(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 071 065 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
11.03.2020 Bulletin 2020/11

(21) Application number: **14808528.5**

(22) Date of filing: **18.11.2014**

(51) Int Cl.:
A43D 117/00 *(2006.01)*

(86) International application number:
PCT/EP2014/074872

(87) International publication number:
WO 2015/075018 (28.05.2015 Gazette 2015/21)

(54) **INSTALLATION FOR MANUFACTURING SHOES**

ANLAGE ZUR HERSTELLUNG VON SCHUHEN

INSTALLATION PERMETTANT LA FABRICATION DE CHAUSSURES

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **19.11.2013 IT AN20130215**

(43) Date of publication of application:
28.09.2016 Bulletin 2016/39

(73) Proprietor: **Pigini S.r.l.**
50018 Scandicci (FI) (IT)

(72) Inventors:
- **PIGINI, Fausto**
  60027 Osimo (AN) (IT)
- **TESONE, Elia**
  63066 Grottammare (AP) (IT)

(74) Representative: **Baldi, Claudio**
Viale Cavallotti, 13
60035 Jesi (AN) (IT)

(56) References cited:
WO-A1-2010/037035
GB-A- 409 266
US-A- 2 051 374
US-A- 3 120 666
US-A1- 2013 125 319

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 3 071 065 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The present patent application for industrial invention relates to an installation for manufacturing shoes as disclosed in independent claim 1.

[0002] The installations used for manufacturing shoes currently consist in an assembly line along which the article to be produced travels and passes through multiple operating stations provided along the assembly line.

[0003] In each operating station an operator and/or machine works on the product that is temporarily stopped in the operating station in order to undergo structural or aesthetic modifications.

[0004] After the product has passed through the assembly line and has undergone the necessary operations in each operating station, the desired shoe is obtained and stocked in the warehouse.

[0005] The assembly line is generally composed of a conveyor device, whereon the shoe is placed in order to travel through the multiple operating stations where it is machined or finished with additional parts in order to obtain the finished product in the shortest time possible.

[0006] Similar installations are impaired by the lack of flexibility because the same assembly line cannot be adjusted to produce a variety of shoes that differ in their structure or in the type of work to be carried out.

[0007] WO2010/037035 discloses a shoe manufacturing method that is able to reduce the specialized human labor required to manufacture a pair of shoes, while avoiding the high costs and special maintenance requirements associated with highly automated manufacturing equipment.

[0008] The purpose of the present invention is to devise an installation for manufacturing shoes, characterized by:

- increased versatility through the combination of multiple work steps;
- reduced handling of the shoes to be manufactured;
- higher flexibility in terms of machining operations carried out without generating downtime;
- reduced handling of semi-finished products and parts used to finish the shoe;
- possible introduction of the so-called "Andon" system in order to give the operators the responsibility of managing the forward travel of the shoe, respecting the synchronization with the entire installation and obtaining real-time information on production and quality performance; and
- high productivity while differentiating and manufacturing multiple types of different shoes in terms of structure or treatment of the materials used.

[0009] These purposes are achieved according to the invention with the installation, whose characteristics are listed in the independent claim 1.

[0010] Advantageous embodiments of the invention appear from the dependent claims.

[0011] The installation of the invention comprises:

- machines for manufacturing sandals, comprising machines used to prepare-assemble, machine and finish a sandal;
- machines for manufacturing pump shoes, comprising machines used to prepare-assemble, machine and finish a pump shoe;
- machines for manufacturing boots, comprising machines used to prepare-assemble, machine and finish a boot;
- a plurality of islands, each island being provided with at least two machines for manufacturing a shoe;
- a mobile frame that moves through the different islands and supports the shoes with relevant accessories adapted to be mounted on the shoes during the machining operations carried out in the islands;
- an actuation device for each island; said actuation device moving said mobile frame along the entire island;
- a transfer device actuating said mobile frame between two islands;
- a first area to prepare-assemble a shoe; said first area being provided with at least one island;
- a second area used to machine the parts provided in the shoe; said second area being provided with at least one island;
- a third area used to finish the shoe; said third area being provided with an island for finishing a pump shoe and a sandal or a boot.

[0012] In particular, said island for finishing a pump shoe and a sandal or a boot comprises: a suction machine, a seam beating and ironing machine and a brushing machine.

[0013] The advantages of the installation according to the present invention are evident because it allows for manufacturing different models of shoe simultaneously, thus reducing production time and cost.

[0014] For the sake of clarity the description of the installation according to the present invention continues with reference to the attached figures, which only have an illustrative, not limiting value, wherein:

- Figure 1 is a diagrammatic view of the installation of the invention;
- Figure 2 is the same as Figure 1, except for it shows the route traveled by a sandal to be manufactured with the installation of the invention;
- Figure 3 is the same as Figure 1, except for it shows the route traveled by a pump shoe to be manufactured with the installation of the invention;
- Figure 4 is the same as Figure 1, except for it shows the route traveled by a boot to be manufactured with the installation of the invention.

