

(12) UK Patent Application (19) GB (11) 2 046 173 A

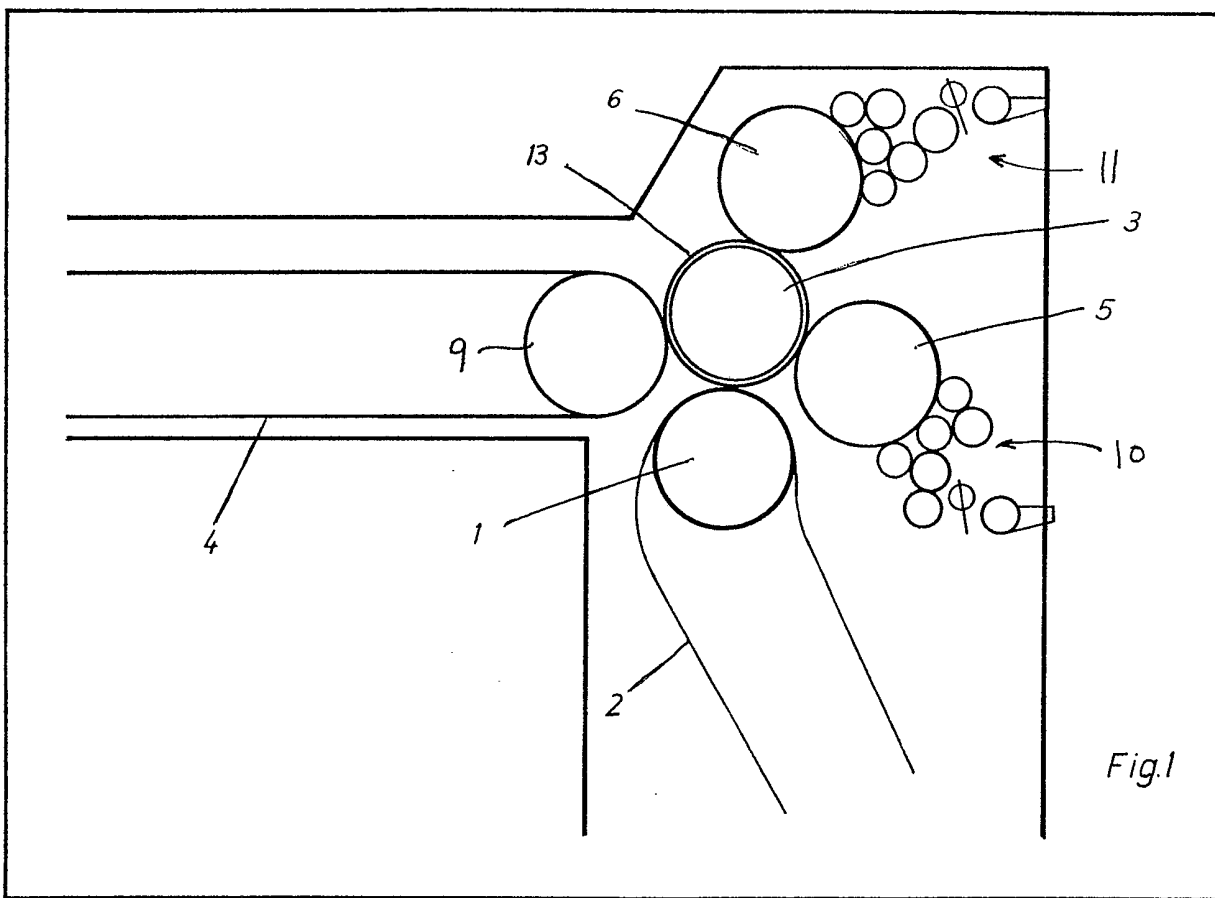
(21) Application No 8008425  
(22) Date of filing 12 Mar 1980  
(30) Priority data  
(31) 7906800U  
(32) 12 Mar 1979  
(33) Fed. Rep. of Germany (DE)  
(43) Application published  
12 Nov 1980  
(51) INT CL<sup>3</sup>  
B41F 19/00 B41G 7/00  
(52) Domestic classification  
B6C 104 124 167 168  
253 258 301 753 75X  
BAN  
(56) Documents cited  
GB 1461926  
GB 952307  
(58) Field of search  
B6C  
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(54) Sheet-fed Rotary Press with an  
Auxiliary Unit in the Delivery

(57) In the delivery of a sheet-fed  
rotary press, an impression drum (3) is

provided which co-operates with two  
forme mounting cylinders (5, 6)  
carrying devices for numbering,  
overprinting, varnishing, gumming,  
perforating, cutting, punching or  
combinations thereof. Sheets are fed  
to the delivery by a first chain conveyor  
(2) and finally deposited by a second  
chain conveyor (4) onto a delivery pile.  
The various auxiliary devices are  
interchangeable.



