

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2024/258370 A1

(43) International Publication Date
19 December 2024 (19.12.2024)

(51) International Patent Classification:

B65C 5/00 (2006.01) B65C 9/08 (2006.01)

(21) International Application Number:

PCT/TR2023/050622

(22) International Filing Date:

23 June 2023 (23.06.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2023/006851 12 June 2023 (12.06.2023) TR

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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(54) Title: AUTOMATIC LABELING MACHINE AND WORKING METHOD

(57) Abstract: The invention relates to an edge-tracking automatic labeling machine for labeling flexible materials flowing along a line, and to a method of operation.



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AUTOMATIC LABELING MACHINE AND WORKING METHOD

TECHNICAL FIELD

5 The invention relates to an edge-tracking automatic labeling machine for labeling flexible materials flowing along a line, and to a method of operation.

PRIOR ART

10 In the industry, labeling machines are preferred for the identification and control of materials or products as they move along the line, and for the processing of certain information as a result of the control. Labels are attached to a point on the material automatically or manually. The barcode, text, markings, etc. on the label may be pre-printed or printed online in the line. In conventional labeling machines, the label is fed in rolls, guided by rollers and passed through a scraper.
15 As it passes through the scraper, the label is separated from the strip to which it is adhered and adhered to the desired position or to a fixed location by means of vacuum or roller systems.

 For labels to be affixed to a fixed point, problems arise if there is a change in the width of the material to be labeled. Certain along the line When edge labeling
20 flexible materials that flow at a speed, the material width can vary. If the material width becomes smaller, a stationary labeller cannot apply a label to the material. A rail-driven labeller, on the other hand, can apply the label to the material if it is informed of its destination. These methods are known in the art, For materials with variable widths, it is always insufficient for labeling a fixed distance from the edge.

25

LIST OF FIGURES

- Figure 1.** View of Labeling Chassis and Labeling Machine
Figure 2. View of Labeling Machine Edge Tracking Sensors
Figure 3. View of Edge Tracking Sensors Positioning

30

Meaning of the Numbers Shown in the Figures

1. Labeling machine
2. Linear rail

3. Chassis

4. Flexible material

5. Sensors

5.1. Edge tracking sensors

5 5.2. Inductive sensor

6. Scraper

7. Plate

8. Motor

9. Reflector

10 10. Distance between edge sensor centers

DETAILED DESCRIPTION OF THE INVENTION

The invention is characterized by a labeling machine (1), linear rail (2), chassis (3), flexible material (4), sensors (5) consisting of edge tracking sensors (5.1) and inductive sensors (5.2), scraper (6), plate (7), motor (8), reflector (9) and distance between the edge sensor centers (10).

The labeling machine (1) is mounted on a linear rail (2) and integrated on a chassis (3).

20 The flexible material (4) slides over the plate (7) under the machine and moves along the line. The width of the flexible material (4) varies. The labeling machine (1) has the ability to stick the label on the strip flowing over the scraper (6) at the same distance from the edge of the flexible material (4) at all times. This is ensured by the edge tracking sensors (5.1) on the labeling machine (1).

25 The edge tracking sensors (5.1) are photoelectric sensors and are mounted on top of each other with a distance between their centers (10). There is a reflector (9) on the plate (7) opposite the edge tracking sensors (5.1). The flexible material (4) passes between the reflector (9) and the edge tracking sensors (5.1).

30 The labeling machine (1) determines the reference position for the movement due to the inductive sensor (5.2) on the chassis (3). When the labeling machine (1) starts, the edge of the flexible material (4) to be tracked is detected by the sensor between the centers (10) of the edge tracking sensors (5.1). One of the edge tracking sensors (5.1) sees the flexible material (4), the other sees the reflector (9).

If the width of the flexible material (4) increases, both edge tracking sensors (5.1) start to see the flexible material (4). If the width of the flexible material(4) decreases, both edge tracking sensors (5.1) start to see the reflector (9). According to the signal from the edge tracking sensors (5.1), the controller on the machine drives the motor (8) and the labeling machine (1) so that the edge of the flexible material (4) remains at the distance between the sensor centers (10) (the distance between them is at least 2 mm). Thus, the label always stays at the same distance from the edge and therefore always sticks at the same distance from the edge.

The angle on the scraper (6), the channel connection feature at the connection point of the scraper (6) allows the chassis (3) to be compatible with the industrial machines in the field and to approach the flexible material (4) at the desired angle for labeling.

