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(54) MACHINE FOR COLOURING MISCELLANEOUS ARTICLES OF LEATHER AND IMITATION LEATHER

MASCHINE ZUM FÄRBEN VERSCHIEDENER ARTIKEL VON LEDER UND LEDER NACHAHMUNG

MACHINE POUR COLORER DES ARTICLES DIVERSES DE CUIR ET D'IMITATION EN CUIR

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(73) Proprietor: **Galli S.p.A.**
27029 Vigevano (Pavia) (IT)

(72) Inventor: **GALLI, Emilio**
27029 Vigevano (PV) (IT)

(74) Representative: **Inchingalo, Simona**
Bugnion S.p.A.
Viale Lancetti, 17
20158 Milano (IT)

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Description

[0001] The present invention relates to a machine for colouring miscellaneous articles of leather and leatherette.

[0002] In particular, the present invention finds application in the field of colouring of the side edge of various articles, for example small leather items such as details for bags, saddlery or edges of shoe soles, shoe uppers, for colouring briefcases, purses and wallets, watch straps and irregularly shaped objects made of leather or leatherette, and having indentations or elbows to be coloured. Generally, leather or leatherette products undergo a colouring process, and finally a drying process to fix the colour.

[0003] The machines for colouring similar articles can be in line systems, comprising consecutive processing stations, or single machines with which the operator must interact directly. Examples of such single machines are shown in documents US 1398407, US 1774502, DE 29518563, US 2200417. In other words, for the colouring of small products or details of leather or leatherette, it is preferable to use machines comprising a colouring unit mounted on a body containing a driving engine.

[0004] The colouring unit comprises a colouring roller having a cylindrical shape, rotatable about a preferably vertical axis. The colouring roller, properly fed with liquid colour, spreads a uniform layer of dye on the article which the operator approaches.

[0005] Under the colouring roller, there is a tray collecting the collecting the colour, fixed to the colouring unit by screws.

[0006] In fact, the colour is poured directly inside the tray and a colour transport device, such as a screw conveyor, a suction pump system connected to a diffuser nozzle or a pad (as already known in patent WO 99/57327), draws the colour directly from the tray to pour it on the colouring roller. The colour is distributed on the surface of the colouring roller, falling by gravity from above or sprayed through a nozzle directly to the whole surface of the roller.

[0007] The excess liquid, which is not transferred on the product, drips from the roller and is recovered into the appropriate tray.

[0008] A scraper or doctor blade evenly distributes the colour on the entire surface of the colouring roller to avoid excessive colour deposits in discrete points of the product.

[0009] The skill and experience of the operator, who transfers the product appropriately, contribute to an optimal distribution of the liquid colour on the product surface and to avoid unsightly accumulations.

[0010] In known machines, in fact, the doctor blade and the transport device are placed at the sides of the roller, or one behind and the other laterally, creating in each case a certain encumbrance around the colouring head.

[0011] Therefore, despite the operator's ability, ease of interaction with the machine is limited by the presence of the doctor blade and the device for transporting the colour, which reduce the area available for the operator to manoeuvre the product.

[0012] Moreover, the doctor blade is generally made with flat bristles, like the head of a brush. Due to this, the realization of scrapers suitable to be coupled to rollers having special shapes is difficult.

[0013] After the colouring process, finally, it is necessary to wash thoroughly all the parts that have come into contact with the colour, so that they can be used later also with different colours and avoiding colour changes with alteration of pigmentation.

[0014] Therefore it is necessary to clean also the doctor blade and the device for transporting the colour. The more pieces are present, the greater the time required for removing the colouring unit and washing each component.

[0015] What has just been described makes clear the need to provide a machine for colouring miscellaneous articles of leather and leatherette that is able to overcome the above-described drawbacks.

[0016] The object of the present invention is to provide a machine for colouring miscellaneous articles of leather and leatherette which overcomes the drawbacks of the described prior art.

[0017] Another object of the present invention is to present a machine for colouring miscellaneous articles of leather and leatherette which has a large working area free of components that may interfere with the colouring operations and hinder the free movement of the product by the operator.

[0018] A further object of the present invention is to provide a machine for colouring miscellaneous articles of leather and leatherette which avoids long downtime.

[0019] Lastly, an object of the present invention is to propose a machine for colouring miscellaneous articles of leather and leatherette that has a limited number of components to be washed at the end of the colouring process.

[0020] These and other objects are substantially achieved by a machine for colouring miscellaneous articles of leather and leatherette as described in one or more of the appended claims.

[0021] Further features and advantages will become clearer from the detailed description of a preferred and non-limiting embodiment of a machine for colouring miscellaneous articles of leather and leatherette according to the present invention.

[0022] This description is provided with reference to the accompanying figures, also provided only by way of a non-limiting example, wherein:

- Figure 1 is a perspective view of a machine for colouring miscellaneous articles of leather and leatherette as described and claimed in the present invention;
- Figure 2a is a perspective view of a colouring unit,

belonging to the machine illustrated in Figure 1, represented in non-operative position and according to a first configuration;
- Figure 2b is a perspective view of a colouring unit, belonging to the machine illustrated in Figure 1, represented in non-operative position and according to a second configuration;
- Figure 3 shows a perspective view of a detail of the machine object of the present invention, specifically the magnification of the colouring unit;
- Figure 4 shows a rear view of the machine object of the present invention with some removed parts to be able to view the otherwise hidden interior;
- Figures 5 and 6 show the machine object of the present invention with the colouring unit in two different positions;
- Figure 7 shows a magnification of a detail of the machine object of the present invention.

[0023] The numeral 1 globally indicates a machine for colouring miscellaneous articles of leather and leatherette.

[0024] The machine 1 for colouring miscellaneous articles of leather and leatherette comprises a colouring unit 2 and a supporting frame 3 for the colouring unit 2.

[0025] The supporting frame 3 also acts as a housing for a driving system 4, for example an engine adapted to actuate the colouring unit 2.

[0026] The colouring unit 2 comprises a colouring head 5, adapted to apply by contact a liquid layer of colour directly on the detail to be treated.

[0027] Below the colouring head 5, the unit 2 comprises a tray 6 for collecting colour within which the colour used for the colouring of the product is contained.

[0028] The tray 6 serves both to contain the colour that is to be transferred on the colouring head 5, and to collect the colour that falls from the colouring head 5 during the colouring of the article to be treated.

[0029] The colour is transferred from the tray 6 to the colouring head 5 through a device 7 for transporting and dosing the colour, which will be described later.

[0030] The colouring head 5 is a roller, rotatable about a preferably vertical axis of rotation 5a that coincides with its own axis of symmetry.

[0031] The roller 5 has a conical or frusto-conical shape. Advantageously, the tip 51 or, in case of frusto-conical shape, the smaller base 52 of the roller can be turned downwards. Consequently, in both cases, the larger base 53 is facing upward. The roller 5 may have an external lateral surface 5b having different geometries.

[0032] The external lateral surface 5b is obtained by rotating a right-angled triangle about one of the cathetuses. Depending on whether the hypotenuse is rectilinear or has a concave or convex shape, it is possible to have different geometries of the external lateral surface 5b, while always maintaining the conical or frusto-conical geometry.