[0015] Referring to Fig. 1 the installation of the invention comprises:

- machines for manufacturing sandals, comprising machines for preparation-assembly (B, U, I, F, S), machining (SF, O, I, F, MP, N, S, BO, H, K, Z, J, AT, PS, G, M, IT) and finishing (Z, B, FS, SI, R, S) of the sandal;
- machines for manufacturing pump shoes, comprising machines for preparation-assembly (A,B,C,D,Q,E,H,I,P,U,L), machining (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) and finishing (Z,B,FS,SI,R,S) of the pump shoe;
- machines for manufacturing of boots, comprising machines for preparation-assembly (A,B,C,D,Q,E,H,I,P,U,L), machining (Z, FS, SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) and finishing (Z,B,V,S) of the boot;
- a plurality of islands (1,2,3,4,5,6,7,8,9,10), each island being provided with at least two machines for manufacturing a shoe;
- a mobile frame (11) that moves through at least five islands (1,2,3,4,5,6,7,8,9,10) and supports the shoes and the relevant accessories adapted to be mounted on the shoes during the machining operations carried out in the islands (1,2,3,4,5,6,7,8,9,10);
- an actuation device (12) for each island (1,2,3,4,5,6,7,8,9,10); said actuation device (12) moving said mobile frame (11) along the entire island (1,2,3,4,5,6,7,8,9,10);
- a transfer device (13) that moves said mobile frame (11) between two islands (1,2,3,4,5,6,7,8,9,10).

[0016] Said transfer device (13) that moves said mobile frame (11) between at least two islands (1,2,3,4,5,6,7,8,9,10) comprises two parallel conveyor belts (13); said islands (1,2,3,4,5,6,7,8,9,10) being interposed between said two conveyor belts (13), each mobile frame (11) being adapted to move from said conveyor belts (13) to the actuation device (12) provided in each island (1,2,3,4,5,6,7,8,9,10), as shown in Figs. 2, 3 and 4.

[0017] The aforementioned figures show the route traveled by a shoe inside the installation of the invention according to the type of the shoe, i.e. a sandal, a pump shoe or a boot.

[0018] The installation of the invention comprises:

- a first area (A1) for preparing-assembling a shoe; said first area being provided with three islands (1,2,3);
- a second area (A2) for machining the parts provided in the shoe; said second area (A2) being provided with five islands (4,5,6,7,8);
- a third area (A3) for finishing the shoe; said third area (A3) being provided with two islands (9,10).

[0019] Each shoe must necessarily pass through said 3 areas (A1, A2, A3) in order to be manufactured.

[0020] More precisely, the shoe and the relevant parts are positioned on said mobile frame (11), which follows a predefined route according to the type of shoe to be manufactured.

[0021] The first area (A1) is provided with:

- two islands (1,2) used to prepare-assemble a pump shoe or a boot;
- one island (3) used to prepare-assemble a sandal and/or finish a heel.

[0022] The two islands (1,2) used to prepare-assemble a pump shoe or a boot comprise the following machines; cement feeder (A), seam beating and ironing machine (B), counter molding machine (C), mechanical nailing machine (D), crimping machine (Q), toe puff applying machine (E), grinding machine (H), pneumatic nailing machine (I), two different types of toe lasters (P), one humidifier (U) and one trimming machine (L).

[0023] The island (3) used to prepare-assemble a sandal and/or finish a heel comprises the following machines: seam beating and ironing machine (B), dehumidifier oven (F), pneumatic nailing machine (I), brushing machine (S), and humidifier (U).

[0024] With reference to Fig. 1, the second area (A2) of the installation of the invention comprises:

- one island (4) used to age a boot;
- four islands (5,6,7,8) used to make machining operations on the bottom and/or the heel of boots or pump shoes or sandals.

[0025] The island (4) used to age a boot comprises the following machines:

- three suction benches (Z) in series;
- iron (FS).

[0026] The four islands (5,6,7,8) used to make machining operations on the bottom and/or on the heel of boots or pump shoes or sandals comprise the following machines: lining ironing machine (SF), seat and side lasting machine (O), pneumatic nailing machine (I), dehumidifier oven (F), pneumatic hammer (MP), ironing machine (N), brushing machine (S), automatic heel seat pounding machine (BO), grinding machine (H), riveting machine (K), suction bench (Z), reactivating oven (J), heel screwing machine (AT), sole pressing machine (PS), refrigerator (G), last removing machine (M), and heel nailing machine (IT).

[0027] With reference to Fig. 1, the third area (A3) of the installation of the invention comprises:

- an island (9) used to finish a pump shoe and a sandal;
- an island (10) used to finish a boot.

[0028] The island (9) used to finish a pump shoe and a sandal comprises the following machines: suction bench (Z), seam beating and ironing machine (B), iron (FS), forming machine (SI), water veil cabin (R), and brushing machine (S).

[0029] Said island (10) used to finish a boot comprises the following machines: suction bench (Z), seam beating and ironing machine (B), boot ironing machine (V), and brushing machine (S).

[0030] As shown in the attached figures, each island comprises some benches (T) where the operators can place the shoe during the manufacturing cycle.

[0031] Moreover, it must be noted that the broken line of Fig. 3 shows an optional route that provides for passing the shoe through the fourth island (4) only if the shoe needs to undergo special leather aging treatments.

Claims

1. An installation for manufacturing shoes, such as sandals, pump shoes and boots, comprising:

   - machines for manufacturing sandals, comprising machines for preparation-assembly (B,U,I,F,S), machining (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) and finishing (Z,B,FS,SI,R,S) of the sandal;
   - machines for manufacturing pump shoes comprising machines for preparation-assembly (A,B,C,D,Q,E,H,I,P,U,L), machining (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) and finishing (Z,B,FS,SI,R,S) of the pump shoe;
   - machines for manufacturing boots, comprising machines for preparation-assembly (A,B,C,D,Q,E,H,I,P,U,L), machining (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT, Z, FS) and finishing (Z,B,V,S) of the boot;
   - a plurality of islands (1,2,3,4,5,6,7,8,9,10), each island being provided with at least two machines for manufacturing shoes;
   - a mobile frame (11) moving through at least five islands (1,2,3,4,5,6,7,8,9,10) and supporting the shoes and the accessories to be mounted on the shoes during the machining operations carried out in the islands (1,2,3,4,5,6,7,8,9,10);
   - an actuation device (12) for each island (1,2,3,4,5,6,7,8,9,10); said actuation device (12) actuating said mobile frame (11) along the entire island (1,2,3,4,5,6,7,8,9,10);
   - a transfer device (13) actuating said mobile frame (11) between two islands (1,2,3,4,5,6,7,8,9,10).
   - a first area (A1) for preparation-assembly of a shoe, said first area (A1) being provided with at least one island (1,2,3);
   - a second area (A2) for machining the parts of said shoe; said second area (A2) being provided with at least one island (4,5,6,7,8);
   - a third area (A3) for finishing said shoe, said third area (A3) being provided with at least one island (9,10) for finishing a pump shoe and a sandal or a boot,

