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**(54) PALLET HOLDER FOR SCREEN PRINTING MACHINES**

PALETTENHALTER FÜR SIEBDRUCKMASCHINEN

SUPPORT DE PALETTE POUR MACHINES DE SÉRIGRAPHIE

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## Description

### Technical field

**[0001]** The present disclosure relates to a pallet holder for screen printing machines having a built-in longitudinal coupling assembly for holding a pallet, in particular using different metal alloys, a toothed coupling thereof and respective fitting.

### Background

**[0002]** Screen printing is a printing process comprising the use of a mesh screen to transfer ink onto an object, but only on the areas made permeable to the ink on a stencil screen. Screen printing is also known as silk-screen, serigraphy and serigraph printing.

**[0003]** Usually, a blade or ramped surface is moved across the screen to fill the open mesh apertures with ink, and an inverse movement causes the screen to touch the object along a contact line. This causes the ink to touch and adhere to the object through the mesh apertures, as the screen springs back after the blade has passed.

**[0004]** Normally, one colour is printed at a time, so usually several screens are used to produce a multicoloured image or design.

**[0005]** Thus, it is rather important to have a mechanism for lowering said screen onto the object to be printed and also, after printing, for raising said screen from the object. This mechanism, able to be raised and lowered, and containing the printing implements, is the printing head. The object to be printed is placed in a flat pallet, or interchangeably called, a platen, locked to a pallet holder and attached to a machine carousel.

**[0006]** There exist several machine models with different elevation mechanisms used in a printing station; each machine model may allow installation of one to several printing stations disposed in circular, oval or linear positions around the machine main body.

**[0007]** Prior art machines also relate to radial screen printing machines, in particular for textile applications, where the machine that is provided with multiple printing stations.

**[0008]** In practically all machine models existing in the market the objective is to apply product, either ink or other liquid or paste material, in articles and to create a decoration on the article. The product application on the article is implemented by a screen printing process using a screen frame, and such screen containing the pattern or shape to be applied. Each printing station applies the product by screen printing process on the article placed in flat pallet locked on pallet holder, each article may get various products types, each station can apply only one product or several at same time, depending on the printing station technology.

**[0009]** Screen printing machines contain printing stations, having a printing base with a flat pallet and a pallet

holder attached to a carousel suitable for rotating around a machine base. The printing base includes a flat pallet supported by a pallet holder including a support arm attached to said machine carousel.

**[0010]** Pallets can be advantageously replaced by other different pallet sizes or shapes to fitting sizes or article shapes. Advantageously, the pallet can be exchanged and its position adjusted longitudinally by means of a toothed fitting. The adjustments can damage these teeth of the toothed fitting, by abnormal use or even by normal use, that is, normal wear.

**[0011]** The pallet holder has to be substantially inflexible in its vertical, horizontal and longitudinal positioning, in order to maintain the printing precision between the different stations and in respect of the printing head.

**[0012]** The pallet holder has to be as light as possible, implying its construction is normally made with standard sheet metal bended and grouped with rivets. The pallet and pallet holder construction need to be light as possible to allow a smooth mechanical shift rotation between stations.

**[0013]** In most existing machines on the market, the pallet holder is usually made by a single standard metal alloy on the main body including the areas where pallet is coupled, with disadvantages compared to the present disclosure.

**[0014]** Printing movement creates vertical heavy stress together with longitudinal stress, thus being necessary to maintain accuracy and precision on the design printed during printing operation. All that pressure is supported by the flat pallet together with pallet holder attached to carousel.

**[0015]** It is very advantageous to allow pallet longitudinal adjustment and pallet retention with facilitated pallet removal and replacement.

**[0016]** As described, in screen print machine carousels containing several pallets disposed in circular or oval, the pallet holder weight is very important however it has to withstand very high stress forces. It is necessary to provide a lightweight pallet holder using lighter metal alloys, which is simultaneously able to withstand high stress forces and allow easy replacement and repositioning of the pallets.

**[0017]** Document US2004/0000240A1 describes a pallet for use with a screen printing apparatus having arms extending outwardly from the printing machine supporting an article against a printing force supplied by the screen printing machine. A base portion of the pallet is attachable to the arm of the printing machine and includes a support structure extending therefrom to stabilize and reduce deflection against the printing force. As shown in the drawings, the pallet is attached to the printing machine, whereby a bracket is fixedly attached to the bottom surface of a base portion. The bracket is typically attached to the bottom surface of a centre pallet leg. The bracket includes flange portions that extend outwardly along opposing sides of the bracket. In use, the printing machine arm is inserted into this bracket. The flange por-

tions engage a camming support surface, and cams are used to tighten the flange portions against the camming support surface to attach the pallet to the arm of the printing machine.

[0018] However, in document US2004/0000240A1, the pallet is longitudinally attached to the arm of the printing machine merely by pressure (and consequent friction), thus not having a robust fixation and/or requiring tremendous effort on the cams.

[0019] Document US5309831 describes an automatic screen printing press which has a platen turntable carrying a plurality of platens which are indexed through a plurality of stations in an endless path of movement past printing heads having a power-driven squeegee carriage thereon. Each platen is provided on its underside with a clamping screw which passes through a clamping bracket adapted to straddle an open slot in the top of an extension arm to secure the platen in position. However, in document US5309831, the pallet is longitudinally attached to the arm of the printing machine merely by pressure (and consequent friction), thus not having a robust fixation and/or requiring tremendous effort on the clamping screws.

