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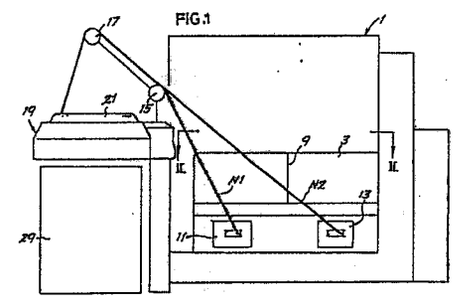
(54) **Process and equipment for forming and collecting a double sliver of carded fibres in a collecting container so that the two slivers can then be drawn off at the same time.**

(57) The process for forming, collecting and using slivers (N1, N2) of carded material is characterised in that at least two slivers (N1, N2), formed from respective sections of the front of the web coming off the carder (1) and condensed and drawn by their own drawing units (11, 13), are conveyed to the same collector (19), collected in the container (29) beneath it and kept adjacent to each other; and that said slivers are drawn from the collecting container at the same time with the layers of coils being unwound, and are conveyed to the units for the next stage of processing either separately or together.

FIG.1



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Description

PROCESS AND EQUIPMENT FOR FORMING AND COLLECTING A DOUBLE SLIVER OF CARDED FIBRES IN A COLLECTING CONTAINER SO THAT THE TWO SLIVERS CAN THEN BE DRAWN OFF AT THE SAME TIME

A first subject of the invention is a process for forming, collecting and using slivers of carded material which are collected in containers by means of collectors whose movement usually consists of two circumferential movements to form layers of progressively offset coils, characterised in that at least two slivers, formed from respective sections of the front of the web coming off the carder and condensed and drawn by their own drawing units, are conveyed to the same collector, collected in the container beneath it and kept adjacent to each other; and in that the said slivers are drawn from the collecting container at the same time with the layers of coils being unwound, and are conveyed to the units for the next stage of processing either separately or together.

A second subject of the invention is equipment for forming, collecting and using slivers of carded material which are collected in containers by means of collectors whose movement usually consists of two circumferential movements to form layers of progressively offset coils, characterised in that it comprises the following combination of units : at the output end of the carding machine, devices for dividing the front of the web into at least two sections with their own condensing and drawing units; a single container for collecting sliver with its own collector; and devices for conveying the adjacent slivers and winding them into layers of adjacent coils which can be drawn off at the same time in order to send the said slivers to the next stages of use either separately or together.

In one version of equipment of this kind comprising a moving, hinged arm connected to the sliver collector above the collecting container, the said hinged arm comprises adjacent grooved wheels or equivalent guide devices for two (or more) adjacent slivers.

Separate devices with guide openings for each sliver or one device with one guide opening for both slivers may be fitted upstream of the sliver return rollers.

A further subject of the invention is a collecting container for carded silver wound into layers of coils in which at least two slivers, forming the said layers of coils, are kept adjacent to each other in order to be drawn off at the same time and sent to the subsequent processing units either separately or together.

A better understanding of the invention will be gained from the description and the attached drawing which shows a practical, non-limiting embodiment of the invention itself. In the drawing, :

Fig. 1 is a front view of a two-output carder with associated collector and collecting container;

Fig. 2 is a view through II-II in Fig. 1;

Fig. 3 is a transverse section of a single guide opening;

Fig. 4 is a view through IV-IV in Fig. 3;

Fig. 5 is a transverse section of a double guide opening;

Fig. 6 is a view through VI-VI in Fig. 5;

Fig. 7 is a schematic diagram of a number of offset coils of slivers which are adjacent to each other in the collecting container.

According to the illustration in the attached drawing, at the output end of carder 1 is a doffer 3 which works in conjunction with a web detachment cylinder 4 which is able to convey the web being formed to a set of grooved wheels 5, 7. The middle of doffer 3 is milled and this milling 9 creates a discontinuity in the clothing of the cylinder itself. The said discontinuity in the clothing causes the web being formed to divide and be separated into two portions V1 and V2; the V1 portion is then conveyed to grooved wheels 5 whilst the V2 portion is conveyed to grooved wheels 7. The said grooved wheel assemblies collect the two portions of web into two slivers N1 and N2 respectively and send them to two condensing and drawing assemblies 11, 13. When they leave the said condensing and drawing assemblies 11, 13 slivers N1 and N2 are passing over a pair of pulleys 15, 17 on a collector 19. The said pulleys may have two races as shown in Fig. 2.