   wherein said island (9, 10) for finishing a pump shoe and a sandal or a boot comprises: one suction bench (Z), seam beating and ironing machine (B), and brushing machine (S); and
   wherein the third area (A3) comprises:

   - at least one island (9) for finishing a pump shoe and a sandal; and
   - at least one island (10) for finishing a boot;

   characterized in that
   said at least one island (9) for finishing a pump shoe and a sandal comprises the following machines: suction bench (Z), seam beating and ironing machine (B), iron (FS), forming machine (SI), water veil cabin (R), and brushing machine (S).

2. The installation of claim 1, wherein said at least one island (10) for finishing a boot comprises the following machines: suction bench (Z), seam beating and ironing machine (B), boot ironing machine (V), and brushing machine (S).

3. The installation of any one of the preceding claims, wherein said first area (A1) is provided with:

   - at least one island (1, 2) for preparation-assembly of a pump shoe or a boot;
   - at least one island (3) for preparation-assembly of a sandal and/or finishing of a heel.

4. The installation of claim 3, wherein said at least one island (1,2) for preparing-assembling a pump shoe or a boot comprises the following machines: cement feeder (A), seam beating and ironing machine (B), counter molding machine (C), mechanical nailing machine (D), crimping machine (Q), toe puff applying machine (E), grinding machine (H), pneumatic nailing machine (I), two different types of toe lasters (P), humidifier (U) and trimming machine (L).

5. The installation of claim 3 or 4, wherein said at least one island (3) for preparation-assembly of a sandal and/or finishing of a heel comprises the following machines: seam beating and ironing machine (B), dehumidifier oven (F), pneumatic nailing machine (I), brushing machine (S), and humidifier (U).

6. The installation of any one of the preceding claims, wherein said second area (A2) is provided with:

   - at least one island (4) for boot aging;
   - at least one island (5,6,7,8) for making machining operations on the bottom and/or on the heel of boots or pump shoes or sandals.

7. The installation of clam 6, wherein said at least one island (4) for boot aging comprises the following ma-

chines:

- suction bench (Z), preferably three suction benches (Z) in series;
- iron (FS).

8. The installation of claim 6 or 7, wherein said at least one island (5, 6, 7, 8) for making machining operations on the bottom and/or on the heel of boots or pump shoes or sandals comprises the following machines: lining ironing machine (SF), seat and side lasting machine (O), pneumatic nailing machine (I), dehumidifier oven (F); pneumatic hammer (MP), ironing machine (N), brushing machine (S), automatic heel seat pounding machine (BO), grinding machine (H), riveting machine (K), suction bench (Z), reactivating oven (J), heel screwing machine (AT), sole pressing machine (PS), refrigerator (G), last removing machine (M) and heel nailing machine (IT).

9. The installation of any one of the preceding claims, wherein said transfer device (13) that actuates said mobile frame (11) between at least two islands (1,2,3,4,5,6,7,8,9,10) comprises two parallel conveyor belts (13); said islands (1,2,3,4,5,6,7,8,9,10) being disposed in intermediate position between said two conveyor belts (13) so that each mobile frame (11) can move from said conveyor belts (13) to the actuation device (12) provided in each island (1,2,3,4,5,6,7,8,9,10).

Patentansprüche

1. Anlage zur Herstellung von Schuhen, wie beispielsweise Sandalen, Pumps und Stiefeln, umfassend:

- Maschinen zur Herstellung von Sandalen, umfassend Maschinen für Vorbereitung und Zusammenbau (B, U, I, F, S), Bearbeitung (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) und Endbearbeitung (Z, B, FS, SI, R, S) der Sandale;
- Maschinen zur Herstellung von Pumps, umfassend Maschinen für Vorbereitung und Zusammenbau (A,B,C,D,Q,E,H,I,P,U,L), Bearbeitung (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT) und Endbearbeitung (Z,B,FS,SI,R,S) des Pumps;
- Maschinen zur Herstellung von Stiefeln, umfassend Maschinen für Vorbereitung und Zusammenbau (A, B, C, D, Q, E, H, I, P, U, L), Bearbeitung (SF, O, I, F, MP,N, S, BO, H, K, Z, J, AT, PS, G, M, IT, Z, FS) und Endbearbeitung (Z, B, V, S) des Stiefels;
- eine Mehrzahl von Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10), wobei jede Insel mit mindestens zwei Maschinen zur Herstellung eines Schuhs ausgestattet ist;
- einen beweglichen Rahmen (11), der sich durch mindestens fünf Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) bewegt und die Schuhe sowie die Zubehörteile trägt, die dazu bestimmt sind, während der an den Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) ausgeführten Bearbeitungsvorgängen an den Schuhen angeordnet zu werden;
- eine Betätigungsvorrichtung (12) für jede Insel (1, 2, 3, 4, 5, 6, 7, 8, 9, 10); wobei die Betätigungsvorrichtung (12) den beweglichen Rahmen (11) entlang der gesamten Insel (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) betätigt;
- eine Übertragungsvorrichtung (13), die den beweglichen Rahmen (11) zwischen zwei Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) betätigt.
- einen ersten Bereich (A1) für die Vorbereitung und den Zusammenbau eines Schuhs; wobei der erste Bereich (A1) mit mindestens einer Insel (1, 2, 3) versehen ist;
- einen zweiten Bereich (A2) für die Bearbeitung der Bestandteile des Schuhs; wobei der zweite Bereich (A2) mit mindestens einer Insel (4, 5, 6, 7, 8) versehen ist;
- einen dritten Bereich (A3) für die Endbearbeitung des Schuhs, wobei der dritte Bereich (A3) mit mindestens einer Insel (9, 10) für die Endbearbeitung eines Pumps und einer Sandale oder eines Stiefels versehen ist,