[0020] Document US 9561642 describes a screen printing system including a screen printing machine. The screen printing machines includes a screen printing unit with a screen. A platen arm assembly includes a platen configured to move in a telescoping direction from at least a first position where the platen is positioned under the screen to a second position that is different from the first position. Document DE19607837 discloses hollow objects such as bottles or glasses that are contained in at least one holder movable along a conveyor belt. The object to be decorated is conveyed to a unit and removed from the holder by another unit, when decorated. The continuous, horizontal conveyor consists of rigid, elongated, toothed sections pivotally interconnected. At least one toothed drive mechanism engages with the toothing of at least one section. Each pair of sections is guided by connections to at least one guide piece defining at least part of the conveyor track.

[0021] These facts are disclosed in order to illustrate the technical problem addressed by the present disclosure.

### General Description

[0022] Screen printing machines contain printing stations having a printing base with a flat pallet, or interchangeably a platen, and a pallet holder preferably attached to a carousel arranged for moving, e.g. linearly or rotating around, relative to a machine base. The printing base comprises a flat pallet supported by a support arm, herewith also named pallet holder, which is attached to the machine carousel.

[0023] Pallets can be advantageously replaced by other different pallet sizes or shapes to fitting sizes or article shapes. Advantageously, the pallet can be exchanged

and its position adjusted longitudinally by means of a toothed fitting according to the disclosure. The adjustments can damage these teeth of the toothed fitting, by abnormal use or even by normal use, that is, normal wear and tear.

[0024] The pallet holder has to be substantially inflexible in its vertical, horizontal and longitudinal positioning, in order to maintain the printing precision between the different stations and in respect of the printing head.

[0025] The pallet holder has to be as light as possible, implying its construction is normally made with standard sheet metal bended and grouped with rivets. The pallet and pallet holder construction need to be light as possible to allow a smooth mechanical shift rotation between stations.

[0026] In most existing machines on the market, the pallet holder is usually made in a single standard metal alloy on the main body including the areas where pallet is coupled, with disadvantages compared to the present disclosure.

[0027] Screen printing machines perform the printing operation with movement, applying ink on product or garment disposed the flat pallet. Printing movement creates vertical heavy stress together with longitudinal stress necessary to maintain accuracy and precision on the design printed during the printing operation. Printing movement is defined by a motor together with non-slip gear allowing a very high pressure on product to maintaining accuracy. All that pressure is supported by the flat pallet together with pallet holder attached to the carousel.

[0028] The pallet can be attached to pallet holder by four coupling points, one with coupling teeth and the others without teeth, i.e. coupling slots. The coupling teeth allow the pallet sufficient longitudinal adjustment and pallet retention relative to the machine centre. After pallet longitudinal adjustment, said teeth also serve to fix the pallet relative to its longitudinal position for subsequent printing operations.

[0029] Screen printing machines with pallet holders having lower integrated coupling teeth, not allowing the replacement of said longitudinal adjustment coupling teeth.

[0030] A screen printing machine carousel contains several pallets disposed in circular or oval. The pallet holder weight is very important; however it has to withstand very high stress forces. It is necessary to provide a lightweight pallet holder using lighter metal alloys, which is simultaneously able to withstand high stress forces and allow easy replacement and repositioning of the pallets.

[0031] Printing operation creates high longitudinal stress on pallet holder teeth, with a single standard metal alloy on pallet holder and coupler teeth being damaged very frequently because the metal alloy on the teeth is the same as the pallet holder main body. Main body metal alloy hardness does not correspond to resistance to stress on the teeth area when teeth are made by standard metal alloy with no special treatment for stress resist-

ance.

**[0032]** The pallet holder has to be substantially inflexible in its vertical, horizontal, torsion and longitudinal positioning, in order to maintain the printing precision between the different stations.

**[0033]** A pallet holder according to the present invention as defined in claim 1 is provided. Further preferred embodiments are defined in the dependent claims.

**[0034]** It is disclosed a pallet holder of a screen printing machine, the pallet being a screen printing pallet for supporting an article for screen printing, said pallet holder comprising a releasably attached toothed fitting coupling the pallet to the pallet holder such that the pallet coupling position relative to the pallet holder is stepwise adjustable by teeth of said fitting, wherein the toothed fitting is replaceable and comprises a support for releasably attaching the fitting to a pallet holder and a toothed rack attached to said support, wherein said teeth are formed in said toothed rack.

**[0035]** In an embodiment, the fitting is made of two metal alloys, a first metal alloy for the toothed rack and a second metal alloy for the support, wherein the first metal alloy is harder than the second metal alloy.

**[0036]** In an embodiment, the fitting is made of two metal alloys, a first metal alloy for the toothed rack and a second metal alloy for the support, wherein the two metal alloys are such that the support and toothed rack are welded directly.

**[0037]** In an embodiment, a replaceable toothed fitting support comprises an opening for matching openings between teeth of the toothed rack such that the support is welded to and surrounds the toothed rack.

**[0038]** In an embodiment, the replaceable toothed fitting support comprises ribs formed across said support opening which match corresponding longer teeth extensions formed in said toothed rack.

**[0039]** In an embodiment, the replaceable toothed fitting support has two parts bent at an angle, a first part for receiving the toothed rack and a second part for releasably attaching the fitting to the pallet holder.

**[0040]** In an embodiment, the pallet holder comprises a support arm for supporting and releasably holding the pallet.

**[0041]** In an embodiment, the support arm is made of a bent sheet metal plate or plates.

**[0042]** In an embodiment, the first part of the fitting support is coplanar with first metal sheet plate of the support arm supporting the pallet and the second part of the fitting support is coplanar with a second metal sheet plate of the support arm reinforcing the first metal sheet supporting the pallet.

