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(54) Mechanism for guiding endless strip into a storage tank

(57) Mechanism guiding endless thin-walled strip into a storage tank includes at the point of entry of endless thin-walled strip (2) into a storage tank (1) a extensible rectifying pilot (6) with a curved track (8) that is connected to inner faces of lateral walls (10, 11) of the storage tank (1) of the rectifying pilot (6).

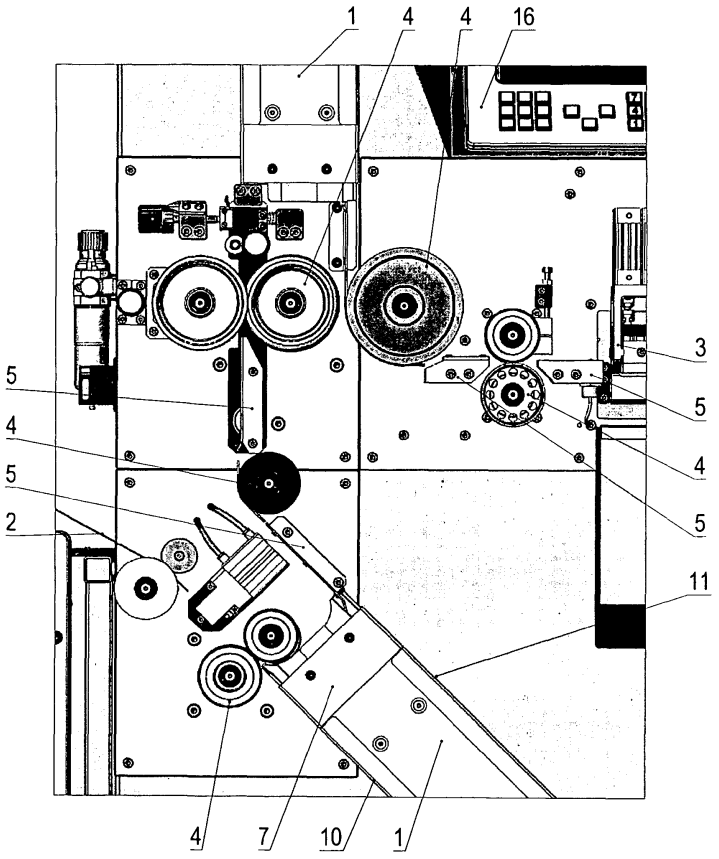

Fig. 1

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Description

Technical Fields

[0001] This invention involves a mechanism of guiding endless thin-walled strip into a storage tank, especially in the case of shutter lamellas manufacturing machines.

The Contemporary State of Art

[0002] Existing machines that produce shutter lamellas manufactured by cutting and punching endless thin-walled strip, utilize a shaft storage tank for compensation of variable periodical feeding of endless thin-walled strip. The endless thin-walled strip is stored inside of a storage tank in a form of a loop.

[0003] In order to insert the endless strip, for example after it has been used up, it is currently necessary to feed the storage tank manually since the problem of inserting endless thin-walled strip into a shaft storage tank has not been resolved yet. This is an obstacle to a fully automated machine run. Additionally, manual feeding increases downtime and rises demand for manual labour.

Technical Solution Nature

[0004] The task of the invention is to create a mechanism of a simple design which would feed endless thin-walled strip into a shaft storage tank, especially in the case of shutter lamellas manufacturing machinery. This can be achieved by a mechanism which guides endless thin-walled strip into a storage tank as suggested in this invention. The nature of this invention consists in including an extensible rectifying pilot with a curved track at the point of entry of endless thin-walled strip into a storage tank. The curved track is connected to the inner sides of lateral walls of the storage tank of the rectifying pilot.

[0005] To assure correct operation, the rectifying pilot should be bilateral and placed on a couple of pivots attached to the front panel.

[0006] With regard to automation of the guiding and simplicity of the design, the rectifying pilot should be connected to a pneumatic or hydraulic cylinder inter-connected to a control system.