wobei die Insel (9, 10) für die Endbearbeitung eines Pumps und einer Sandale oder eines Stiefels Folgendes umfasst: Werkbank mit Saugvorrichtung (Z), Maschine zum Nahtklopfen und Bügeln (B) und Bürstmaschine (S); und
wobei der dritte Bereich (A3) Folgendes umfasst:

- mindestens eine Insel (9) für die Endbearbeitung eines Pumps und einer Sandale;
und
- mindestens eine Insel (10) für die Endbearbeitung eines Stiefels; **dadurch gekennzeichnet, dass**
die mindestens eine Insel (9) für die Endbearbeitung eines Pumps und einer Sandale folgende Maschinen umfasst: Werkbank mit Saugvorrichtung (Z), Maschine zum Nahtklopfen und Bügeln (B), Bügeleisen (FS), Formmaschine (SI), Wasserschleierkabine (R) und Bürstmaschine (S).

2. Anlage nach Anspruch 1, wobei die mindestens eine Insel (10) für die Endbearbeitung eines Stiefels folgende Maschinen umfasst: Werkbank mit Saugvorrichtung (Z), Maschine zum Nahtklopfen und Bügeln (B), Stiefelbügelmaschine (V) und Bürstmaschine (S).

3. Anlage nach einem der vorstehenden Ansprüche, wobei der erste Bereich (A1) versehen ist mit:

- mindestens einer Insel (1, 2) für die Vorbereitung und den Zusammenbau eines Pumps oder eines Stiefels;
- mindestens einer Insel (3) für die Vorbereitung und den Zusammenbau einer Sandale und/oder die Endbearbeitung eines Absatzes.

4. Anlage nach Anspruch 3, wobei die mindestens eine Insel (1, 2) für die Vorbereitung und den Zusammenbau eines Pumps oder eines Stiefels folgende Maschinen umfasst: Klebemaschine (A), Maschine zum Nahtklopfen und Bügeln (B), Gegenformmaschine (C), mechanische Nagelmaschine (D), Zwickmaschine (Q), Maschine zum Anbringen der Zehenkappe (E), Schleifmaschine (H), pneumatische Nagelmaschine (I), zwei verschiedene Arten von Spitzenzwickmaschinen (P), Befeuchter (U) und Kantenschneidemaschine (L).

5. Anlage nach Anspruch 3 oder 4, wobei die mindestens eine Insel (3) für die Vorbereitung und den Zusammenbau einer Sandale und/oder die Endbearbeitung eines Absatzes folgende Maschinen umfasst: Maschine zum Nahtklopfen und Bügeln (B), Trockenschrank (F), pneumatische Nagelmaschine (I), Bürstmaschine (S) und Befeuchter (U).

6. Anlage nach einem der vorstehenden Ansprüche, wobei der zweite Bereich (A2) versehen ist mit:

- mindestens einer Insel (4) für die Stiefelalterung:
- mindestens einer Insel (5,6,7,8) zur Ausführung von Bearbeitungsvorgängen an der Schuhsohle und/oder am Absatz von Stiefeln oder Pumps oder Sandalen.

7. Anlage nach Anspruch 6, wobei die mindestens eine Insel (4) für die Stiefelalterung die folgenden Maschinen umfasst:

- Werkbank mit Saugvorrichtung (Z), vorzugsweise drei hintereinander angeordnete Werkbänke mit Saugvorrichtung (Z);
- Bügeleisen (FS).

8. Anlage nach Anspruch 6 oder 7, wobei die mindestens eine Insel (5, 6, 7, 8) zur Ausführung von Bearbeitungsvorgängen an der Schuhsohle und/oder am Absatz von Stiefeln oder Pumps oder Sandalen die folgenden Maschinen umfasst: Futterbügelmaschine (SF), Sitz- und Seitenzwickmaschine (O), pneumatische Nagelmaschine (I), Trockenschrank (F); Drucklufthammer (MP), Bügelmaschine (N), Bürstmaschine (S), automatische Fersenbereich-Klopfmaschine (BO) Schleifmaschine (H), Nietmaschine (K), Werkbank mit Saugvorrichtung (Z), Reaktivierungstrockenschrank (J), Absatzschraubmaschine (AT), Sohlenpressmaschine (PS), Kühlschrank (G), Ausleistmaschine (M) und Fersennagelmaschine (IT).

9. Anlage nach einem der vorstehenden Ansprüche, wobei die Übertragungsvorrichtung (13), die den beweglichen Rahmen (11) zwischen mindestens zwei Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) betätigt, zwei parallel Förderbänder (13) umfasst; wobei die Inseln (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) in einer Zwischenposition zwischen den zwei Förderbändern (13) angeordnet sind, so dass jeder bewegliche Rahmen (11) sich von dem Förderband (13) zu der Betätigungsvorrichtung (12) bewegen kann, die in jeder Insel (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) vorgesehen ist.