[0033] The conical or frusto-conical shape with the tip 51 or the smaller base 52 facing downwards preferably improves the visibility of the working area L, in that the source of light that comes from above does not create shadow zones.

[0034] Advantageously, the lighting is represented by an illumination source 16 placed vertically on the working area L with a diffusion that completely surrounds the colouring roller 5. Preferably, a plurality of LEDs positioned around the perimeter of the colouring roller are used. The layout and the type of lighting enhance the ergonomic aspect for the operator.

[0035] The tip 51 or the smaller base 52 of the colouring roller 5 are completely contained within the tray 6 for collecting colour.

[0036] The tray 6 for collecting colour is movable relative to the colouring head 5, in such a way as to be easily moved away from the latter in order to allow emptying.

[0037] The tray 6 can be vertically translatable or rotatable, in both cases towards or away with respect to the colouring roller 5.

[0038] In the appended figures, only the latter configuration was represented, without any intention to exclude also the first solution with a translatable tray. As can be seen in Figures 2 and 3, the tray 6 for collecting colour has a side 6a hinged along a horizontal axis 3a parallel to a front wall 31 of the frame 3, to which the colouring unit 2 is connected.

[0039] The side 6a around which the tray 6 is pivoted is the rear side of the tray and is adjacent to the front wall 31 of the frame 3.

[0040] The tray 6 is movable rotatably with respect to such horizontal axis 3a between a working position (Figures 1 and 5) in correspondence of which it is arranged horizontally and contains the colouring roller 5, and an emptying position (Figures 2 and 6) in correspondence of which it is rotated about the horizontal axis 3 of hinging and is inclined downwards, away from the colouring roller 5. The arrow F in Figure 6 illustrates the direction of rotation.

[0041] Advantageously, the tray 6 may present in the front, in the opposite position to the hinging side 6a, 6b, a spout in such a way as to create a guide to facilitate the discharge of the residual colour when the tray is in the emptying position.

[0042] The rotation of the tray and the front spout part 6b make the emptying of the colouring liquid at the end of work both quick and easy.

[0043] Advantageously, the colouring unit 2 can comprise a basin 8, preferably disposable and insertable within the tray 6.

[0044] The basin 8 is supported inside the tray 6 without particular constraints, in such a way as to be easily removed at the end of work.

[0045] The basin 8 has substantially the same internal shape of the tray 6 with which it is coupled.

[0046] The colour can be physically collected inside the tray 6 or inside the basin 8, so as to leave the tray 6

clean. In this case, there is a significant improvement in terms of cleanliness and greater speed to perform the washing operations at the end of the job, or to change the type of liquid.

[0047] The presence of the basin 8 prevents the tray 6 from being affected by the colour, so as to remain clean and to avoid having to disassemble and wash it.

[0048] The basin 8 with the residual colour can be easily removed from the tray 6 and washed, if required, or thrown away.

[0049] The liquid colour is taken from the tray 6 or from the basin 8 to the colouring head or roller 5 by the mentioned device 7 for transporting and dosing.

[0050] Such a device 7 for transporting and dosing the colour comprises a colour feed channel 9 inside which the liquid colour flows.

[0051] The feed channel 9 is placed behind the roller 5, in the opposite position to the working area L at which there is contact between the roller 5 and the article to be coloured. Advantageously, the feed channel 9 comprises a first end 9a and a second end 9b, opposite to the first and positioned at the top, then close to the larger base 53 of the colouring roller 5. The feed channel 9 is disposed almost horizontally, with a slight downward inclination, so that the liquid colour coming from the first end 9a, placed higher, flows by gravity towards the second end 9b, placed lower.

[0052] Once arrived on the top 53 of the conical or frusto-conical roller 5, the colour always flows downwards by gravity. The rotation of the roller 5 around its vertical axis of rotation 5a causes the complete fouling of the entire external lateral surface 5b of the roller 5.

[0053] Advantageously, the device 7 for transporting and dosing the colour also comprises a scraper or doctor blade 10.

[0054] The doctor blade 10 is positioned below the feed channel 9 and is coupled to the colouring roller 5 so as to follow its side profile.

[0055] The doctor blade 10, in fact, serves to dose the liquid colour on the surface of the roller 5: cooperating with the rotation of the roller 5 about its axis 5a, the doctor blade 10 distributes the colour uniformly over the entire external lateral surface 5b of the colouring roller 5 and avoids localized excesses of colour.

[0056] The doctor blade 10 is preferably made of hard but flexible plastic material which functions as a spatula.

[0057] The doctor blade 10 is positioned immediately below the feed channel 9, occupying in projection, on a horizontal plane, the same rectilinear space of the feed channel 9.

[0058] The doctor blade 10 and the feed channel 9 have reduced size and volume: in fact, they are contained in the same component placed in line just behind the roller 5, in the opposite position to the working area L inside which contact between the roller and the article made of leather or leatherette to be coloured occurs.

[0059] In this way there is no interference between this component and the working area L, which remains completely free to give the operator the maximum freedom of movement of the product during the colouring step.

[0060] The device 7 for transporting and dosing the colour also comprises a transport element 11 adapted to collect the colour from the tray 6 or from the basin 8 to convey it to the colour feed channel 9.

[0061] In particular, the transport element 11 is a wheel or disc, rotatable about a horizontal axis 11a, that draws the colour from the tray 6 or from the basin 8 and brings it at the top of the colour feed channel 9, pouring it in correspondence of the first end 9a of the feed channel 9. Colour transport takes place simply by contact. Advantageously, the device 7 for transporting and dosing the colour presents a system for fixing and removing of the rapid type, for example magnetic. Specifically, the disc 11 can be maintained in position by a magnetic coupling system which allows a quick removal as well as a smooth engagement. Also the feed channel 9 can be placed in operative position by means of a fixing and removal system of the rapid type.

[0062] Advantageously, the feed channel 9 may be formed integrally with the doctor blade 10 or may be applied on the latter or, vice versa, the doctor blade 10 may be applied on the feed channel 9.

[0063] In the first case, that is, integrally made doctor blade 10 and feed channel 9, the doctor blade may define a side edge of the feed channel 9. In the second case, it can be placed also at a distance from the channel 10. It is still preferable that the space occupied by the feed channel 9 and doctor blade 10 unit, in both possible configurations, is less than 18% of the circumference of the colouring head 5.

[0064] In this way, the working area, clear for the operator, is very wide, without having structural components scattered around the same colouring head 5. The transport element 11 is also placed behind the roller 5, and in particular behind the feed channel 9, so as not to hinder any operational step. Advantageously, the transport element 11 is symmetrical with respect to the longitudinal axis of the feed channel 9 and placed behind the latter.

[0065] Therefore, the whole device 7 for transporting and dosing has a very compact appearance that groups together in line the feed channel 9 and the doctor blade 10 in a single component. Moreover the compactness of the device 7 for transporting and dosing is also given by the position of the transport element 11, symmetrical with respect to the feed channel 9 and placed behind the latter.

[0066] Altogether, the device 7 for transporting and dosing occupies an optimal position within the colouring unit 2 relative to the working area L, placed in front of the roller, since it is placed exactly on the opposite side with respect to the axis 5a of the roller 5, in the rear part of the roller. The doctor blade 10, the feed channel 9 and the transport element 11 are in a position opposite to the contact zone between the roller 5 and the product to be coloured, so as not to hinder the movement of the product around the roller 5.