**[0043]** In an embodiment, the first part of the fitting support is releasably attached to the first metal sheet plate of the support arm supporting the pallet and the second part of the fitting support is releasably attached to the second metal sheet plate of the support arm reinforcing the first metal sheet supporting the pallet.

**[0044]** In an embodiment, the pallet holder support arm

is made of a metal alloy of a lower strength than the metal alloy or alloys of the replaceable toothed fitting.

**[0045]** In an embodiment, the pallet coupling position relative to the pallet holder is stepwise adjustable along a longitudinal axis of the pallet holder by the teeth of said toothed fitting.

**[0046]** In an embodiment, the pallet coupling position relative to the pallet holder is stepwise adjustable along a proximal-distal axis relative to the screen printing machine.

**[0047]** An embodiment comprises an attachment for attaching the pallet holder to the screen printing machine.

**[0048]** An embodiment comprises one or more additional couplings for coupling the pallet to the pallet holder.

**[0049]** In an embodiment, each said additional coupling or couplings comprises a slotted opening, a surface flange and a corresponding rotatable cam surface for coupling the pallet to the pallet holder by inserting said cam or flange surface through said opening, and by rotating said rotatable cam surface to engage said surface flange.

**[0050]** It is also disclosed a pallet holder and pallet assembly for a screen printing machine comprising the pallet holder according to any of the disclosed embodiments.

**[0051]** It is also disclosed a screen printing station comprising the pallet holder and pallet assembly according to any of the disclosed embodiments.

**[0052]** It is also disclosed a screen printing machine comprising the screen printing station according to any of the disclosed embodiments.

## Brief Description of the Drawings

**[0053]** The following figures provide preferred embodiments for illustrating the description and should not be seen as limiting the scope of invention.

**Figure 1** illustrates an embodiment of a screen printing machine.

**Figure 2A** illustrates an embodiment of a screen printing machine with an oval carousel top view.

**Figure 2B** illustrates an embodiment of a screen printing machine with a circular carousel top view.

**Figure 3** illustrates an embodiment of a pallet holder and pallet assembly.

**Figure 4** illustrates an embodiment of a pallet holder.

**Figure 5** illustrates an embodiment of a pallet holder detail, with integrated longitudinal coupling teeth.

**Figure 6** illustrates an embodiment of a pallet holder detail with longitudinal coupling teeth assembly.

**Figure 7** illustrates an embodiment of a pallet holder

and longitudinal coupling teeth assembly in a perspective view.

**Figure 8** illustrates an embodiment of a longitudinal coupling teeth assembly detail view and construction.

**Figure 9** illustrates an embodiment of a printing station and machine components showing the printing application movement of a printing movement towards the machine center.

**Figure 10** illustrates an embodiment of a printing station and machine components showing the printing application movement of a printing movement away from the machine center.

**Figure 11** illustrates an embodiment of a pallet holder and pallet assembly, showing a pallet holder detail with integrated longitudinal coupling teeth.

### Detailed Description

**[0054]** The present description also includes a pallet holder for screen printing machines, built with a longitudinal coupler assembly and using three metal alloys. Allowing longitudinal resistance to failure and adjust. The longitudinal coupler is exchangeable.

**[0055]** Screen printing machines, see fig.1, contain printing stations **3**, having a printing base with flat pallet **2** optionally attached to a carousel **12** for rolling around a machine base **11**. The printing base comprises a flat pallet supported by a support arm comprised as a pallet holder **1** attached to machine carousel **12**.

**[0056]** The pallet is attached to pallet holder by four couplings **5-6**, one coupling with teeth **6** and the others without teeth **5**. The coupling teeth **15** allow pallet longitudinal adjustment **14** and pallet retention related to machine center. After pallet adjustment, the teeth lock the position for printing operation.

**[0057]** The pallet holder has to be inflexible in its vertical, horizontal, torsion and longitudinal positioning, in order to maintain the printing precision between the different rotation stations movement.

**[0058]** The pallet holder has to be as light as possible, implying its construction made with standard sheet metal bended, joined with rivets. The pallet and pallet holder construction need to be light as possible to allowing a smooth mechanical shift between stations.

**[0059]** A longitudinal toothed coupler assembly **6**, for providing said toothed coupling and respective toothed fitting, is preferably built with two metal alloys to improve the teeth **15** hardness to daily operation and waste. The longitudinal coupler assembly **6** is built with two parts, teeth part **6.2**, made by a first metal alloy and teeth support **6.1**, made by a third metal alloy.

**[0060]** The metal alloy needs to be of a similar composition to another metal alloy to allow welding between

them.

**[0061]** In this way, the maximum permissible force for the motions **9.x** is relative to the resistances of the materials themselves.

**[0062]** The pallet holder **1** is preferably made with three metal alloys on its construction. The pallet holder **1** base structure is made by a set of folded standard sheets metal grouped by rivets, to form a structure **1**, then subsequently assembled to a set **6** of two metal alloys (see **6.1**; **6.2**).

**[0063]** The pallet holder **1** contains four points **5-6** for coupling the pallet forming a simultaneous fixation at four points. Three of these points have coupling openings **5** and the fourth point **6** has openings with teeth. Points **5** and **6** secure the pallet holder horizontally, vertically, torsionally and longitudinally. Point **6** also allows pallet position longitudinal adjust relative to machine center **11**. The pallet holders coupling points **5, 6** has various apertures or positions for adjusting and positioning the pallet in the longitudinal adjustment **14** relative to the screen printing machine center **11**, then coupling teeth block the pallet in the desired position.