Top covers 12 of the said collector has guide devices for slivers N1 and N2. The said guide devices may be of the type illustrated in Figs. 3 and 4, i.e. with a single opening 23 in which both slivers N1 and N2 meet. The said guide devices may, however, also be of the type illustrated in Figs. 5 and 6, with two separate openings 25 and 27 for the two slivers N1 and N2.

The usual motor-driven rollers (not shown) which return the slivers to be collected in container 29 beneath are fitted underneath the guide devices.

When the two slivers N1 and N2 are conveyed to collector 19 - which has the usual movements for conveying the sliver sent into collecting container 29 beneath - the said slivers are wound into a series of offset coils around the circumference, as shown in Fig. 7. When slivers N1 and N2 are drawn from the container for the subsequent drawing and/or spinning operations they unwind in parallel and do not twist together, the movement being the reverse of that which took place when they were collected in container 29.

The process and equipment illustrated enable a double sliver from a double-output and hence high-productivity carder to be collected in a single container. This enables the overall dimensions of the equipment as a whole to be reduced whilst retaining the option of feeding the two slivers collected in the joint container to two separate units on the machine which carries out the next operation. In practice the two slivers N1 and N2 are drawn from container 29 at the same time and so they can be conveyed to the next stages of the process either separately or together. In the former case a single sensor will

monitor the presence and completeness of a pair of slivers, whilst in the latter it is possible simultaneously to verify the presence and completeness of both slivers individually with two separate systems of sensors; the said two slivers can be re-united in the subsequent sections of the machine to which they are fed.

The drawing is only intended to show one embodiment which is given solely as a practical example of the invention, as the form and layout of the invention may vary; they will not, however, go beyond the scope of the concept that is the basis of the invention itself.

Claims

1. Process for forming, collecting and using slivers of carded material which are collected in containers by means of collectors whose movement usually consists of two circumferential movements to form layers of progressively offset coils, characterised in that at least two slivers, formed from respective sections of the front of the web coming off the carder and condensed and drawn by their own drawing units, are conveyed to the same collector, collected in the container beneath it and kept adjacent to each other; and in that the said slivers are drawn from the collecting container at the same time with their layers of coils being unwound, and are conveyed to the units for the next stage of processing.

2. Process according to the preceding claim, characterised in that the said two slivers are drawn off to be conveyed together to the same unit for the next stage of processing.

3. Process according to Claim 1, characterised in that the said two slivers are conveyed to the units for the next stage of processing separately.

4. Process as described and illustrated and for the purposes indicated.

5. Equipment for forming, collecting and using slivers of carded material which are collected in containers by means of collectors whose movement usually consists of two circumferential movements to form layers of progressively offset coils, characterised in that it comprises the following combination of units : at the output end of the carding machine, devices for dividing the front of the web into at least two sections with their own condensing and drawing units; a single container for collecting sliver with its own collector; and devices for conveying the adjacent slivers and for winding them into layers of adjacent coils which can be drawn off at the same time in order to send the said slivers to the next stages of use either separately or together.

6. Equipment according to Claim 5, comprising a moving, hinged arm connected to the sliver collector above the collecting container, characterised in that the said hinged arm comprises adjacent grooved wheels or equivalent guide devices for two (or more) adjacent slivers.

7. Equipment according to Claims 5 and 6, with a collector comprising a pair of motor-driven sliver return rollers, characterised in that separate devices with guide openings for each sliver are fitted upstream of the said rollers.

8. Equipment according to Claims 5 and 6, with a collector comprising a pair of motor-driven sliver return rollers, characterised in that a single device with a guide opening for both slivers is fitted upstream of the said rollers.

9. Equipment as described and illustrated and for the purpose indicated.

10. A collecting container for carded sliver wound into layers of coils, characterised in that the container itself comprises at least two slivers, forming the said layers of coils, are kept adjacent to each other in order to be drawn off at the same time and conveyed to the subsequent processing units either separately or together.