[0067] The colours used are water-based, thus very sensitive to the ambient temperature and to the degree of humidity.

[0068] To allow the use of the machine even in very hot areas, a protective screen 13 applicable to the sides of the colouring roller 5 is provided, to leave uncovered only the working area L.

[0069] In this way, the colour inside the tray 6 is protected from dust or any other foreign body, in addition to being less subject to evaporation phenomena. Advantageously, the temperature control and the protection provided by the protective screen 13 also prevent the formation of a thickened colour film on the surface of the colour within the same tray 6.

[0070] The formation of this film is very detrimental to the quality of the colouring because it changes the percentage of concentration of colour compared to water and can generate lumps in the colour, if crushed, with consequent problems of quality and appearance of colour application on the product.

[0071] All this requires a downtime for colour cleaning.

[0072] The protective screen 13 is removable to be able to freely enter the colouring unit 2. It can be made of plastic material, preferably transparent, to be able to constantly monitor the inside of the colouring unit 2.

[0073] The protective screen 13 protects the colour avoiding unnecessary waste and limiting its evaporation so as to significantly reduce the downtime for the recovery of the liquid during processing.

[0074] During the processing step, the detail to be coloured is moved by the operator's hands and placed in front of the machine.

[0075] The height of the colouring unit 2 compared to the operator is therefore an important factor for the ergonomics of the machine.

[0076] In known machines, the colouring unit is at a fixed and invariable height.

[0077] This forces the operator to find improvised solutions to bring the colouring unit 2 to its height, or vice versa.

[0078] The colouring machine 1 object of the present invention is able to solve this drawback, by providing a colouring unit 2 that can be adjusted in height.

[0079] The colouring unit 2 is slidably constrained to the supporting frame 3, to be able to be moved vertically at will, until the optimal height is reached for the operator who at that time must interact with the machine 1.

[0080] The frame 3 has, on its front wall 31, a linear guide 14 mounted in vertical position. The colouring unit 2 can slide on this guide 14, so as to regulate the height position of the unit 2 with respect to the front wall 31 of the frame 3.

[0081] Locking systems, not illustrated, are provided, which allow to fix the colouring unit at the established height.

[0082] The colouring unit 2 is connected to the power supply engine 4 through a plurality of components 15, such as return cylinders, tensioning rollers and a drive belt, which ensure the constant contact with the same driving engine 4, at the same time allowing the vertical translation along the guide 14.

[0083] The colouring unit 2 is completely dismantled for routine maintenance and a quick wash.

[0084] The invention allows to achieve the intended purposes in addition to ensuring enormous advantages.

[0085] The compactness of the device for colour transport and dosing allows to place the device in a colouring unit in which it does not interfere with the operator.

[0086] The device for transport and dosing is placed behind the roller, leaving the working area completely free. These components do not even interfere with the diffuse light coming from above, avoiding the formation of shadow zones around the roller.

[0087] The compactness of the device for transport and dosing also limits the number of components to be washed. In the prior art machines, in fact, the feed system and the doctor blade are separate elements. The simplicity of the device for transport and dosing also makes its cleaning and maintenance very simple.

[0088] Finally, downtimes are limited.

[0089] The material with which the doctor blade is made simplifies the realization of the same according to different geometries that best fit the profile of the colouring roller.

Claims

1. Machine for colouring miscellaneous articles of leather and leatherette comprising:

   - a supporting frame (3);
   - a colouring unit (2), supported by said frame (3) and comprising
   - a colouring rotatable roller (5) adapted for applying a layer of liquid colour directly in contact with the article being processed;
   - a tray (6) for containing the colour to be deposited in the article and for collecting the excess of colour dripping from the colouring roller (5), **characterised by**
   - a device (7) for transporting and dosing the colour from said tray (6) to said colouring roller (5), said device (7) being externally arranged to said colouring roller (5)
   - a driving system (4) for actuating said colouring unit (2) and also allowing a vertical translation of said colouring unit (2);
   - whereby said transport device (7) for transporting and dosing the colour comprises further a colour feed channel (9), to which the liquid colour taken from the tray (6) by said transport device (7) is delivered and inside which the liquid colour flows until reaches the top of the colouring roller (5) and flows downwards by gravity and a doctor blade (10), attached under said feed channel (9)

and coupled to said colouring roller (5), which follows the profile of the external lateral surface of said colouring roller (5) for dosing and distributing uniformly the colour over the entire external lateral surface of the colouring roller (5).

2. Machine according to the preceding claim, **characterized in that**, considering a circumference around the colouring roller head- (5), the space occupied by the feed channel (9) and the doctor blade (10) in this circumference is less than 18% of the circumference of the colouring roller (5), so leaving a wide free working area.

3. Machine according to the previous claim, **characterized in that** said device (7) for transporting and dosing the colour comprises a transport element (11) suitable to remove the colour from the tray (6) and to deliver it to the colour feed channel (9).

4. Machine according to the previous claim, **characterized in that** said transport element (11) is a wheel, rotatable around a horizontal axis (11a), that draws the colour from the tray (6) and brings it at the top of the colour feed channel (9).

5. Machine according to the previous claim, **characterized in that** said doctor blade (10) follows the side profile of said colouring roller (5) such that to uniformly deliver the dyeing liquid on the entire external lateral surface (5b) of the colouring roller (5) and to remove the possible excess liquid colour.

6. Machine according to one of the preceding claims, **characterized in that** said feed channel (9) is made in one piece with said doctor blade (10).

7. Machine according to one of the preceding claims, **characterized in that** said doctor blade (10) is preferably made of hard but flexible plastic material which functions as a spatula.

8. Machine according to one of the previous claims, **characterized in that** said colouring roller (5) is a conical or frusto-conical shaped roller having an axis of symmetry coincident with an axis of rotation (5a), placed in a vertical position.

9. Machine according to claim 8 **characterized in that** said colouring roller (5) with a conical or frusto-conical shape has a larger base (53) facing upwards and a tip (51) or a smaller base (52) contained within said tray (6) collecting the colour.

10. Machine according to one of the preceding claims, **characterized in that** said tray (6) collecting the colour is hinged along a horizontal axis (3a) parallel to one front wall (31) of said supporting frame (3); said tray (6) being movable between a working position at which it is arranged horizontally and contains the colouring roller (5), and an emptying position at which it is rotated around the hinging horizontal axis (3a) and tilted downwards, away from the colouring roller (5).

11. Machine according to the preceding claim, **characterized in that** said tray (6) has, at the portion that couples with the colouring roller (5), a nozzle (6b) in order to facilitate the emission of colour residue when the tray is in the emptying position.

12. Machine according to the preceding claim, **characterized in that** said tray (6) comprises a basin (8) insertable therein.

13. Machine according to one of the previous claims, **characterized in that** it comprises a protective screen (13) applicable to the sides of the colouring roller (5) in order to protect the colour in the tray (6) and to limit its evaporation.

14. Machine according to any one of the preceding claims, **characterized in that** said colouring unit (2) is slidably constrained to said supporting frame (3).

15. Machine according to the preceding claim, **characterized in that** said colouring unit (2) is slidably mounted on a linear guide (14) mounted in vertical position on said supporting frame (3), so that said colouring unit (2) can be adjusted for height.