**[0064]** Coupling point **6** requires adjustment teeth **15** to allow different pallet sizes and formats, allowing the pallet printing center to be adjusted relative to the screen printing machine center.

**[0065]** To improve tooth **15** longitudinal stress strength, of the present disclosure, it is disclosed to replace pallet coupling **7** with a coupler assembly **6** containing two parts made with different metal alloys.

**[0066]** Metal part with teeth **6.2**, is built with metal alloy with high stress resistance to operation. The metal alloy is very hard and does not substantially allow bending at environment temperatures without damage. An important ability of hardness is the resistance to abrasion and localized deformation.

**[0067]** The other metal alloy is to support the teeth and interface with pallet holder and is more resistant to overall deformation.

**[0068]** The following features are illustrated in the figures: pallet holder **1**; pallet or flat pallet **2**; printing station or printing head **3**; screen printing **4**; pallet coupling points **5**; exchangeable longitudinal coupler assembly made by two metal alloy sets **6**; exchangeable longitudinal coupling, support part **6.1**; exchangeable longitudinal coupling, teeth **6.2**; longitudinal coupling teeth integrated in pallet holder **7**; printing squeeze support **8**; printing movement **9**; printing squeeze **10**; machine center or machine base **11**; carousel **12**; printing movement motor **13**; pallet adjust related to machine center **14**; longitudinal coupling teeth **15**.

### Claims

1. A pallet holder (1) of a screen printing machine, the pallet (2) being a screen printing pallet for supporting an article for screen printing, said pallet holder (1) **characterized by** comprising a releasably attached

- toothed fitting (6) coupling the pallet (2) to the pallet holder (1) such that the pallet coupling position relative to the pallet holder is stepwise adjustable by teeth (15) of said fitting (6), wherein the toothed fitting is replaceable and comprises a support (6.1) for releasably attaching the fitting to a pallet holder (1) and a toothed rack (6.2) attached to said support, wherein said teeth (15) are formed in said toothed rack (6.2).
2. The pallet holder (1) according to the previous claim, wherein the fitting (6) is made of two metal alloys, a first metal alloy for the toothed rack and a second metal alloy for the support, wherein the first metal alloy is harder than the second metal alloy.
  3. The pallet holder (1) according to any of the claims 1-2, wherein the support (6.1) and toothed rack (6.2) are welded directly, and the fitting is made of two metal alloys, a first metal alloy for the toothed rack and a second metal alloy for the support.
  4. The pallet holder (1) according to any of the claims 1-3, wherein the fitting support (6.1) is welded to and surrounds the toothed rack (6.2) the replaceable toothed fitting support (6.1) comprises an opening for matching openings between teeth (15) of the toothed rack (6.2).
  5. The pallet holder (1) according to the previous claim, wherein the replaceable toothed fitting support (6.1) comprises ribs formed across said support opening which match corresponding longer teeth extensions formed in said toothed rack.
  6. The pallet holder (1) according to any of the claims 1-5, wherein the replaceable toothed fitting support (6.1) has two parts bent at an angle, a first part for receiving the toothed rack (6.2) and a second part for releasably attaching the fitting to the pallet holder (1).
  7. The pallet holder (1) according to any of the previous claims, wherein the pallet holder (1) comprises a support arm for supporting and releasably holding the pallet (2).
  8. The pallet holder (1) according to the previous claim, wherein the support arm is made of a bent sheet metal plate or plates.
  9. The pallet holder (1) according to the claim 6 and 8, wherein the first part of the fitting support (6.1) is coplanar with a first metal sheet plate of the support arm supporting the pallet (2) and the second part of the fitting support (6.1) is coplanar with a second metal sheet plate of the support arm reinforcing the first metal sheet supporting the pallet (2).
  10. The pallet holder (1) according to the previous claim, wherein the first part of the fitting support (6.1) is releasably attached to the first metal sheet plate of the support arm supporting the pallet (2) and the second part of the fitting support (6.1) is releasably attached to the second metal sheet plate of the support arm reinforcing the first metal sheet supporting the pallet (2).
  11. The pallet holder (1) according to any of the previous claims, wherein the pallet coupling position relative to the pallet holder is stepwise adjustable along a longitudinal axis of the pallet holder (1) by the teeth (15) of said toothed fitting (6).
  12. A pallet holder (1) and pallet (2) assembly of a screen printing machine comprising the pallet holder (1) according to any of the previous claims.
  13. A screen printing station (3) comprising the pallet holder (1) and pallet (2) assembly according to the previous claim.
  14. A screen printing machine comprising the screen printing station (3) according to the previous claim.