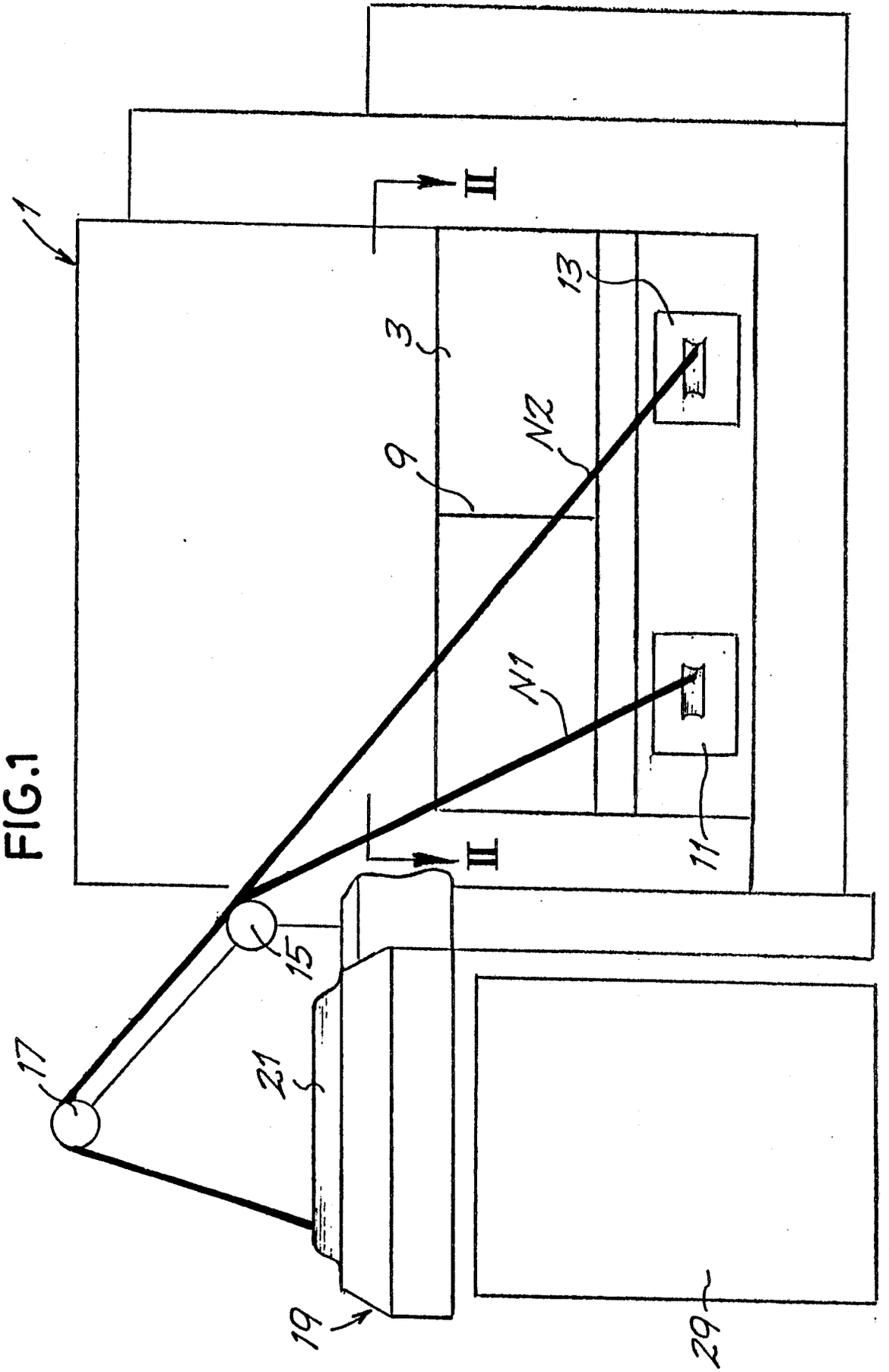