Revendications

1. Installation pour la fabrication de chaussures telles que sandales, décolletées et bottes, comprenant :

- des machines pour la fabrication de sandales comprenant des machines pour la préparation-montage (B, U, I, F, S), usinage (SF, O, I, F, MP ,N , S, BO, H, K, Z, J, AT, PS, G, M, IT) et finition (Z, B, FS, SI, R, S) de la sandale ;
- des machines pour la fabrication de décolletées comprenant des machines pour la préparation-montage (A, B ,C, D, Q, E, H, I, P, U, L), usinage (SF, O, I, F, MP, N, S, BO, H, K, Z, J, AT, PS, G, M, IT) et finition (Z, B, FS, SI, R, S) de la décolletée ;
- des machines pour la fabrication de bottes comprenant des machines pour la préparation-montage (A, B, C, D, Q, E, H, I, P, U, L), usinage (SF, O, I, F, MP, N, S, BO, H, K, Z, J, AT, PS, G, M, IT, Z, FS) et finition (Z, B, V, S) de la botte ;
- une pluralité d'îles (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) dans chacune desquelles sont présentes au moins deux machines pour la réalisation d'une chaussure ;
- un châssis mobile (11) qui se déplace à travers au moins cinq îles (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) et qui soutient les chaussures et les relatifs accessoires destinés à être montés sur les chaussures pendant les usinages effectués au sein des îles (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) ;
- un dispositif d'actionnement (12) pour chaque île (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) ; ledit dispositif d'actionnement (12) déplaçant ledit châssis mobile (11) le long de toute l'île (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) ;
- un dispositif de transfert (13) qui déplace ledit châssis mobile (11) entre deux îles (1, 2, 3, 4,

5, 6, 7, 8, 9, 10),
- une première zone (A1) pour la préparation-montage d'une chaussure ; au moins une île (1, 2, 3) étant présente dans ladite première zone (A1) ;
- une deuxième zone (A2) pour l'usinage des pièces présentes dans la chaussure ; au moins une île (4, 5, 6, 7, 8) étant présente dans ladite deuxième zone (A2) ;
- une troisième zone (A3) pour la finition de la chaussure, dans ladite troisième zone (A3) étant présente une île (9, 10) pour la finition d'une décolletée et d'une sandale ou d'une botte,

où ladite île (9, 10) pour la finition d'une décolletée et d'une sandale ou d'une botte comprend : un établi avec aspiration (Z), une machine de battage des coutures et de repassage (B) et une brosseuse (S) ; et
où la troisième zone (A3) comprend :

- au moins une île (9) pour la finition de la décolletée et de la sandale ;
et
- au moins une île (10) pour la finition d'une botte ;
caractérisée en ce que
ladite au moins une île (9) pour la finition d'une décolletée et d'une sandale comprend les machines suivantes : un établi avec aspiration (Z), une machine de battage des coutures et de repassage (B), un fer à repasser (FS), une machine de formage (SI), une cabine à voile d'eau (R) et une brosseuse (S).

2. Installation selon la revendication 1, où ladite au moins une île (10) de finition de la botte comprend les machines suivantes : un établi avec aspiration (Z), une machine de battage des coutures et de repassage (B), une machine à repasser la botte (V) et une brosseuse (S).

3. Installation selon l'une quelconque des revendications précédentes, où ladite première zone (A1) est équipée de :

- au moins une île (1, 2) pour la préparation-assemblage d'une décolletée ou d'une botte ;
- au moins une île (3) pour la préparation-assemblage d'une sandale et/ou la finition d'un talon.

4. Installation selon la revendication 3, où ladite au moins une île (1, 2) pour la préparation-assemblage d'une décolletée ou d'une botte comprend les machines suivantes : un convoyeur de colle très forte (A), une machine de battage des coutures et de repassage (B), une machine à contre-modeler (C), une machine mécanique à clouer (D), une machine à sertir (Q), une machine d'application d'embout (E), une machine à poncer (H), une machine à clouer pneumatique (I), deux types différents de prémontage-montage d'embout (P), un humidificateur (U) et une machine à ébarber (L).

5. Installation selon la revendication 3 ou 4, où ladite au moins une île (3) pour la préparation-assemblage d'une sandale et/ou la finition d'un talon comprend les machines suivantes : une machine de battage des coutures et de repassage (B), un four déshumidificateur (F), une machine à clouer pneumatique (I), une brosseuse (S) et un humidificateur (U).

6. Installation selon l'une quelconque des revendications précédentes, où ladite seconde zone (A2) est équipée de :

- au moins une île (4) pour le vieillissement d'une botte ;
- au moins une île (5, 6, 7, 8) pour effectuer des opérations d'usinage sur le fond et/ou sur le talon des bottes ou des décolletées ou des sandales (C).

7. Installation selon la revendication 6, où ladite au moins une île (4) pour le vieillissement d'une botte comprend les machines suivantes :

- un établi avec aspiration (Z), préférablement trois établis avec aspiration (Z) en série ;
- un fer à repasser (FS).