#### Patentansprüche

1. Ein Palettenhalter (1) einer Siebdruckmaschine, wobei die Palette (2) eine Siebdruckpalette zur zum Tragen eines Artikels für den Siebdruck ist, wobei der genannte Palettenhalter (1) **dadurch gekennzeichnet ist, dass** er ein lösbar angebrachtes gezahntes Verbindungsstück (6) umfasst, das die Palette (2) mit dem Palettenhalter (1) verbindet, sodass die Position der Palettenverbindung relativ zum Palettenhalter über die Zähne (15) des genannten Verbindungsstücks (6) schrittweise einstellbar ist, wobei das gezahnte Verbindungsstück austauschbar ist und eine Halterung (6.1) zur lösbaren Befestigung des Verbindungsstücks an einem Palettenhalter (1) und an einer an dem genannten Träger befestigten Zahnstange (6.2) aufweist, wobei die genannten Zähne (15) in der genannten Zahnstange (6.2) ausgebildet sind.
2. Der Palettenhalter (1) nach dem vorangehenden Anspruch, wobei das Verbindungsstück (6) aus zwei Metalllegierungen hergestellt ist, aus einer ersten Metalllegierung für die Zahnstange und aus einer zweiten Metalllegierung für die Halterung, wobei die erste Metalllegierung härter ist als die zweite Metalllegierung.
3. Der Palettenhalter (1) nach einem der Ansprüche 1-2, wobei die Halterung (6.1) und die Zahnstange (6.2) direkt verschweißt sind und das Verbindungs-

stück aus zwei Metalllegierungen besteht, aus einer ersten Metalllegierung für die Zahnstange und aus einer zweiten Metalllegierung für die Halterung.

4. Der Palettenhalter (1) nach einem der Ansprüche 1-3, wobei die Halterung (6.1) mit der Zahnstange (6.2) verschweißt ist und diese umfasst, wobei die austauschbare Halterung (6.1) eine zu den Aussparungen zwischen den Zähnen (15) der Zahnstange (6.2) passende Aussparung aufweist.
5. Der Palettenhalter (1) nach dem vorangehenden Anspruch, wobei die austauschbare gezahnte Halterung (6.1) quer zu der genannten Aussparung ausgebildete Rillen aufweist, die mit entsprechenden längeren, in der genannten Zahnstange ausgebildeten Zahnfortsätzen übereinstimmen.
6. Der Palettenhalter (1) nach einem der Ansprüche 1-5, wobei die austauschbare gezahnte Halterung (6.1) zwei winklig gebogene Teile aufweist; ein erstes Teil zur Aufnahme der Zahnstange (6.2) und ein zweites Teil zur lösbaren Befestigung der Halterung am Palettenhalter (1).
7. Der Palettenhalter (1) nach einem der vorangehenden Ansprüche, wobei der Palettenhalter (1) einen Tragarm als Stütze und als lösbare Halterung der Palette (2) aufweist.
8. Der Palettenhalter (1) nach dem vorangehenden Anspruch, wobei der Tragarm aus einer gebogenen oder mehreren gebogenen Metallplatten hergestellt ist.
9. Der Palettenhalter (1) nach Anspruch 6 und 8, wobei der erste Teil der Halterung (6.1) komplanar zu einer ersten Metallplatte des Tragarms (2) ist, der die Palette (2) stützt, und der zweite Teil der Halterung (6.1) komplanar zu einer zweiten Metallplatte des Tragarms ist, der die erste Metallplatte verstärkt, die die Palette (2) trägt.
10. Der Palettenhalter (1) nach dem vorangehenden Anspruch, wobei der erste Teil der Halterung (6.1) lösbar an der ersten Metallplatte des Tragarms, der die Palette (2) trägt, befestigt ist und der zweite Teil der Halterung (6.1) lösbar an der zweiten Metallplatte des Tragarms befestigt ist, der die erste Metallplatte verstärkt, die die Palette (2) trägt.
11. Der Palettenhalter (1) nach einem der vorangehenden Ansprüche, wobei die Position der Palettenverbindung relativ zum Palettenhalter entlang einer Längsachse des Palettenhalters (1) schrittweise durch die Zähne (15) der gezahnten Halterung (6) einstellbar ist.

12. Eine Anordnung aus Palettenhalter (1) und Palette (2) einer Siebdruckmaschine, umfassend den Palettenhalter (1) nach einem der vorangehenden Ansprüche.

13. Eine Siebdruckstation (3), umfassende die Anordnung aus Palettenhalter (1) und Palette (2) nach dem vorangehenden Anspruch.

14. Eine Siebdruckmaschine, umfassend die Siebdruckstation (3) nach dem vorangehenden Anspruch.

## 15 Revendications

1. Un support de palette (1) d'une machine de sérigraphie, la palette (2) étant une palette de sérigraphie pour soutenir un article de sérigraphie, ledit support de palette (1) étant **caractérisé en ce qu'il** comprend un raccord denté fixé de manière amovible (6) accouplant la palette (2) au support de palette (1) tel que la position d'accouplement de la palette par rapport au support de palette soit ajustable par échelon par les dents (15) dudit raccord (6), dans lequel le raccord denté est remplaçable et comprend un support (6.1) pour fixer de manière amovible le raccord au support de palette (1) et une crémaillère (6.2) fixée audit support, dans lequel lesdites dents (15) sont formées dans ladite crémaillère (6.2).
2. Le support de palette (1) selon la revendication précédente, dans lequel le raccord (6) est composé de deux alliages métalliques, un premier alliage métallique pour la crémaillère et un second alliage métallique pour le support, dans lequel le premier alliage métallique est plus dur que le second alliage métallique.
3. Le support de palette (1) selon l'une quelconque des revendications 1-2, dans lequel le support (6.1) et la crémaillère (6.2) sont soudés directement, et le raccord est constitué de deux alliages métalliques, un premier alliage métallique pour la crémaillère et un second alliage métallique pour le support.
4. Le support de palette (1) selon l'une quelconque des revendications 1-3, dans lequel le support de raccord (6.1) est soudé à et entoure la crémaillère (6.2) le support de raccord denté remplaçable (6.1) comprenant une ouverture pour faire correspondre les ouvertures entre les dents (15) de la crémaillère (6.2).
5. Le support de palette (1) selon la revendication précédente, dans lequel le support de raccord denté remplaçable (6.1) comprend des nervures formées le long de ladite ouverture de support qui fait corres-

pondre les extensions de dents plus longues formées dans ladite crémaillère.