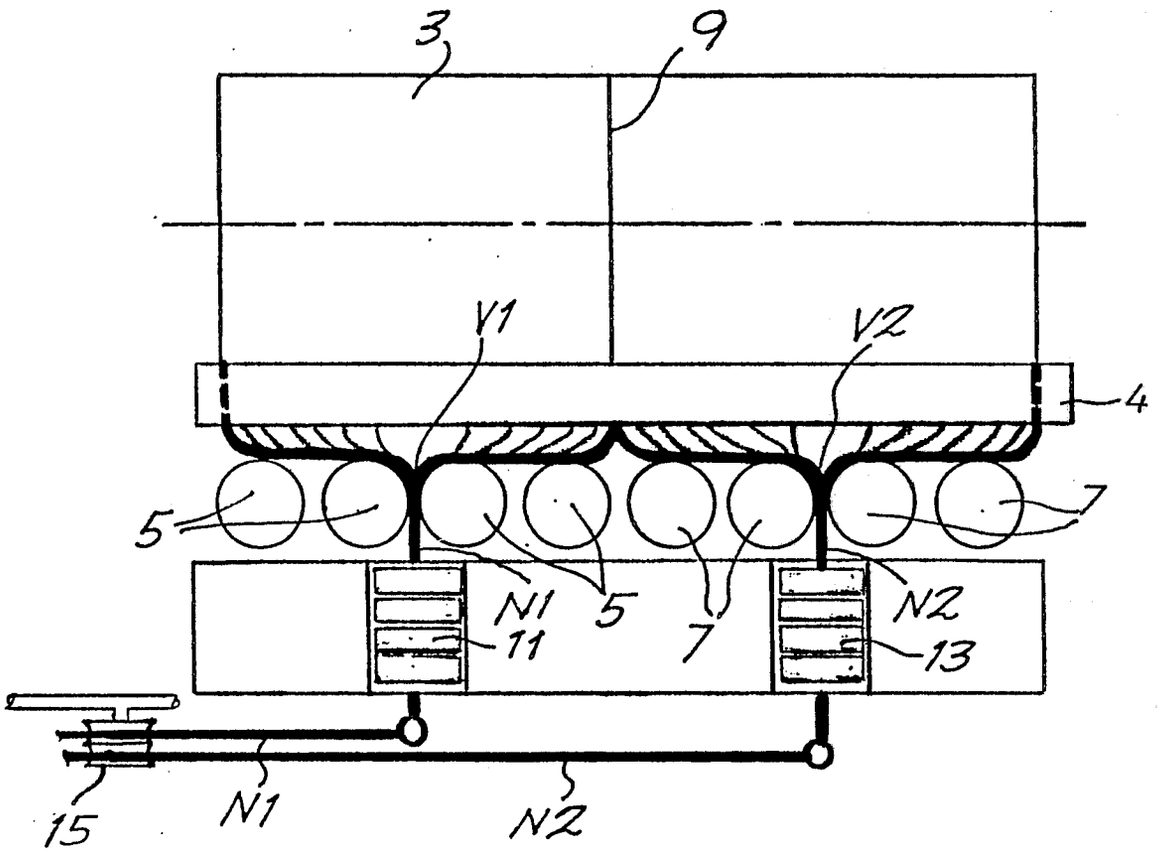