8. Installation selon la revendication 6 ou 7, où ladite au moins une île (5, 6, 7, 8) pour effectuer les opérations d'usinage sur le fond et/ou le talon de bottes ou de décolletées ou de sandales comprend les machines suivantes : une machine à repasser les doublures (SF), une machine à poser les tiges (O), une machine à clouer pneumatique (I), un four déshumidificateur (F), un marteau pneumatique (MP), une machine à repasser (N), une brosseuse (S), une machine automatique pour le calage du talon et son façonnage (BO), une machine à poncer (H), une machine à riveter (K), un établi avec aspiration (Z), un four réactivant (J), une machine à visser le talon (AT), une machine à presser la semelle (PS), un réfrigérateur (G), une machine à enlever les formes (M) et une machine à clouer le talon (IT).

9. Installation selon l'une quelconque des revendications précédentes, où ledit dispositif de transfert (13) qui actionne ledit châssis mobile (11) entre au moins deux îles (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) comprend deux tapis transporteurs (13) ; lesdites îles (1, 2, 3, 4, 5, 6, 7, 8, 9, 10) étant disposées en position intermédiaire entre les deux tapis transporteurs (13) de sorte

que chaque châssis mobile (11) peut se déplacer depuis lesdits tapis transporteurs (13) vers le dispositif d'actionnement (12) prévu dans chaque île (1, 2, 3, 4, 5, 6, 7, 8, 9, 10).