CLAIMS

1. It is an edge tracking automatic labeling machine (1) used for labeling flexible materials (4) flowing along the line and is characterized by;

- 5
- Edge tracking sensors (5.1) that are capable of sticking the label on the strip flowing over the scraper (6) to the edge of the flexible material (4) at the same distance, and mounted on top of each other with the distance between the sensor centers (10),
 - Inductive sensor (5.2) located on the chassis (3), which determines the reference position for motion.
 - 10 - The scraper (6), which allows it to approach at the desired angle in order to be compatible with industrial machines and to be labeled on flexible material (4) thanks to its channel connection feature.
- 15
- 20
- 25
- 30

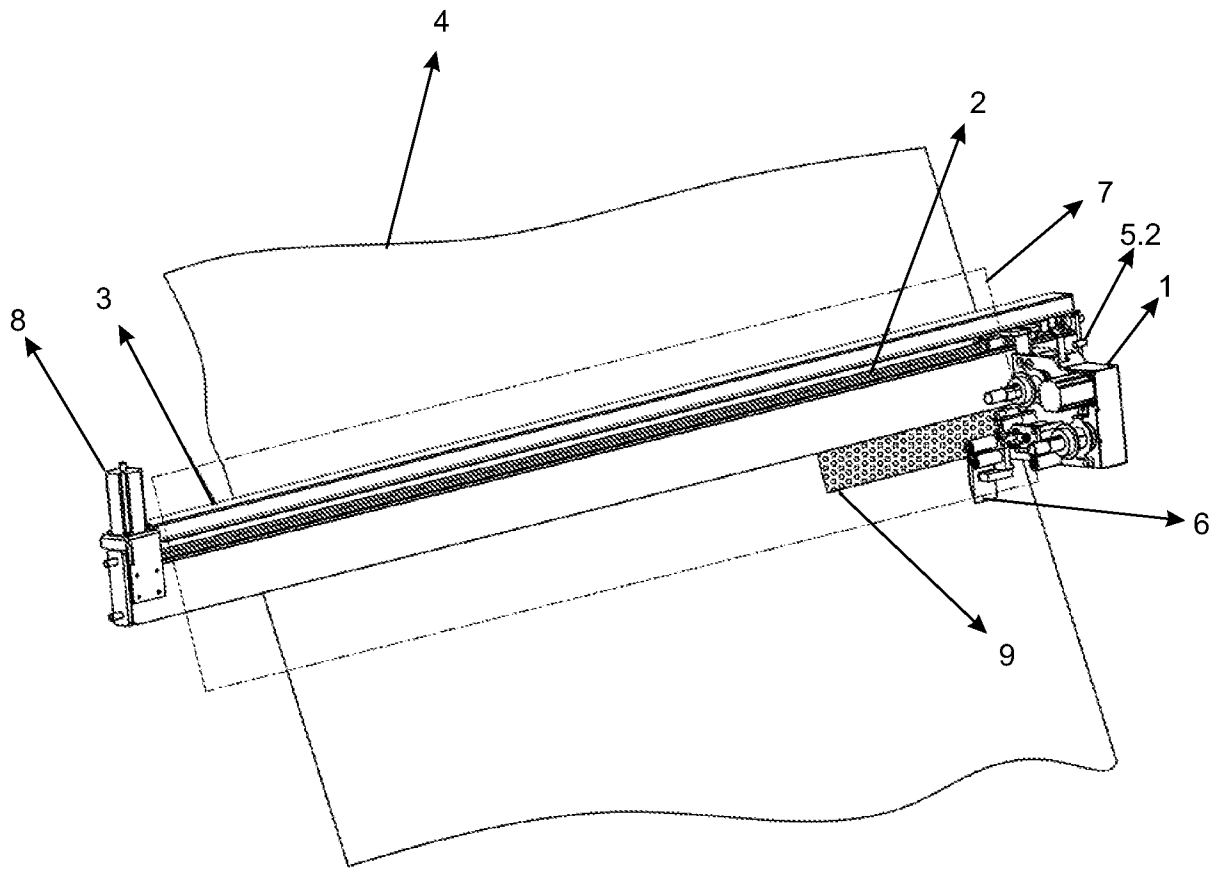


FIGURE 1

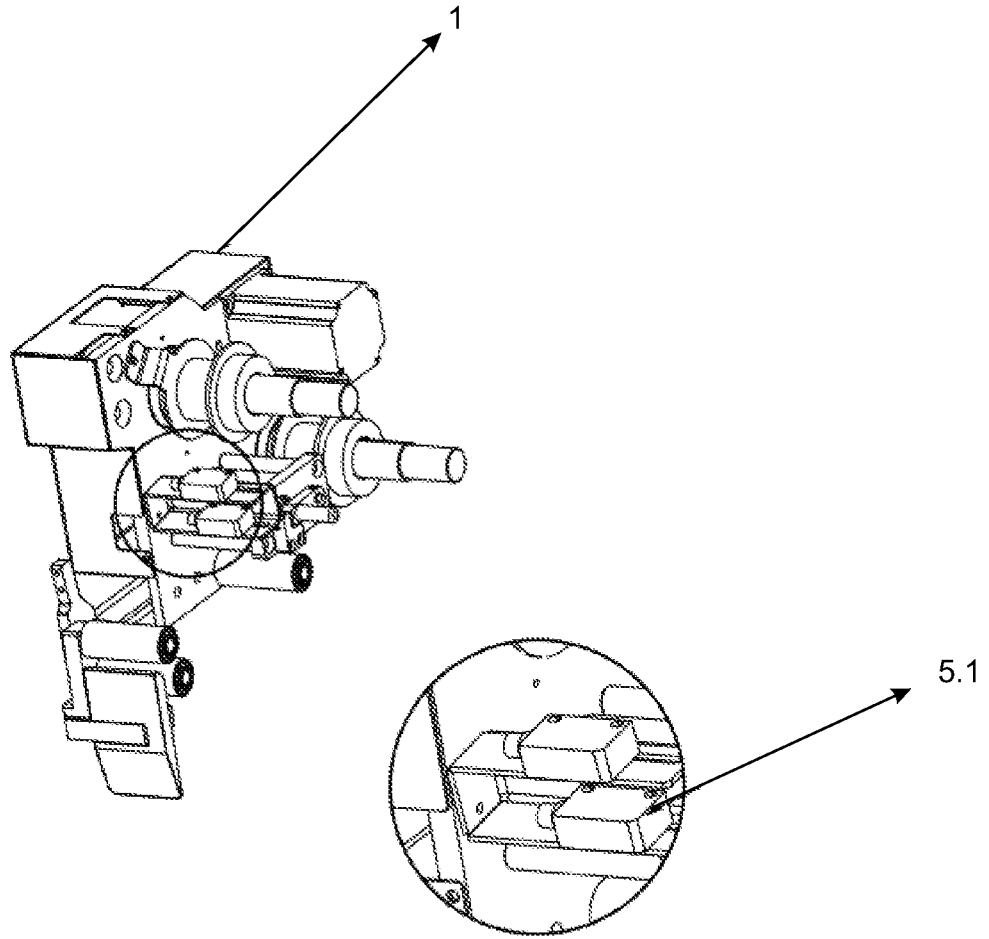


FIGURE 2

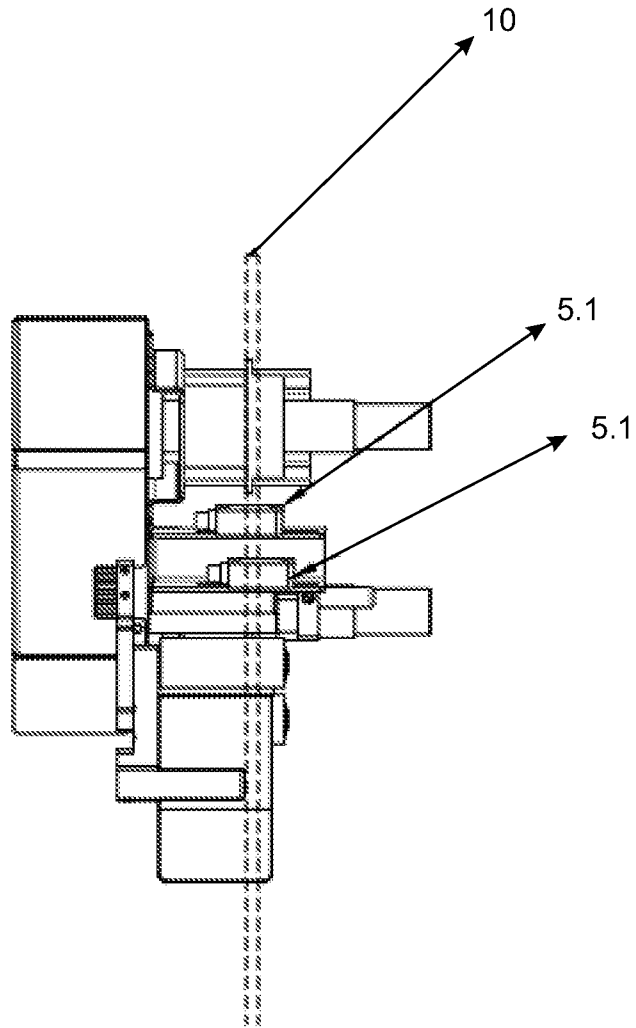


FIGURE 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/TR2023/050622

A. CLASSIFICATION OF SUBJECT MATTER B65C 5/00 (2006.01)i; B65C 9/08 (2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) B65C 5/00; B65C 9/08 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5658647 A (AVERY DENNISON CORP [US]) 19 August 1997 (1997-08-19) Whole document	1
A	US 4439257 A (SATO KK [JP]) 27 March 1984 (1984-03-27) Whole document	1
A	US 5040461 A (AVERY INTERNATIONAL CORP [US]) 20 August 1991 (1991-08-20) Whole document	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
<p>* Special categories of cited documents:</p> <p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“D” document cited by the applicant in the international application</p> <p>“E” earlier application or patent but published on or after the international filing date</p> <p>“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p> <p>“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>“&” document member of the same patent family</p>		
Date of the actual completion of the international search 20 March 2024		Date of mailing of the international search report 20 March 2024
Name and mailing address of the ISA/TR Turkish Patent and Trademark Office (Turkpatent) Hipodrom Caddesi No. 13 06560 Yenimahalle Ankara Türkiye Telephone No. +903123031000 Facsimile No. +903123031220		Authorized officer Ali KIRAL Telephone No. +903123031658

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No. PCT/TR2023/050622

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