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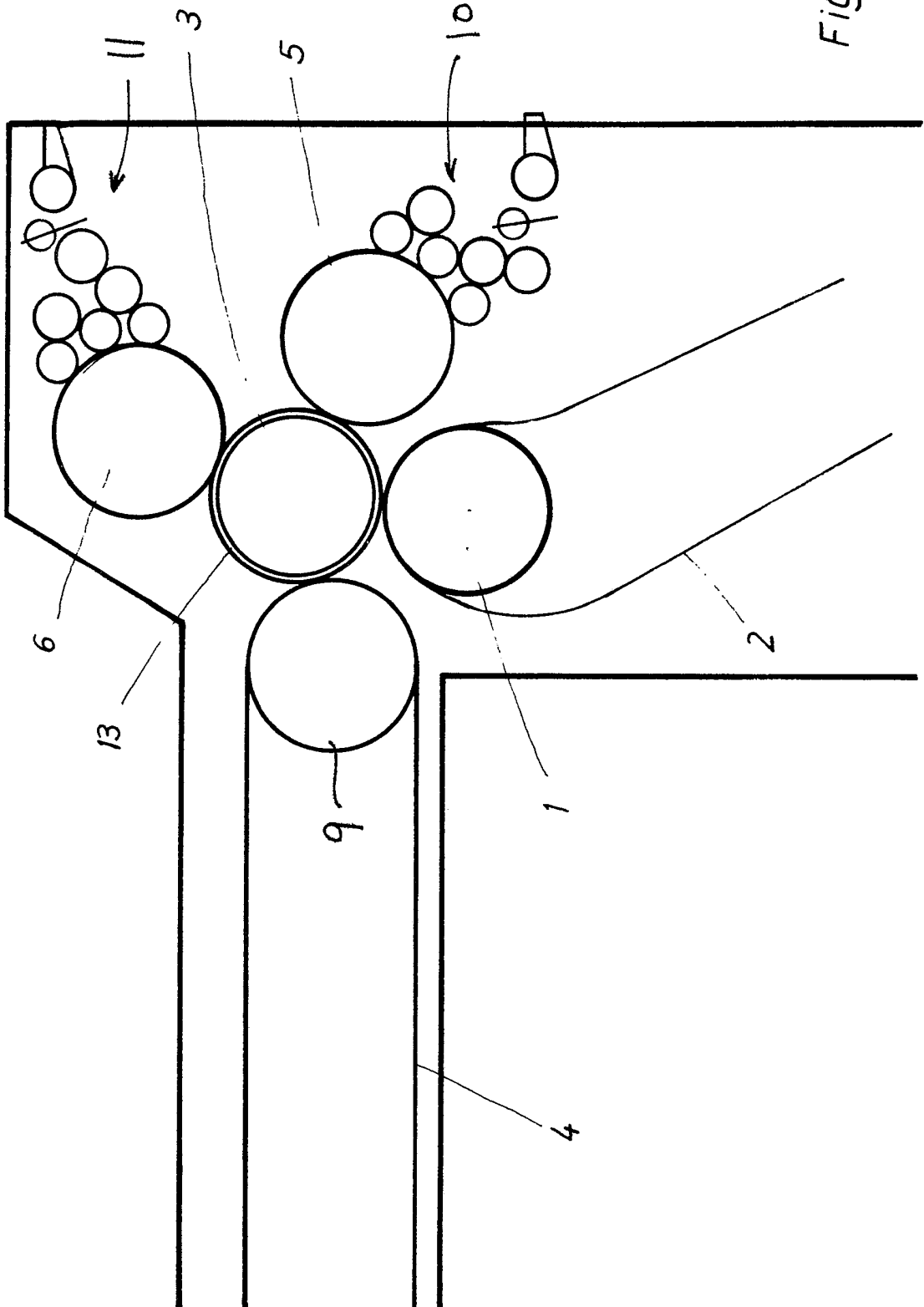