List of figures in drawings

[0007] The invention is easier to demonstrate with drawings. On the Fig. 1, there is a schematical drawing of the front view of a part of a shutter lamellas manufacturing machine with an endless thin-walled strip guiding mechanism and storage tanks. On the Fig. 2, there is a detail of a guiding mechanism in an operation position. On the Fig. 3, there is a detail of a guiding mechanism in a release position.

Sample description

[0008] As you can see on the Fig. 1, a shades manufacturing machine includes one or rather two shaft storage tanks 1. Endless thin-walled strip 2 runs through them into a system of cutting and punching tools 3. Endless thin-walled strip 2 is led from the stock into storage tanks 1 and through them to a system of cutting and punching tools 3 by means of so familiar system of pulleys 4 and a system of auxiliary rectifying conduct elements 5 which keep endless thin-walled strip 2 on the track.

[0009] The mechanism for threading endless thin-walled strip 2 into a storage tank 1 includes a rectifying pilot 6 which is placed under a cover 7 at the point of entry to both storage tanks 1. As you can see on the Fig. 2 and 3, the rectifying pilot 6 is bilateral and is equipped with a curved track 8 which continuously ties its ends 9 to inner faces of the lateral walls 10, 11 of the storage tank 1. The rectifying pilot 6 is set right by sliding from an operating position before entering the storage tank 1 to a released position, it means outside the opening of a storage tank 1. Shifting happens through a pneumatic or a hydraulic cylinder 12 located on the machine on the other side of the panel 15 on which are also attached couple of pivots 13 that slide through holes 14 in a rectifying pilot 6 and serve as a sliding placement for a rectifying pilot 6.

[0010] Endless thin-walled strip 2 insertion is done by using a control system 16 while the machine is running. With the help of pneumatic or hydraulic cylinders 12 interconnected with the control system 16, the rectifying pilots 6 of the storage tanks 1 slip to an operating position before their entry. The beginning end of endless thin-walled strip 2 than gets inserted between the first couple of pulleys of the system of pulleys 4 which than moves endless thin-walled strip 2 along a curved track 8 of the rectifying pilot 6 to the second rectifying pilot 6 of another storage tank 1. The endless thin-walled strip 2 is than straightened by auxiliary rectifying pilots 5 and a system of pulleys 4. As soon as the beginning end of endless thin-walled strip 2 gets through the last pair of the pulleys 4 to punching and cutting tools 3, the rectifying pilots 6 of both storage tanks 1 are shifted to an inoperative position by means of a pneumatic or hydraulic cylinder 12 directed by an impulse from the control system 16. Insertion of the endless thin-walled strip 2 is than finished. After the beginning end of the endless thin-walled strip 2 travels through the system of cutting and punching tools 3, the beginning end of the endless thin-walled strip 2 is stopped while it continues unreeling from the roll. Thus the endless thin-walled strip 2 starts to fill the storage tanks 1. As soon as those are almost filled, the insertion is stopped and the control system 16 than can activate the cutting and punching tools 3.

Industrial applicability

[0011] The invention is used everywhere where end-

less thin-walled strip needs to be automatically inserted into a shaft storage tank.

Claims

1. Mechanism guiding endless thin-walled strip into a storage tank is **characterized by** including at the point of entry of endless thin-walled strip (2) into a storage tank (1) a extensible rectifying pilot (6) with a curved track (8) that is connected to inner faces of lateral walls (10, 11) of the storage tank (1) of the rectifying pilot (6).

2. Guidance mechanism as required in 1 is **characterized by** rectifying pilot (6) that is bilateral and that is placed on the couple of pivots (13) attached to the front panel (15).

3. Guidance mechanism as required in 1 or 2 **characterized by** a rectifying pilot (6), is connected to a pneumatic or hydraulic cylinder (12) inter-connected to a control system (16).