FIG.1

FIG.2



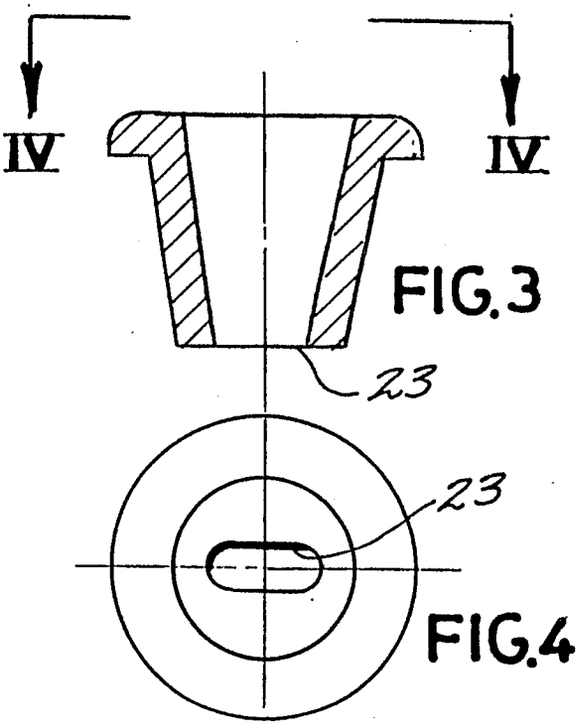


FIG.3

FIG.4

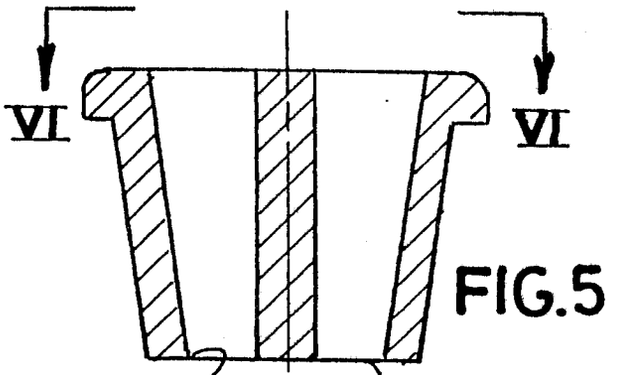


FIG.5

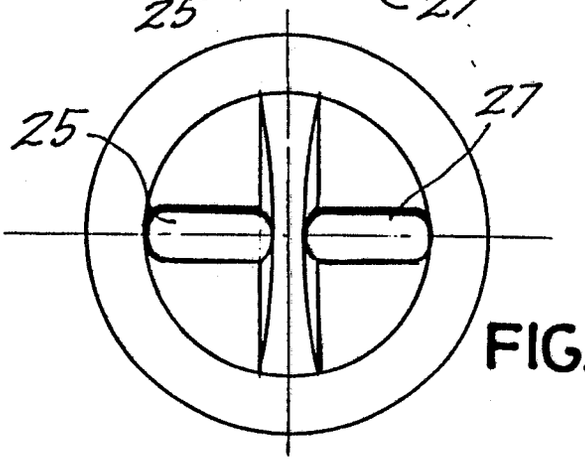
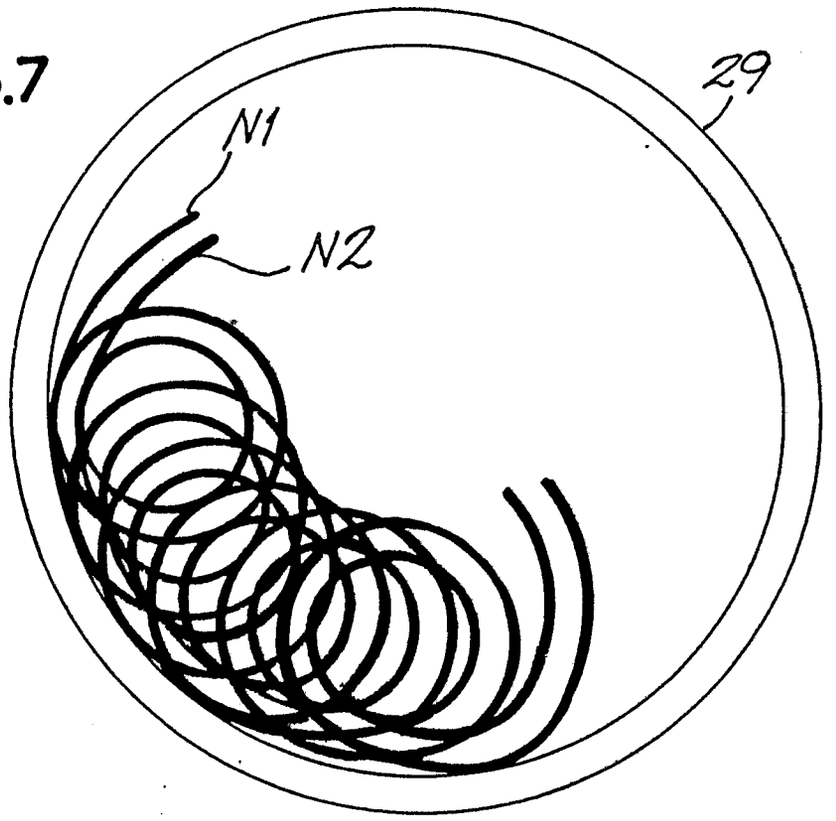


FIG.6

FIG.7



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EUROPEAN SEARCH REPORT

Application Number

EP 88 83 0113

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	FR-A-2 101 955 (PLATT INTERNATIONAL LTD) * Page 4, lines 8-22; figure 6 *	1	D 01 G 15/62 B 65 H 54/80
Y		2-5	
A		9,10	
Y	FR-A-1 179 532 (ETS. LAEDERICH) * Page 2, paragraph 6, left-hand column; figures 1-3 *	2-5	
A		9,10	
A	US-A-3 104 790 (E.S. DE HAVEN) * Column 3, lines 58-65; figure 2 *	1-4	
A	FR-A-1 374 350 (ERBA-MASCHINENBAU AG)	1-4	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

D 01 G
B 65 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	04-07-1988	MUNZER E.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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