual output station 11. For this, the printing plate 7 is transferred to the manual output station 11, the stop 9 being opened beforehand.

The receiving decks 2 and 3 have at both ends respectively sensors which can detect printing plates 6 and 7 in the region of the stops 8, 9 and 22, 23 and, if occasion arises, cause the stops to pivot away.

If automatic loading of the printing plate receptacle 1 is to be effected, then for this purpose the printing plate receptacle 1 must be pivoted in such a way that the stop 23 is located in front of the automatic input station 15. The angle to the vertical is then to be around -10°, which means that the stop 8 is located above the manual input station 11. This position is shown in Fig. 8. The printing plate 6 is then transported by transport devices, not shown, of the input station 15 at least so far into the receiving deck 2 that the suction carriage can take over further transport. Further steps of the method can then correspond to those shown in Figs. 3 to 7.

With manual loading, the printing plate receptacle 1 can remain in the position for unloading which it adopted in Fig. 7, and the next printing plate 6 can, as described for Fig. 2, be introduced into the receiving deck 2. The rest of the process is then repeated as described.

Here it is also possible for individual steps in the method described to be dispensed with. For instance, a printing plate 7 which has been transported out of the imaging device 14 can also immediately be transported into the automatic output station 16 without being punched. In

particular, it is also possible for a printing plate 6 which has been loaded via the manual input station 11 to be delivered direct to the automatic output station 16, without being treated in further process stations on the surface 10.

Claims

1. Method for the handling of printing plates, in particular in the field of an imaging device for imaging the printing plates, characterised in that at least one printing plate is at least temporarily moved along one of several paths from a first process station to a second process station by means of a printing plate receptacle, wherein the process stations are in each case one of several process stations which are all arranged around a centre shaft on a cylinder shell surface and can all be accessed by the printing plate receptacle as with a distributor for input or output.

2. Method according to claim 1, characterised in that the paths along which the at least one printing plate can be moved have path ends and path beginnings which are respectively described by secants substantially independent of each other through a circle.

3. Method according to one of claims 1 and 2, characterised in that at least two printing plates can be transported substantially simultaneously.

4. Method according to one of claims 1 to 3, characterised in that alignment of the printing plate is at least assisted by its own weight.

5. Apparatus for the handling of printing plates, in particular in the field of an imaging device for imaging the printing plates, preferably for carrying out the method according to one of the preceding

claims, characterised by a printing plate receptacle including at least two receiving decks for printing plates which are parallel to each other, coupled together and pivotable about a common rotary shaft, in the area around process stations for the printing plates for transporting at least one printing plate from a first process station to a second process station, all the process stations being arranged around a centre shaft on a cylinder shell surface.

6. Apparatus according to claim 5, characterised in that the rotary shaft of the receiving decks coincides with the centre shaft of the cylinder shell surface.

7. Apparatus according to claims 5 and 6, characterised in that the rotary shaft lies outside the plane of the receiving decks, and the receiving decks substantially form a secant through the circle encompassed by the cylinder shell surface.

8. Apparatus according to one of claims 5 to 7, characterised in that the receiving decks respectively have two opposed openings which can be pivoted up to process stations on the cylinder shell surface.

9. Apparatus according to one of claims 5 to 8, characterised in that at least one, preferably all the receiving decks have at least one pivotable stop for avoiding accidental unloading and for possible alignment of the printing plates.

10. Method for the handling of printing plates substantially as herein described with reference to the accompanying figures.

11. Apparatus for the handling of printing plates substantially as herein described with reference to the accompanying figures.

Amendments to the claims have been filed as follows

1. Method for the handling of printing plates, whereby at least one printing plate is at least temporarily moved along one of several paths from a first process station to a second process station by means of a printing plate receptacle, wherein the process stations are in each case one of several process stations which are all arranged around a centre shaft on a cylinder shell surface and can all be accessed by the printing plate receptacle as with a distributor for input or output, characterised in that the paths along which the at least one printing plate can be moved have path ends and path beginnings which are respectively described by secants substantially independent of each other through a circle.

2. Method according to claim 1, characterised in that at least two printing plates can be transported substantially simultaneously.

3. Method according to one of claims 1 and 2, characterised in that alignment of the printing plate is at least assisted by its own weight.

4. Method according to one of claims 1 to 3, characterised in that the method is used in the field of an imaging device for imaging the printing plates.

5. Apparatus for the handling of printing plates, for carrying out the method according to one of the preceding claims, characterised by a printing plate receptacle including at least two receiving decks for

printing plates which are parallel to each other, coupled together and pivotable about a common rotary shaft, in the area around process stations for the printing plates for transporting at least one printing plate from a first process station to a second process station, all the process stations being arranged around a centre shaft on a cylinder shell surface.

6. Apparatus according to claim 5, characterised in that the rotary shaft of the receiving decks coincides with the centre shaft of the cylinder shell surface.

7. Apparatus according to claims 5 or 6, characterised in that the rotary shaft lies outside the plane of the receiving decks, and the receiving decks substantially form a secant through the circle encompassed by the cylinder shell surface.

8. Apparatus according to one of claims 5 to 7, characterised in that the receiving decks respectively have two opposed openings which can be pivoted up to process stations on the cylinder shell surface.

9. Apparatus according to one of claims 5 to 8, characterised in that at least one of the receiving decks has at least one pivotable stop for avoiding accidental unloading and for possible alignment of the printing plates.

10. Apparatus according to one of claims 5 to 9, characterised in that the apparatus is for use in the field of an imaging device for imaging the printing plates.

11. Method for the handling of printing plates substantially as herein described with reference to the accompanying figures.

12. Apparatus for the handling of printing plates substantially as herein described with reference to the accompanying figures.

INVESTOR IN PEOPLE

Application No: GB0425451.2 **Examiner:** Tony Rudge

Claims searched: 1-11 **Date of search:** 21 January 2005

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
		None

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

B6C

Worldwide search of patent documents classified in the following areas of the IPC^{07}

B41D; B41G; B41J; B41K; B41L

The following online and other databases have been used in the preparation of this search report

EPODOC, JAPIO, WPI