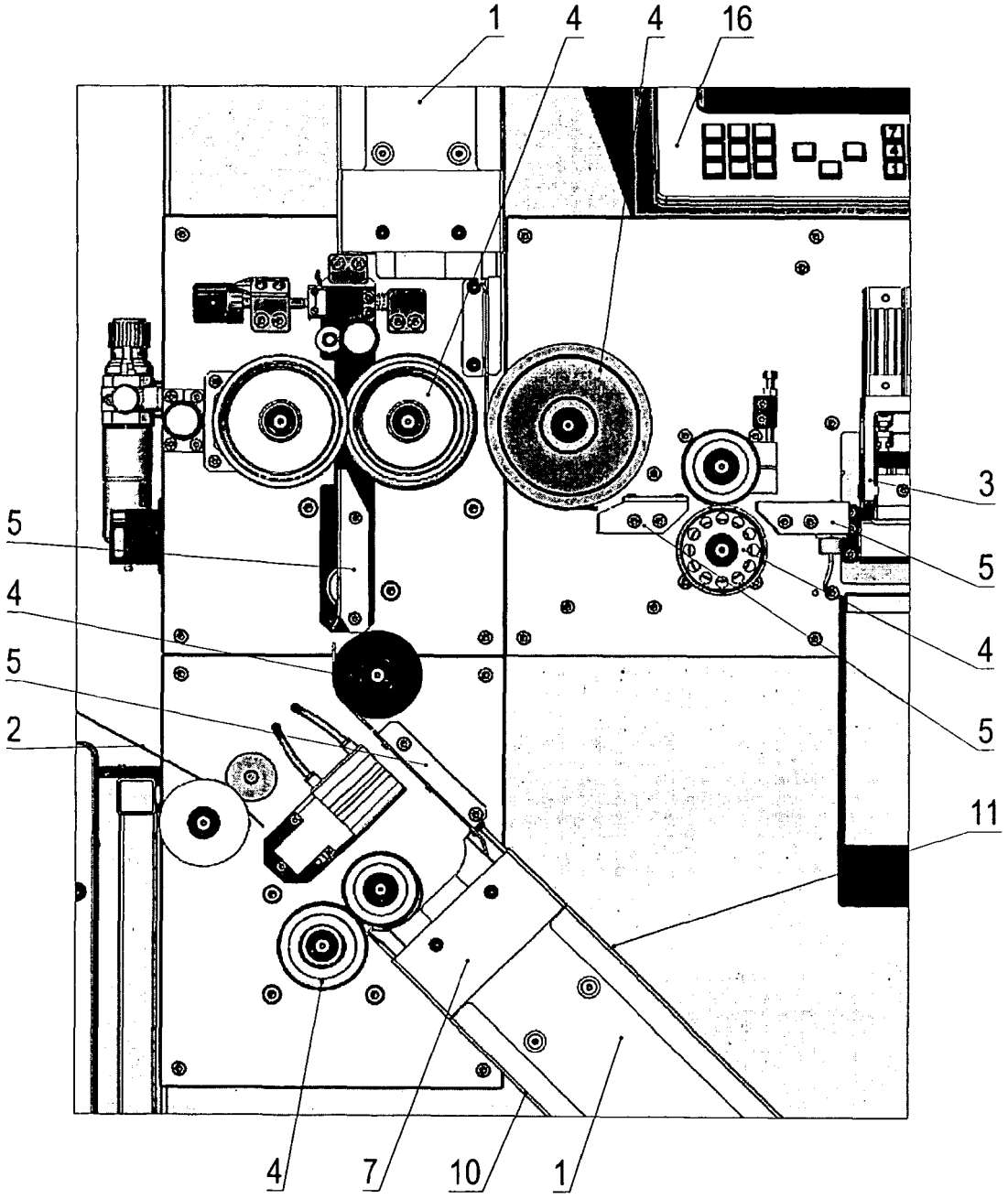

Fig. 1

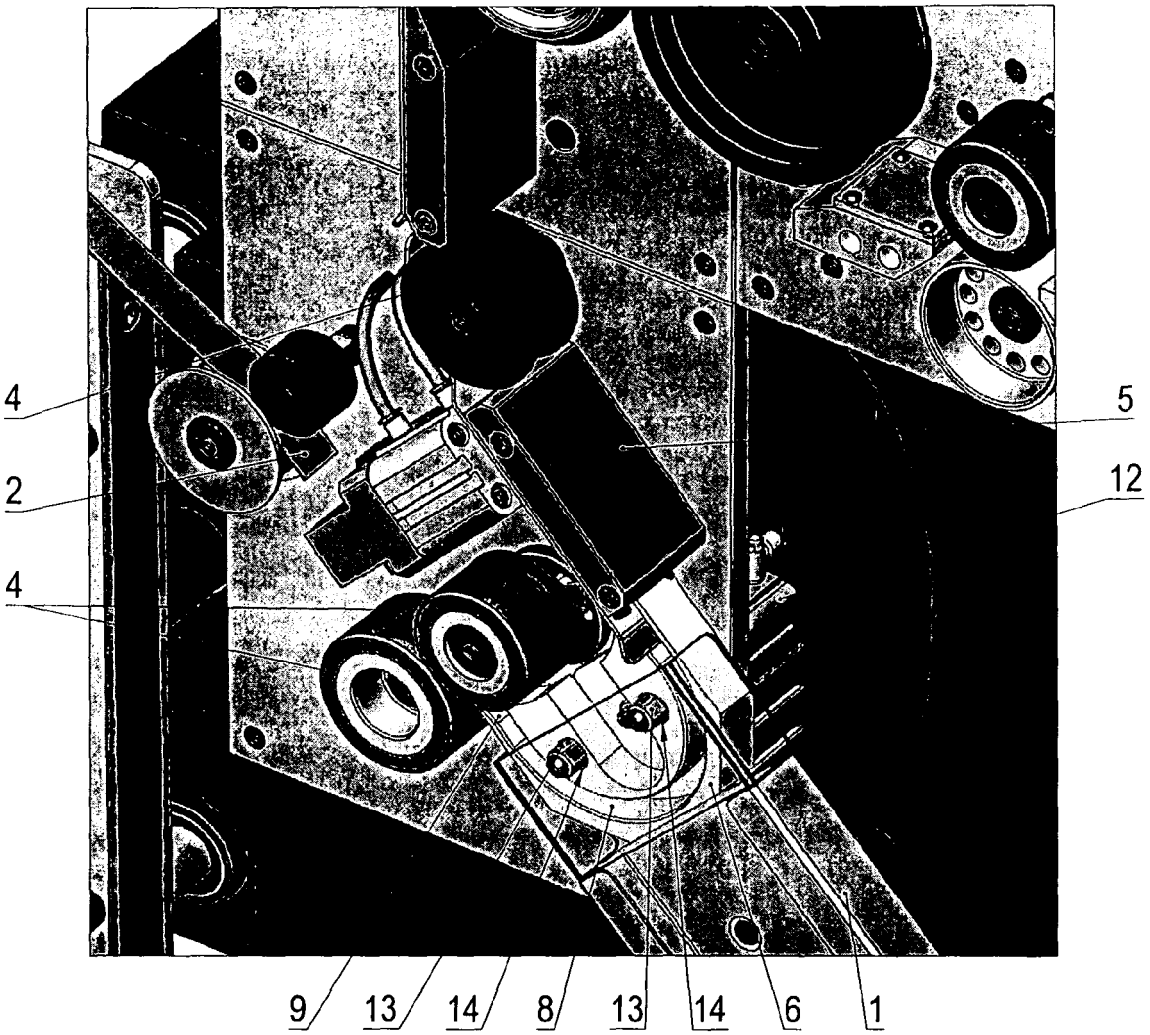

Fig. 2

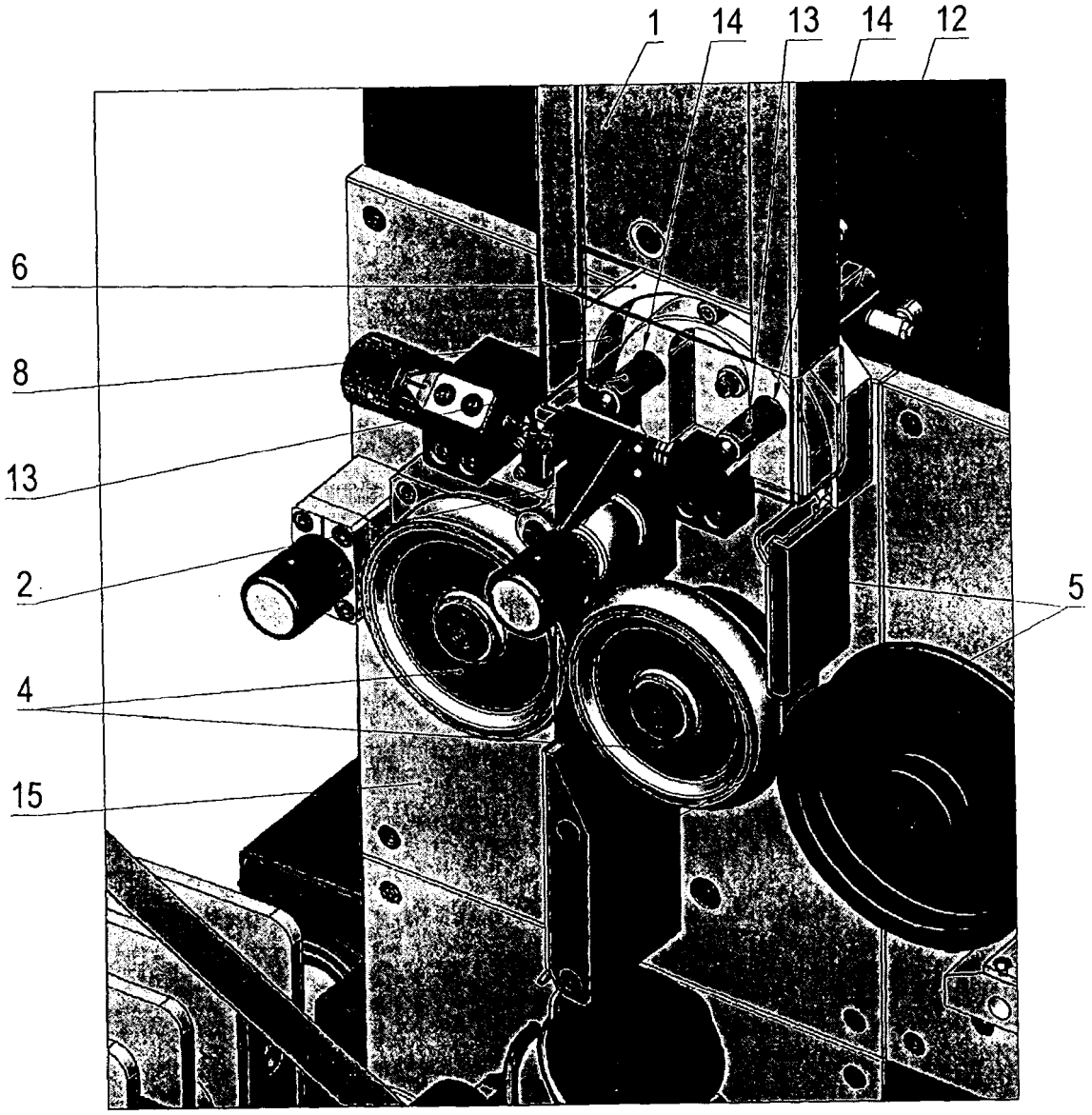

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 06 46 6010

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 420 862 A (EDIXHOVEN GERARDUS H [NL]) 20 December 1983 (1983-12-20) * column 5, line 34 - column 6, line 2; figures *	1-3	INV. B21C49/00
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TECHNICAL FIELDS SEARCHED (IPC)

B21C
E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 April 2007	Barrow, Jeffrey

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 46 6010

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