Fig. 1

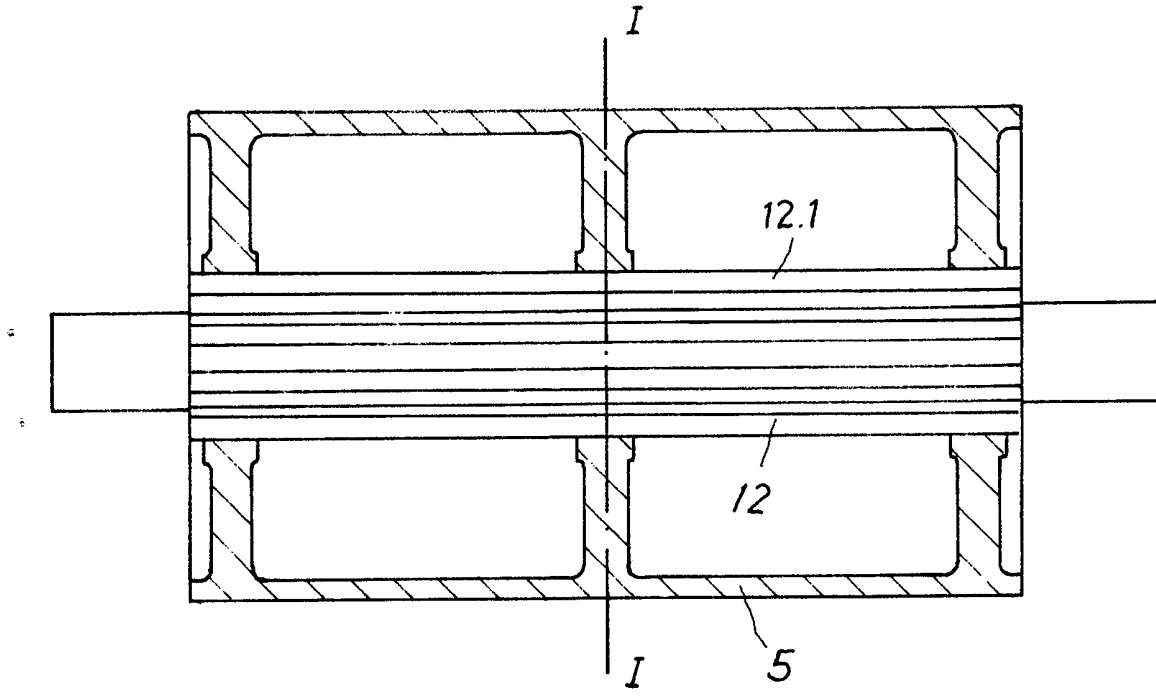


Fig.2

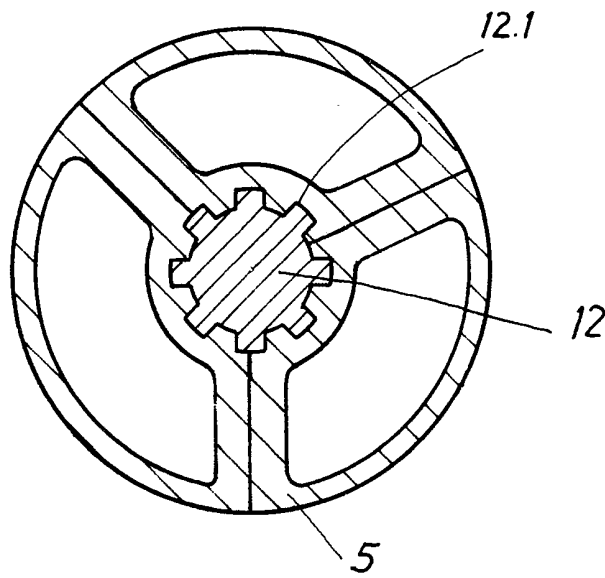


Fig.3

## SPECIFICATION

**Sheet-fed Rotary Press with a Printing Unit in the Delivery**

This invention relates to sheet-fed rotary presses with a printing unit arranged in the delivery, in which the printed sheets to be finished which are delivered by a first chain conveyor can be fed via an impression drum to a chain delivery system, wherein the impression drum co-operates with a forme mounting cylinder.

Printed sheets are sometimes after-treated or finished after printing. Depending on the type of finishing operation, it must take place in exact register like the usual printing. To avoid the need to use expensive special machines for these finishing operations, machines which permit finishing of the already printed sheet in one pass through the machine are already known. Sometimes printing units have been used for the actual printing, or suitable devices, according to the type of finishing operation, have been arranged downstream of the printing units.

A rotary rubber press for sheets with an overprinting unit for letterpress arranged in the delivery downstream of the printing units is known from DE-PS 541 683, particularly for overprinting of texts, etc. The printed sheets are guided by a chain conveyor system around an impression drum, printed by a forme cylinder and fed to a delivery pile by a delivery chain system.

A printing press described in DE-OS 2013686 also incorporates a printing unit in the delivery. This printing unit is used to print the back of a sheet already printed by the recto method. It is stated that a splitting wheel can also be arranged to make possible slitting of the sheet in the direction of sheet travel.