6. Le support de palette (1) selon l'une quelconque des revendications 1-5, dans lequel le support de raccord denté remplaçable (6.1) a deux parties pliées en angle, une première partie pour recevoir la crémaillère (6.2) et une seconde partie pour fixer de manière amovible le raccord au support de palette (1). 5  
10
7. Le support de palette (1) selon l'une quelconque des revendications précédentes, dans lequel le support de palette (1) comprend un bras de soutien pour soutenir et tenir de manière amovible la palette (2). 15
8. Le support de palette (1) selon la revendication précédente, dans lequel le bras de soutien est constitué d'une tôle ou de tôles métalliques pliées.
9. Le support de palette (1) selon la revendication 6 et 8, dans lequel la première partie du support de raccord (6.1) est coplanaire avec une première tôle métallique du bras de soutien soutenant la palette (2) et la seconde partie du support de raccord (6.1) est coplanaire avec une seconde tôle métallique du bras de soutien, renforçant la première tôle métallique soutenant la palette (2). 20  
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10. Le support de palette (1) selon la revendication précédente, dans lequel la première partie du support de raccord (6.1) est fixée de manière amovible à la première tôle métallique du bras de soutien soutenant la palette (2) et la seconde partie du support de raccord (6.1) est fixée de manière amovible à la seconde tôle métallique du bras de soutien renforçant la première tôle métallique soutenant la palette (2). 30  
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11. Le support de palette (1) selon l'une quelconque des revendications précédentes, dans lequel la position d'accouplement de la palette par rapport au support de palette est ajustable par échelon le long d'un axe longitudinal du support de palette (1) par les dents (15) dudit raccord denté (6). 40
12. Un assemblage de support de palette (1) et de palette (2) d'une machine de sérigraphie comprenant le support de palette (1) selon l'une quelconque des revendications précédentes. 45
13. Une station de sérigraphie (3) comprenant l'assemblage de support de palette (1) et de palette (2) selon la revendication précédente. 50
14. Une machine de sérigraphie comprenant la station de sérigraphie (3) selon la revendication précédente. 55