Patentansprüche

1. Maschine zum Färben verschiedener Artikel aus Leder und Kunstleder, umfassend:

- einen Stützrahmen (3);
- eine Färbeeinheit (2), die von dem Rahmen (3) getragen wird und umfassend
- eine drehbare Färbewalze (5), die zum Auftragen einer Schicht aus flüssiger Farbe in direktem Kontakt mit dem zu verarbeitenden Artikel ausgelegt ist;
- eine Schale (6) zum Aufnehmen der in dem Artikel abzuscheidenden Farbe und zum Sammeln des überschüssigen Farbabtropfens von der Färbewalze (5), **gekennzeichnet durch**
- eine Vorrichtung (7) zum Transportieren und Dosieren der Farbe aus der Schale (6) zu der Färbewalze (5), wobei die Vorrichtung (7) außen an der Färbewalze (5) angeordnet ist
- ein Antriebssystem (4) zum Betätigen der Färbeeinheit (2) und auch zum Ermöglichen einer vertikalen Verschiebung der Färbeeinheit (2), wodurch die Transportvorrichtung (7) zum

Transportieren und Dosieren der Farbe ferner einen

- Farbförderkanal (9) umfasst, dem die von der Transportvorrichtung (7) aus der Schale (6) entnommene flüssige Farbe zugeführt wird und in dem die flüssige Farbe bis zum Erreichen der Oberseite der Färbewalze (5) fließt und durch Schwerkraft nach unten fließt, und eine Schaberklinge (10), die unter dem Förderkanal (9) angebracht und mit der Färbewalze (5) gekoppelt ist, die dem Profil der äußeren Seitenfläche der Färbewalze (5) folgt, um die Farbe gleichmäßig über die gesamte äußere Seitenfläche der Färbewalze (5) zu dosieren und zu verteilen.

2. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** unter Berücksichtigung eines Umfangs um die Färbewalze (5) der Raum der von dem Förderkanal (9) und der Schaberklinge (10) in diesem Umfang eingenommen wird, weniger als 18% des Umfangs der Färbewalze (5) beträgt, so dass ein großer freier Arbeitsbereich bleibt.

3. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Vorrichtung (7) zum Transportieren und Dosieren der Farbe ein Transportelement (11) umfasst, das geeignet ist, die Farbe aus der Schale (6) zu entfernen und sie dem Farbförderkanal (9) zuzuführen.

4. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** das Transportelement (11) ein um eine horizontale Achse (11a) drehbares Rad ist, das die Farbe aus der Schale (6) zieht und an die Oberseite des Farbförderkanals (9) bringt.

5. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Schaberklinge (10) dem Seitenprofil der Färbewalze (5) folgt, so dass die Färbeflüssigkeit gleichmäßig auf die gesamte Außenseitenfläche (5b) der Färbewalze (5) zugeführt und die eventuell überschüssige Flüssigkeitsfarbe entfernt wird.

6. Maschine nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Förderkanal (9) mit der Schaberklinge (10) einteilig ausgeführt ist.

7. Maschine nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Schaberklinge (10) vorzugsweise aus hartem, aber flexiblem Kunststoffmaterial hergestellt ist, das als Spachtel dient.

8. Maschine nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Färbewalze (5) eine konische oder kegelstumpfförmige Walze ist, aufweisend eine Symmetrieachse, die mit einer Drehachse (5a) übereinstimmt, die in einer senkrechten Position platziert ist.

9. Maschine nach Anspruch 8 **dadurch gekennzeichnet, dass** die Färbewalze (5) mit einer konischen oder kegelstumpfförmigen Form eine größere Basis (53), die nach oben gerichtet ist, und eine Spitze (51) oder eine kleinere Basis (52) aufweist, die in der die Farbe sammelnden Schale (6) enthalten ist.

10. Maschine nach einem der vorgehenden Ansprüche, **dadurch gekennzeichnet, dass** die die Farbe sammelnde Schale (6) entlang einer horizontalen Achse (3a) parallel zu einer Vorderwand (31) des Tragrahmens (3) schwenkbar ist; wobei die Schale (6) zwischen einer Arbeitsposition, in der sie horizontal angeordnet ist und die Färbewalze (5) enthält, und einer Entleerungsposition beweglich ist, in der sie um die horizontale Schwenkachse (3a) gedreht und nach unten geneigt ist, wegführend von der Färbewalze (5).

11. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Schale (6) an dem Abschnitt, der mit der Färbewalze (5) gekoppelt ist, eine Düse (6b) aufweist, um die Emission von Farbresten zu erleichtern, wenn sich die Schale in der Entleerungsposition befindet.

12. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Schale (6) ein Becken (8) umfasst, das darin einsetzbar ist.

13. Maschine nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie einen Schutzschirm (13) umfasst, der auf die Seiten der Färbewalze (5) angebracht werden kann, um die Farbe in der Schale (6) zu schützen und deren Verdampfung zu begrenzen.

14. Maschine nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Färbeeinheit (2) verschiebbar an den Tragrahmen (3) gebunden ist.

15. Maschine nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** die Färbeeinheit (2) verschiebbar auf einer Linearführung (14) montiert ist, die in vertikaler Position auf dem Tragrahmen (3) montiert ist, so dass die Färbeeinheit (2) in der Höhe verstellbar ist.

Revendications

1. Machine pour colorer divers articles en cuir et similicuir comprenant :

   - un châssis de support (3) ;
   - une unité de coloration (2) supportée par ledit châssis (3) et comprenant
   - un rouleau de coloration pivotant (5) pouvant appliquer une couche de couleur liquide en contact directe avec l'article à traiter ;
   - un plateau (6) servant à contenir la couleur à déposer dans l'article et à recueillir l'excès de couleur coulant du rouleau de coloration (5), **caractérisée par**
   - un dispositif (7) servant à transporter et à doser la couleur dudit plateau (6) au dit rouleau de coloration (5), ledit dispositif (7) étant extérieurement disposé en correspondance dudit rouleau de coloration (5),
   - un système d'entraînement (4) servant à actionner ladite unité de coloration (2) et servant aussi à permettre une translation verticale de ladite unité de coloration (2) par laquelle ledit dispositif de transport (7) servant à transporter et à doser la couleur comprend de plus
   - un canal d'alimentation de couleur (9) auquel la couleur liquide prise du plateau (6) par ledit dispositif de transport (7) est distribuée et à l'intérieur duquel la couleur liquide s'écoule jusqu'à atteindre le sommet du rouleau de coloration (5) et s'écoule vers le bas par gravité et un racloir (10), fixé sous ledit canal d'alimentation (9) et couplé au dit rouleau de coloration (5), qui suit le profil de la surface latérale externe dudit rouleau de coloration (5) pour doser et distribuer uniformément la couleur sur toute la surface latérale externe du rouleau de coloration (5).

2. Machine selon la revendication précédente, **caractérisée en ce que**, en prenant en considération une circonférence autour du rouleau de coloration (5), l'espace occupé par le canal d'alimentation (9) et le racloir (10) dans cette circonférence représente moins de 18 % de la circonférence du rouleau de coloration (5), laissant ainsi une zone de travail libre plus grande.