DE-PS 2 345 183 also describes a printing unit arrangement in the delivery of a printing press which is used to apply varnish, gumming solution or ink.

In contrast, DE-AS 2 657 610 shows an offset rotary press of sequential unit construction, in which the final printing unit is designed as a numbering unit. The final plate cylinder is replaced by a chain of inking rollers, which fills the resulting gap between the inking unit and numbering unit. However, these known arrangements can be used only for a specific type of finishing operation. Simultaneous double finishing, e.g. numbering and perforation, is not possible with one sheet pass.

According to the present invention there is provided a sheet-fed rotary press with a printing unit in the delivery, in which the sheets to be finished are delivered by a first chain conveyor and then fed via an impression drum to a final chain delivery system, wherein an impression drum in the delivery takes over the sheets delivered by the first chain conveyor and transfers them to the final chain delivery system, the impression drum being arranged downstream of a transfer drum of the first chain conveyor and the impression drum co-operating with two forme

65 mounting cylinders arranged one behind the other in the direction of sheet travel.

The provision of the forme mounting cylinders makes possible a combination of finishing operations such as numbering, overprinting, varnishing, gumming, perforating and cutting. The forme mounting cylinders are arranged one behind the other when viewed in the direction of sheet travel, so that the finishing devices mounted on the first forme mounting cylinder are interchangeable with those on the second cylinder and vice versa.

The invention is illustrated by way of example with reference to the accompanying drawings in which:

80 Figure 1 shows the delivery of a sheet-fed rotary press with a printing unit for finishing sheets by two forme mounting cylinders, according to the invention;

85 Figure 2 shows a section of a forme mounting cylinder, and

Figure 3 shows a section of the forme mounting cylinder of Figure 2 along the line I—I.

Referring to Figure 1 a sheet-fed rotary press (not shown completely) has an additional printing unit in the delivery. The additional printing unit consists of a transfer drum 1, a first chain conveyor 2, an impression cylinder 3, two forme mounting cylinders 5 and 6 and a take-off drum 9 of a chain delivery system 4, all these being arranged between the side walls of a sheet delivery arranged in known fashion downstream of a printing unit.

The sheets already printed by the printing unit (not shown in the drawing) and delivered by the chain conveyor 2 are transferred by the transfer drum 1 to the grippers of the impression drum 3. The impression drum 3 is in contact with the two forme mounting cylinders 5 and 6 arranged one behind the other in the direction of sheet travel, which finish the sheet as it passes between the contact points of the forme mounting cylinders and impression drum. After the sheet has passed through these finishing zones, it is taken over by a chain delivery system 4 passing round a delivery drum 9 and delivered onto a sheet pile.

The forme mounting cylinders 5 and 6 are formed by finishing devices, which can be mounted on profiled shafts 12 having a multi-splined serration 12.1. They can be changed according to the type of finishing operation, so that various types of finishing can be carried out independently of each other. The finishing devices can be secured, for example, by bolts on the shaft 12. The profiled shaft 12 can be provided with T-slots, particularly for numbering units. Consequently, the individual finishing devices can easily be moved and adjusted axially. The forme mounting cylinders 5 and 6 are connected to inking units 10 and 11 respectively. The interchangeability of the finishing devices makes it possible to carry out numbering, overprinting, varnishing, gumming, perforating, cutting and punching of the sheets at the same time and in combination. The impression drum 3 may be

provided in known fashion with a covering 13 which can be changed in dependence on the type of finishing operation to be undertaken.

#### Claims

- 5 1. A sheet-fed rotary press with a printing unit in the delivery, in which the sheets to be finished are delivered by a first chain conveyor and then fed via an impression drum to a final chain delivery system, wherein an impression drum in 10 the delivery takes over the sheets delivered by the first chain conveyor and transfers them to the final chain delivery system, the impression drum being arranged downstream of a transfer drum of the first chain conveyor and the impression drum 15 co-operating with two forme mounting cylinders arranged one behind the other in the direction of sheet travel.
2. A sheet-fed rotary press according to claim 1 wherein each of the forme mounting cylinders 20 comprises a shaft mounted in the side walls of the delivery, and having a multi-splined serration to receive forme mounting devices having a complementary serration.
- 25 3. A sheet-fed rotary press according to claim 1 wherein the impression drum is provided in known fashion with a covering which is interchangeable according to the type of finishing operation of the sheet.
- 30 4. A sheet-fed rotary press according to any one of claims 1 to 3 wherein the forme mounting cylinders can be used individually or in combination for numbering, overprinting, 35 varnishing, perforation, cutting, punching and gumming.
5. A sheet-fed rotary press according to claim 1 and substantially as hereinbefore described with reference to the accompanying drawings.