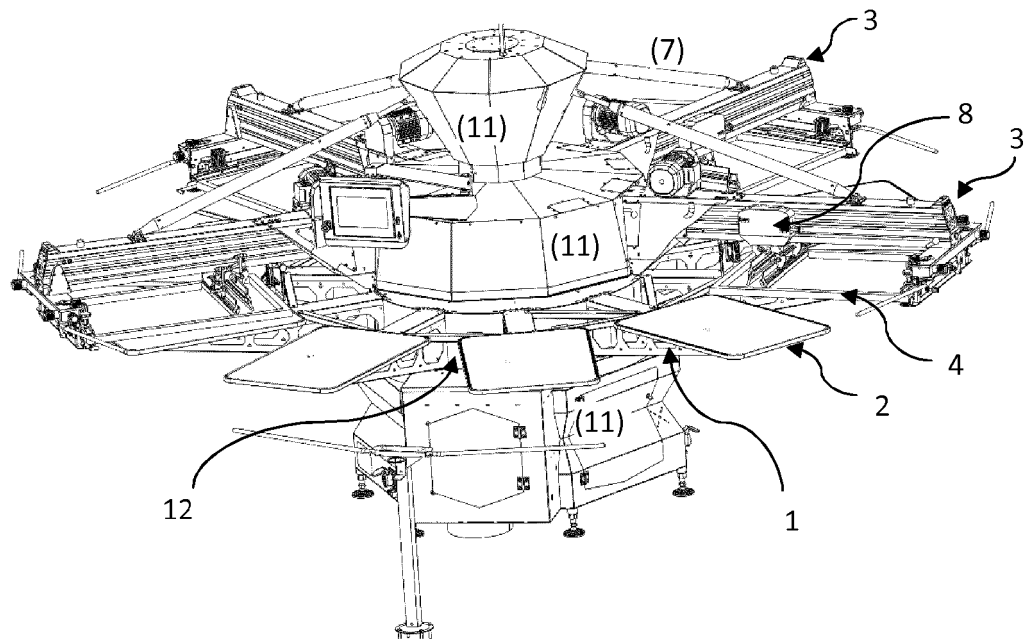


Fig. 1

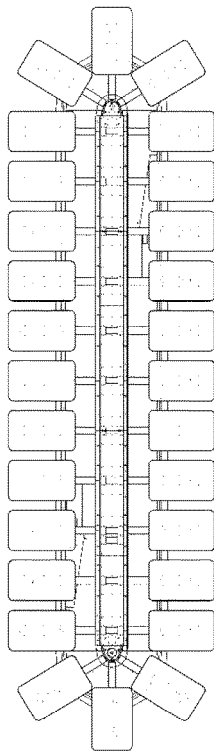


Fig. 2A

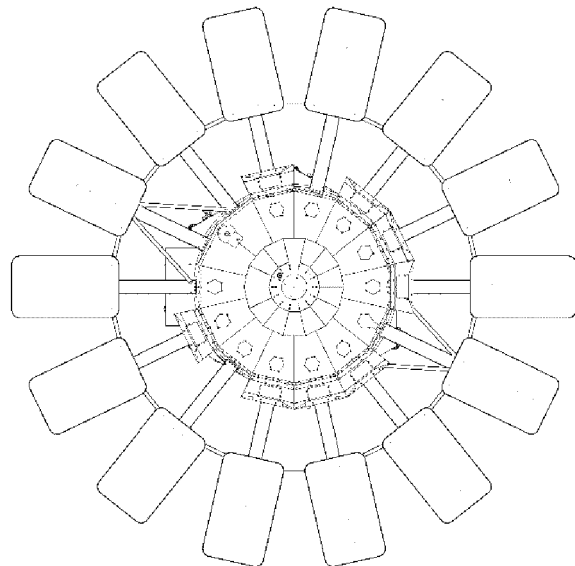


Fig. 2B

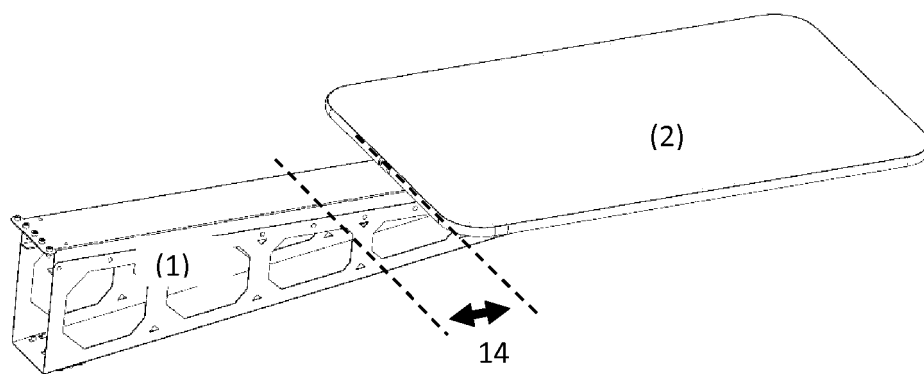


Fig. 3

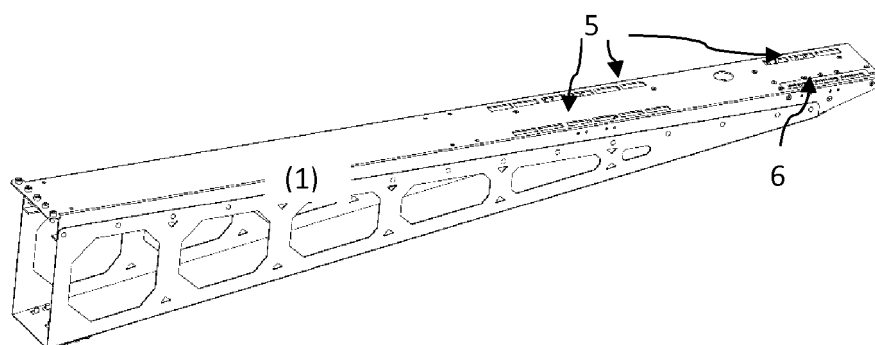


Fig. 4

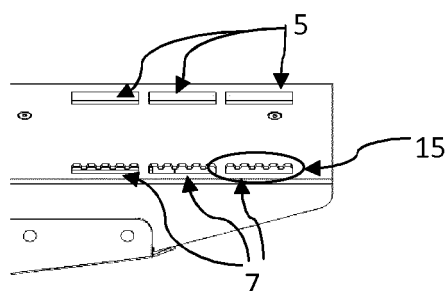


Fig. 5

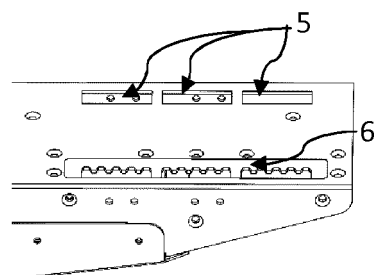