3. Machine selon la revendication précédente, **caractérisée en ce que** ledit dispositif (7) servant à transporter et à doser la couleur comprend un élément de transport (11) pouvant retirer la couleur du plateau (6) et la distribuer au canal d'alimentation de couleur (9) .

4. Machine selon la revendication précédente, **caractérisée en ce que** ledit élément de transport (11) est une roue pouvant tourner autour d'un axe horizontal (11a), qui retire la couleur du plateau (6) et l'amène au sommet du canal d'alimentation de couleur (9).

5. Machine selon la revendication précédente, **caractérisée en ce que** ledit racloir (10) suit le profil latéral dudit rouleau de coloration (5) de manière à distribuer uniformément le liquide de coloration sur toute la surface latérale externe (5b) du rouleau de coloration (5) et pour retirer la couleur liquide éventuellement en excès.

6. Machine selon l'une des revendications précédentes, **caractérisée en ce que** ledit canal d'alimentation (9) est fabriqué en une seule pièce avec ledit racloir (10) .

7. Machine selon l'une des revendications précédentes, **caractérisée en ce que** ledit racloir (10) est de préférence constitué d'un matériau plastique dur mais flexible qui fonctionne comme une spatule.

8. Machine selon l'une des revendications précédentes, **caractérisée en ce que** ledit rouleau de coloration (5) est un rouleau de forme conique ou tronconique comportant un axe de symétrie coïncidant avec un axe de rotation (5a) placé dans une position verticale.

9. Machine selon la revendication 8, **caractérisée en ce que** ledit rouleau de coloration (5) ayant une forme conique ou tronconique comporte une base (53) plus grande orientée vers le haut et un embout (51) ou une base (52) plus petite contenue à l'intérieur dudit plateau (6) recueillant la couleur.

10. Machine selon l'une des revendications précédentes, **caractérisée en ce que** ledit plateau (6) recueillant la couleur est monté articulé le long d'un axe horizontal (3a) parallèle à une cloison antérieure (31) dudit châssis de support (3) ; ledit plateau (6) étant mobile entre une position de travail en correspondance de laquelle il est disposé horizontalement et contient le rouleau de coloration (5), et une position de vidage en correspondance de laquelle il tourne autour de l'axe d'articulation horizontal (3a) et est incliné vers le bas, en s'éloignant du rouleau de coloration (5).

11. Machine selon la revendication précédente, **caractérisée en ce que** ledit plateau (6) comporte, en correspondance de la partie qui s'accouple au rouleau de coloration (5), une buse (6b) afin de faciliter l'émission de résidus de couleur lorsque le plateau se trouve dans la position de vidage.

12. Machine selon la revendication précédente, **caractérisée en ce que** ledit plateau (6) comprend un bassin (8) pouvant s'insérer dans celui-ci.

13. Machine selon l'une des revendications précédentes, **caractérisée en ce qu'**elle comprend un écran de protection (13) applicable aux côtés du rouleau de coloration (5) afin de protéger la couleur dans le plateau (6) et pour limiter son évaporation.

14. Machine selon l'une des revendications précédentes, **caractérisée en ce que** ladite unité de coloration (2) est solidaire de façon coulissante dudit châssis de support (3).

15. Machine selon la revendication précédente, **caractérisée en ce que** ladite unité de coloration (2) est montée de façon coulissante sur un guide linéaire (14) monté en position verticale sur ledit châssis de support (3) de manière à ce que ladite unité de coloration (2) puisse être réglée en hauteur.