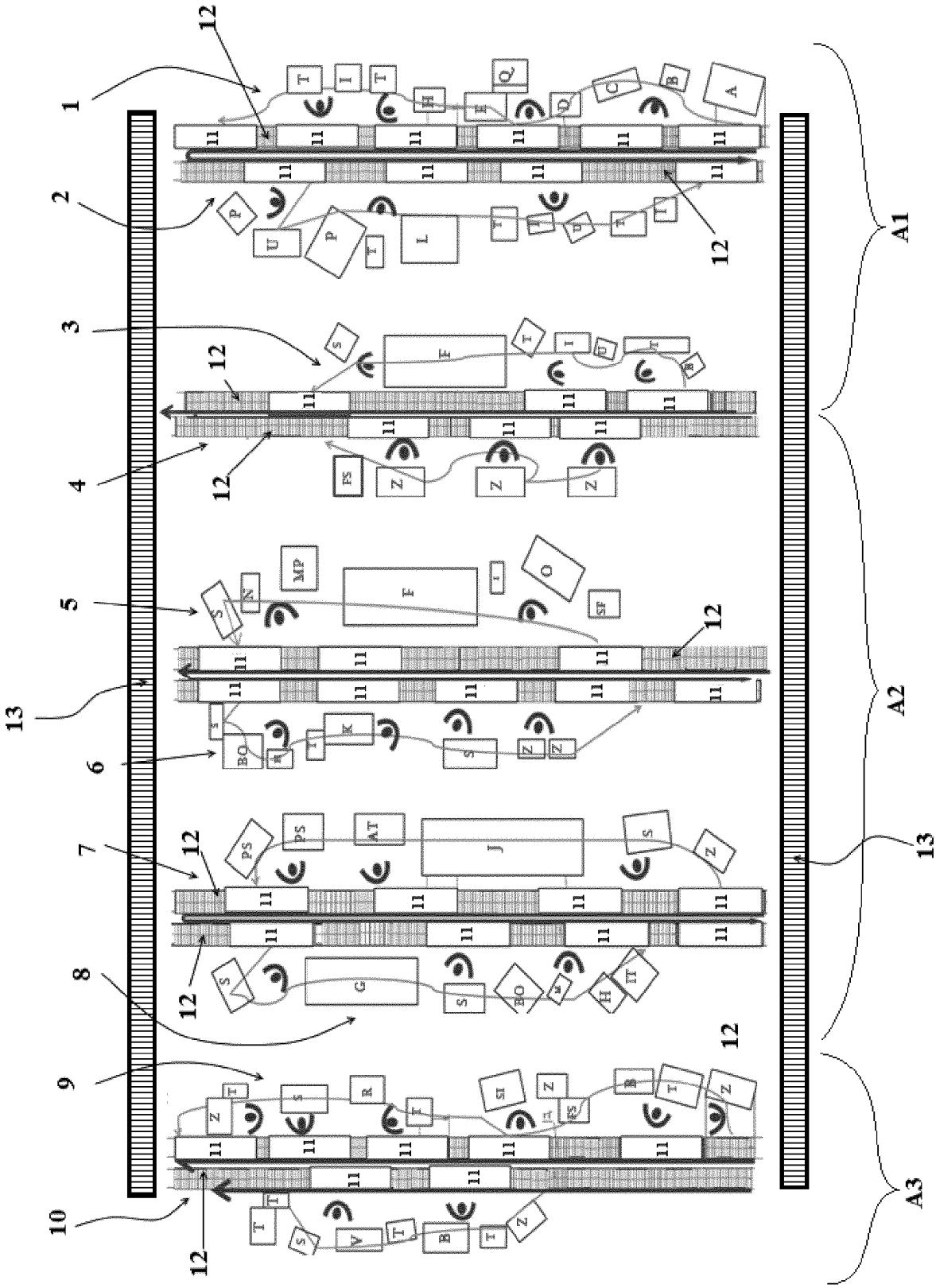


Fig. 1

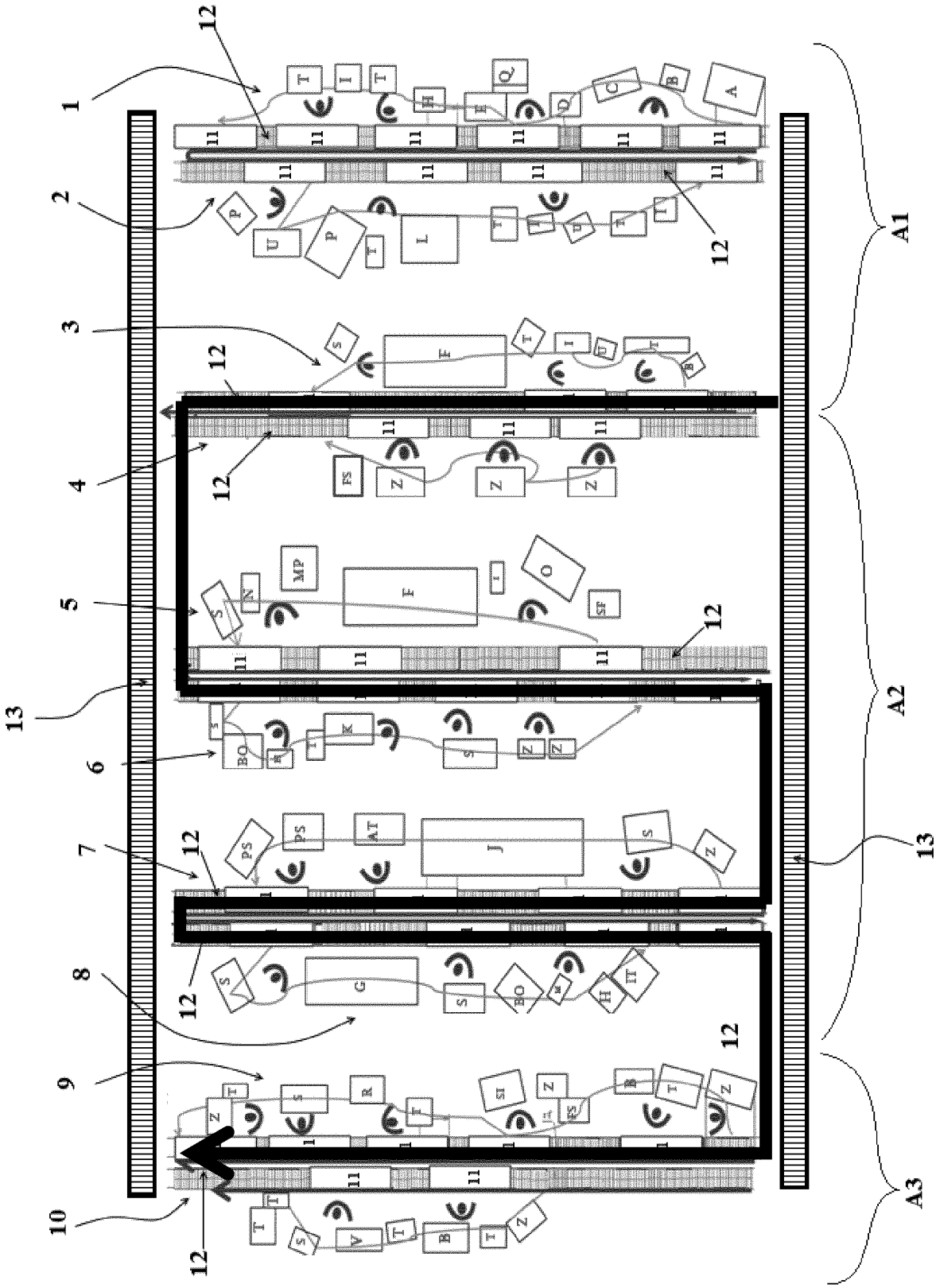


Fig. 2

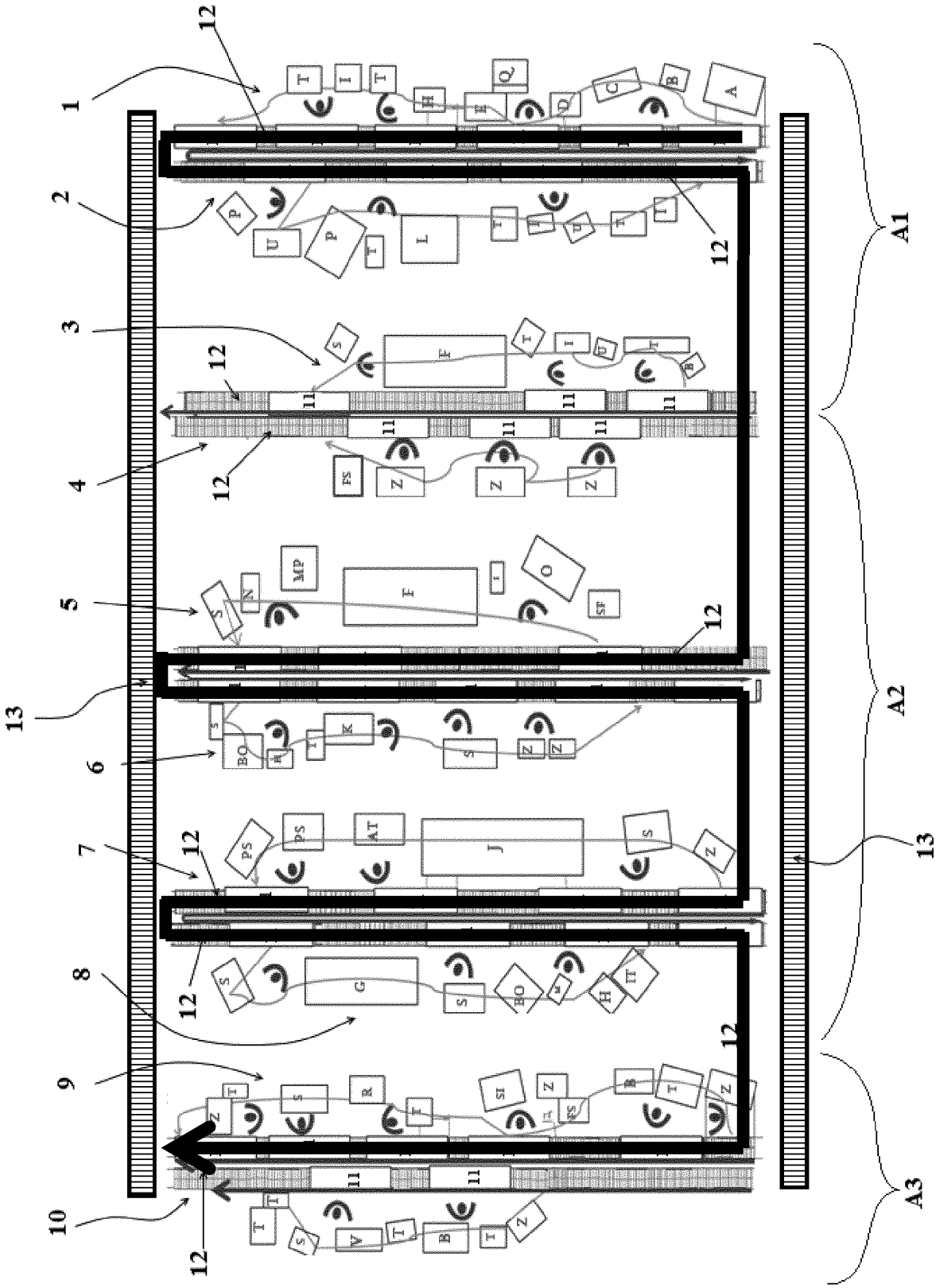