Fig. 6

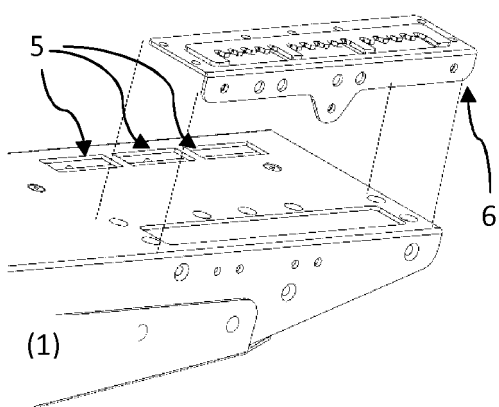


Fig. 7

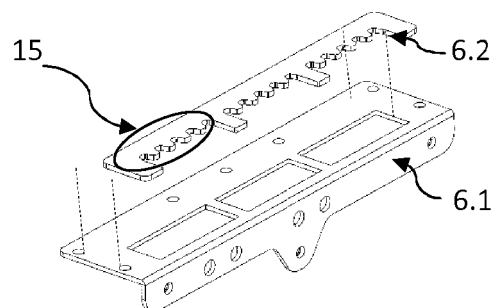


Fig. 8

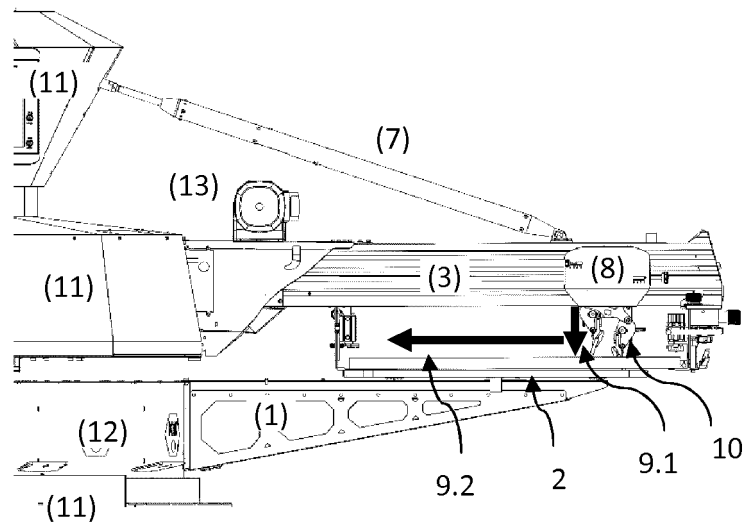


Fig. 9

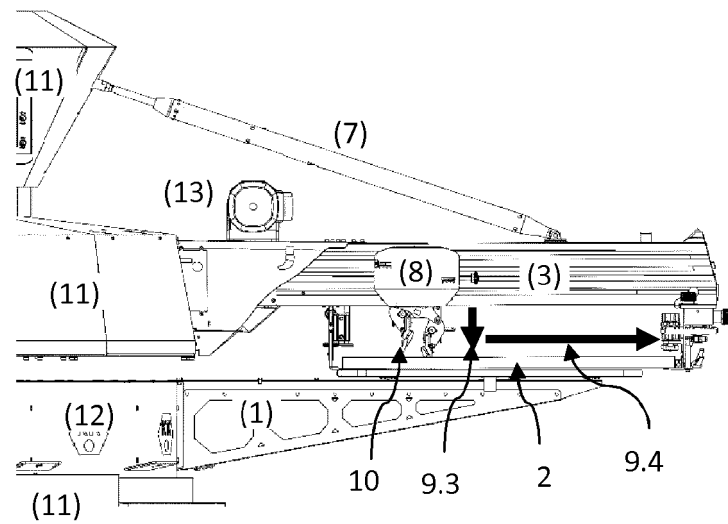


Fig. 10

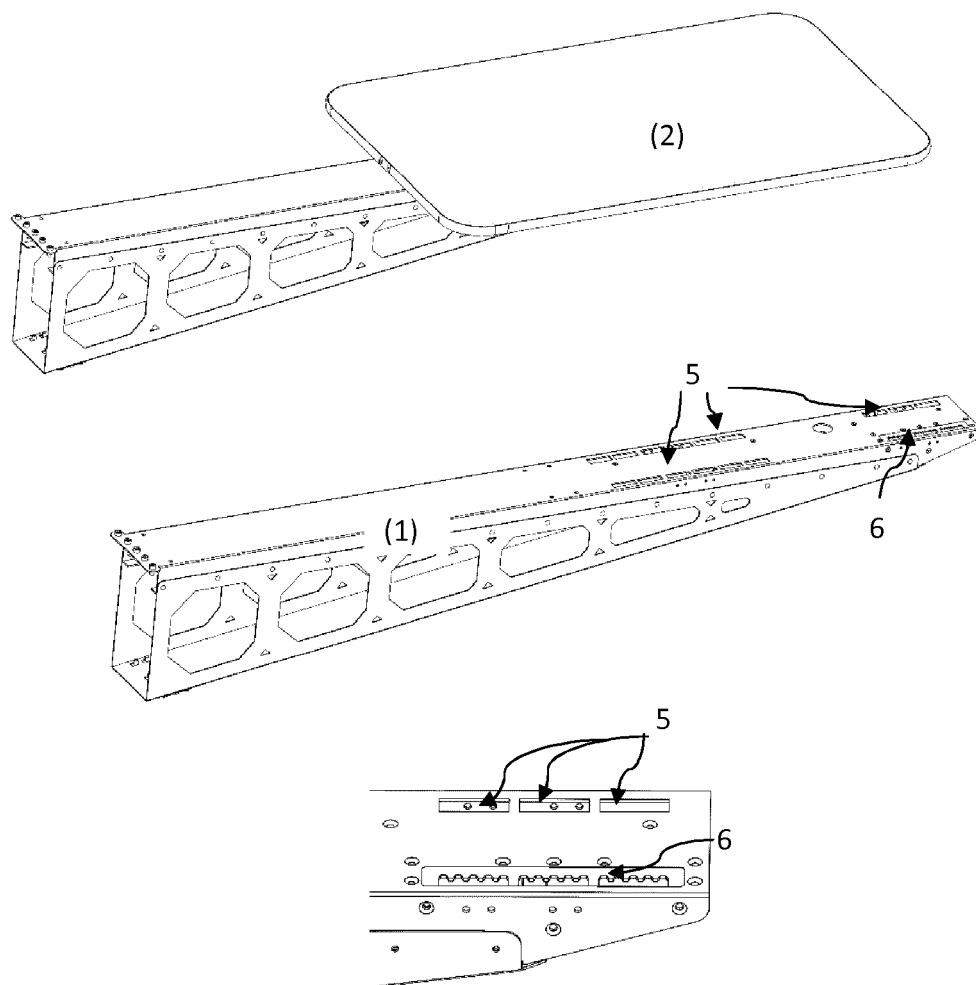


Fig. 11

**REFERENCES CITED IN THE DESCRIPTION**

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