Fig.1

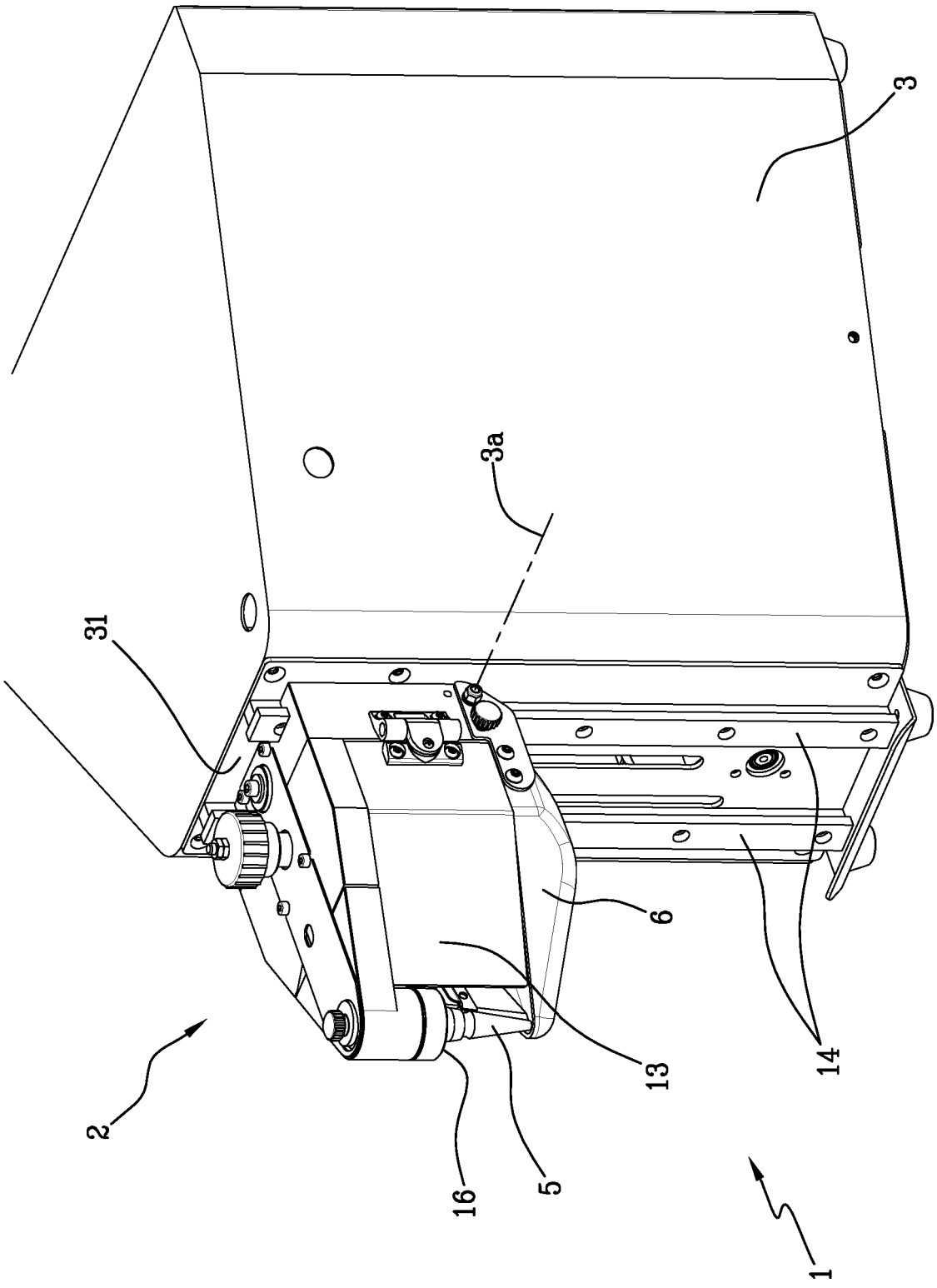


Fig.2a

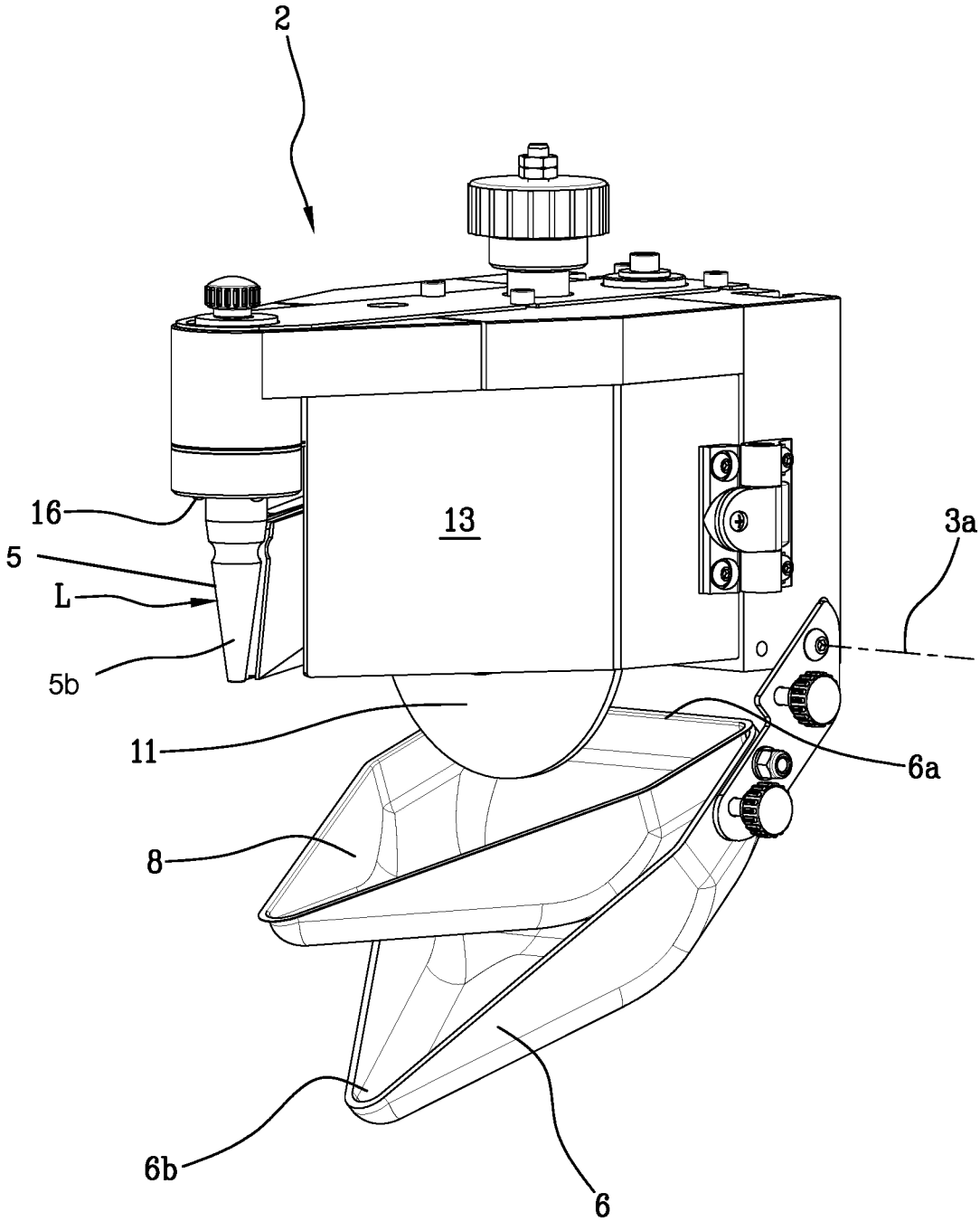


Fig.2b