Fig. 3

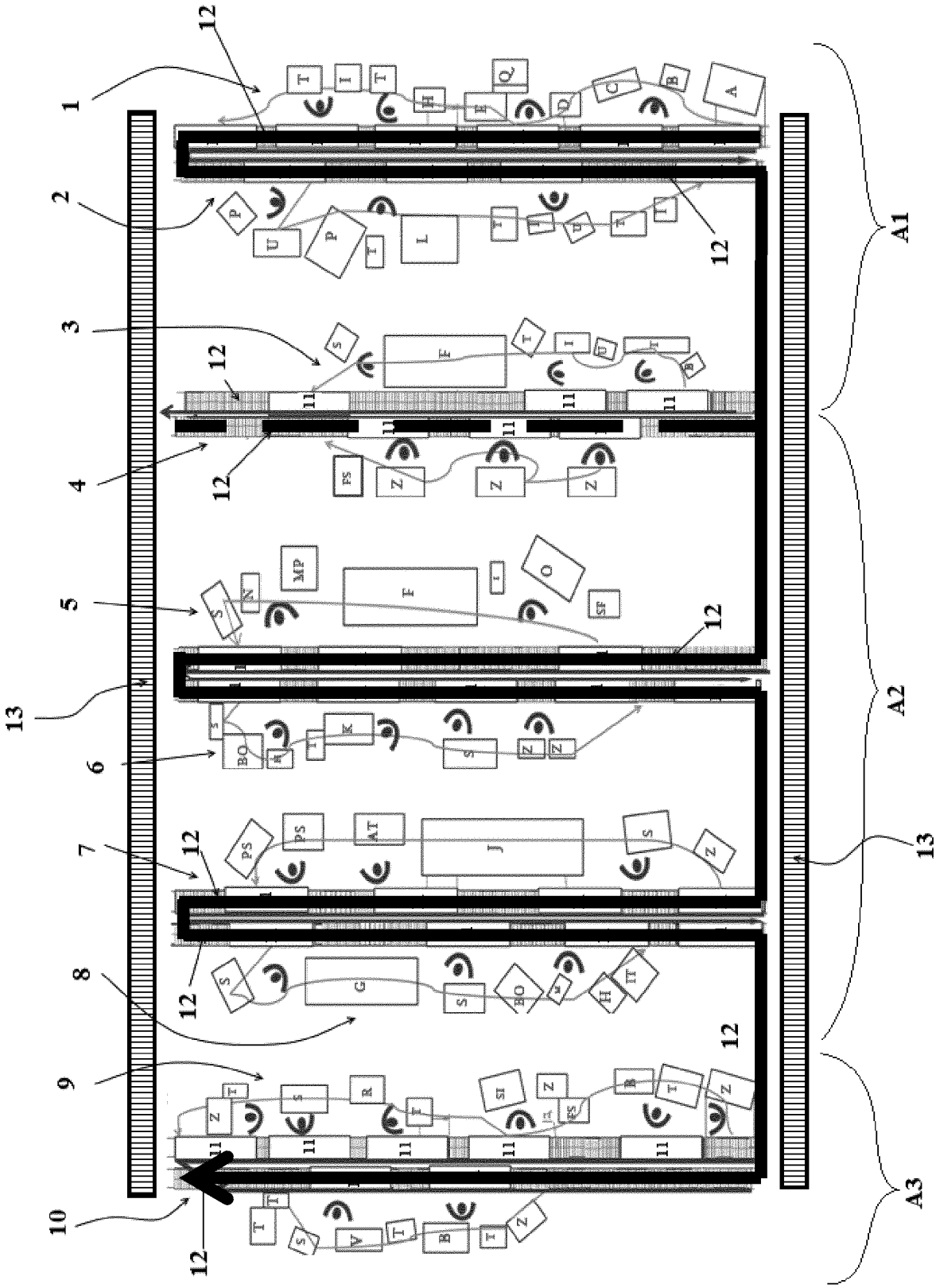


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 2010037035 A **[0007]**