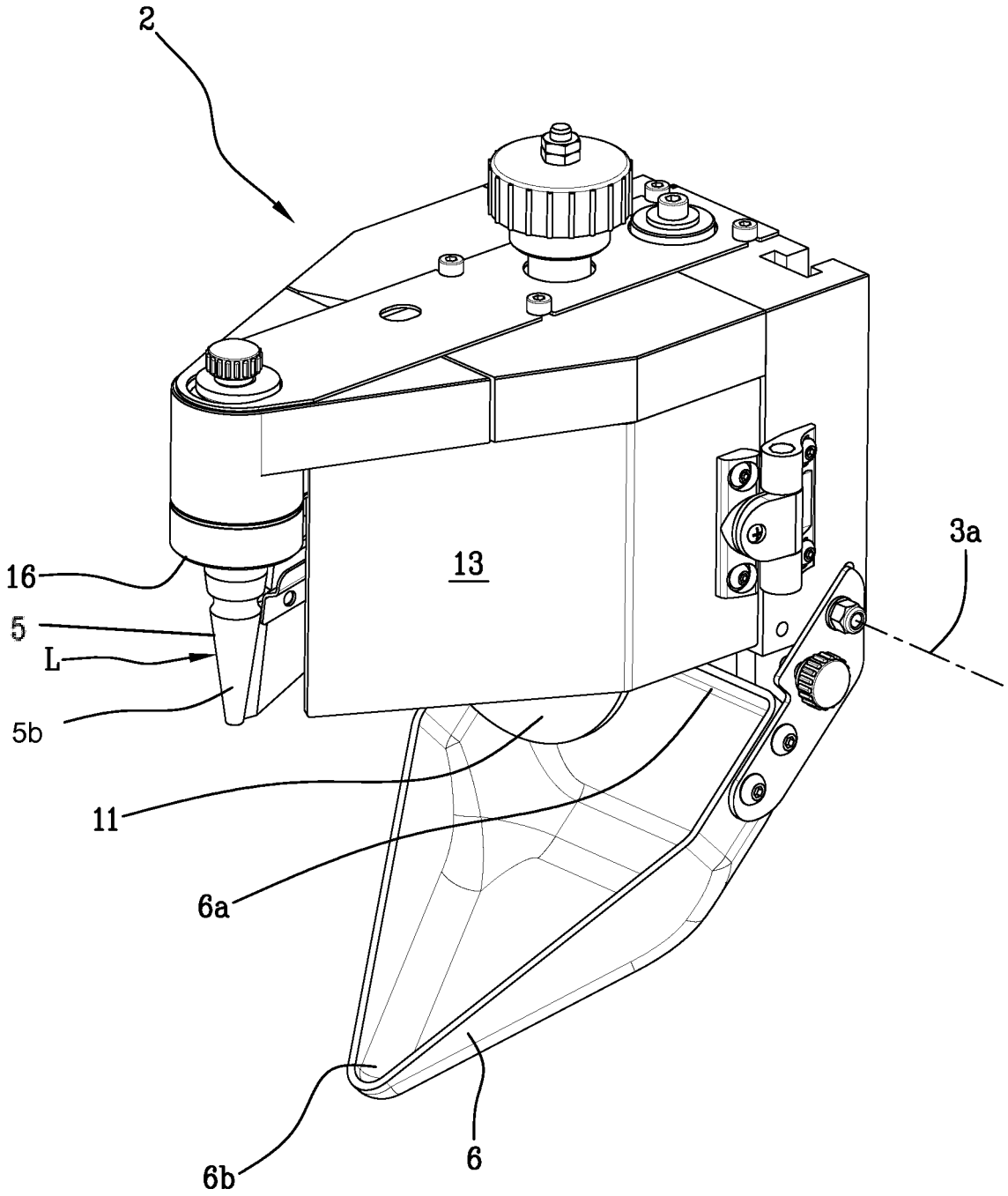


Fig.3

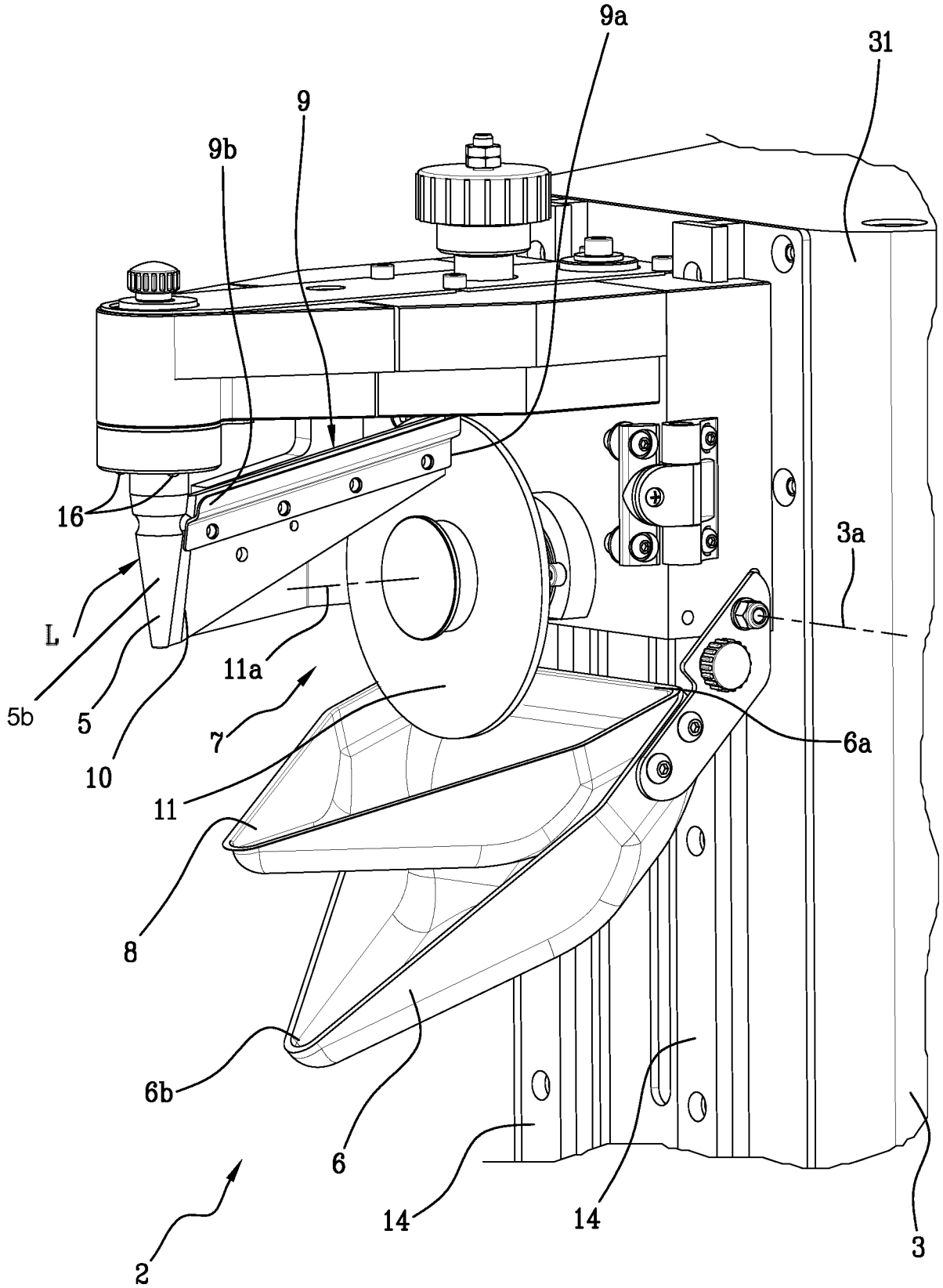


Fig.4

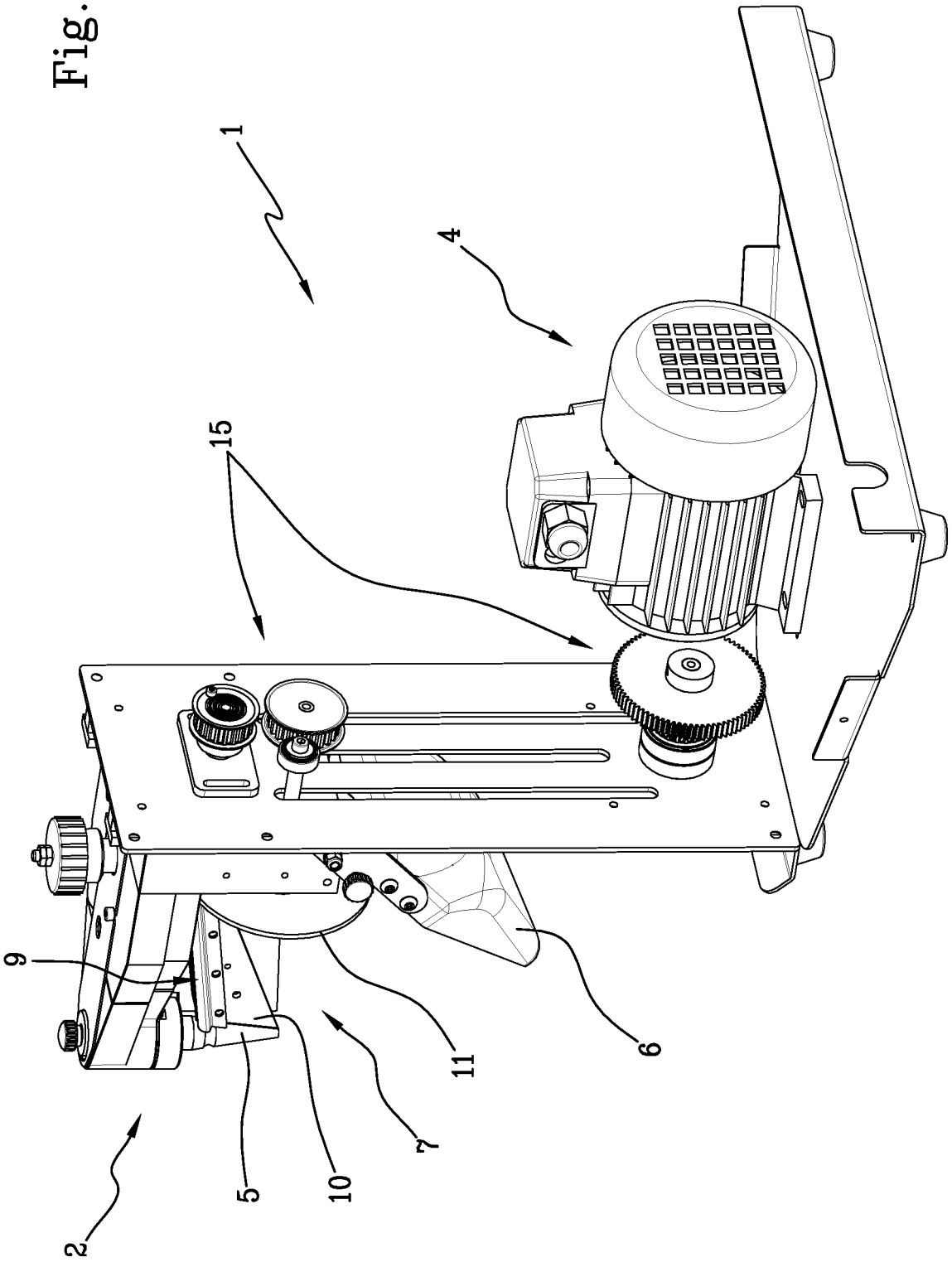
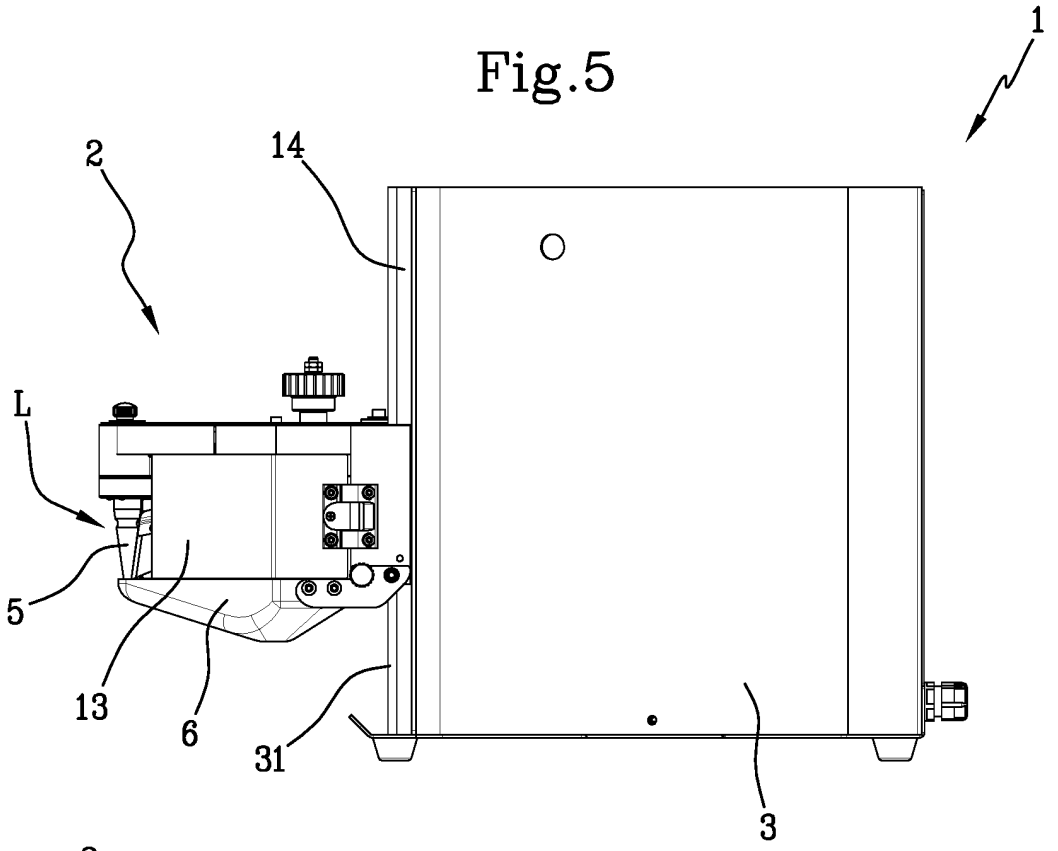


Fig.5



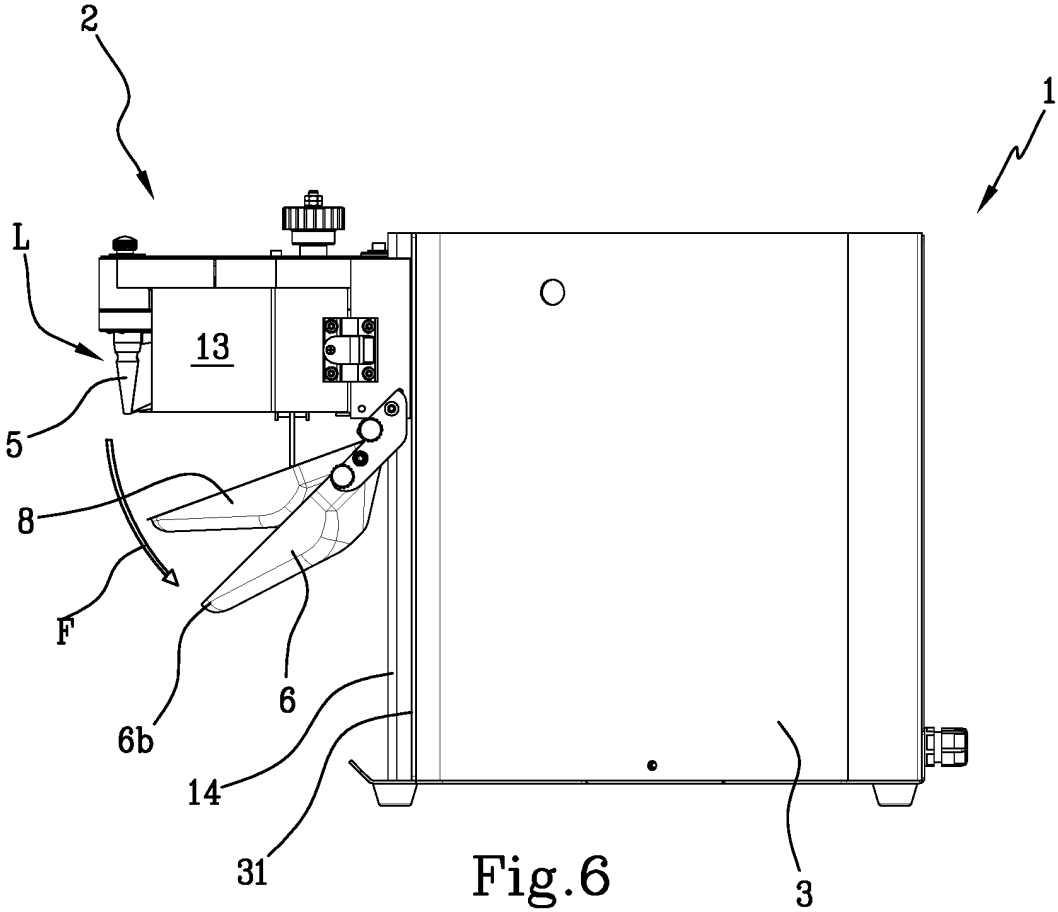
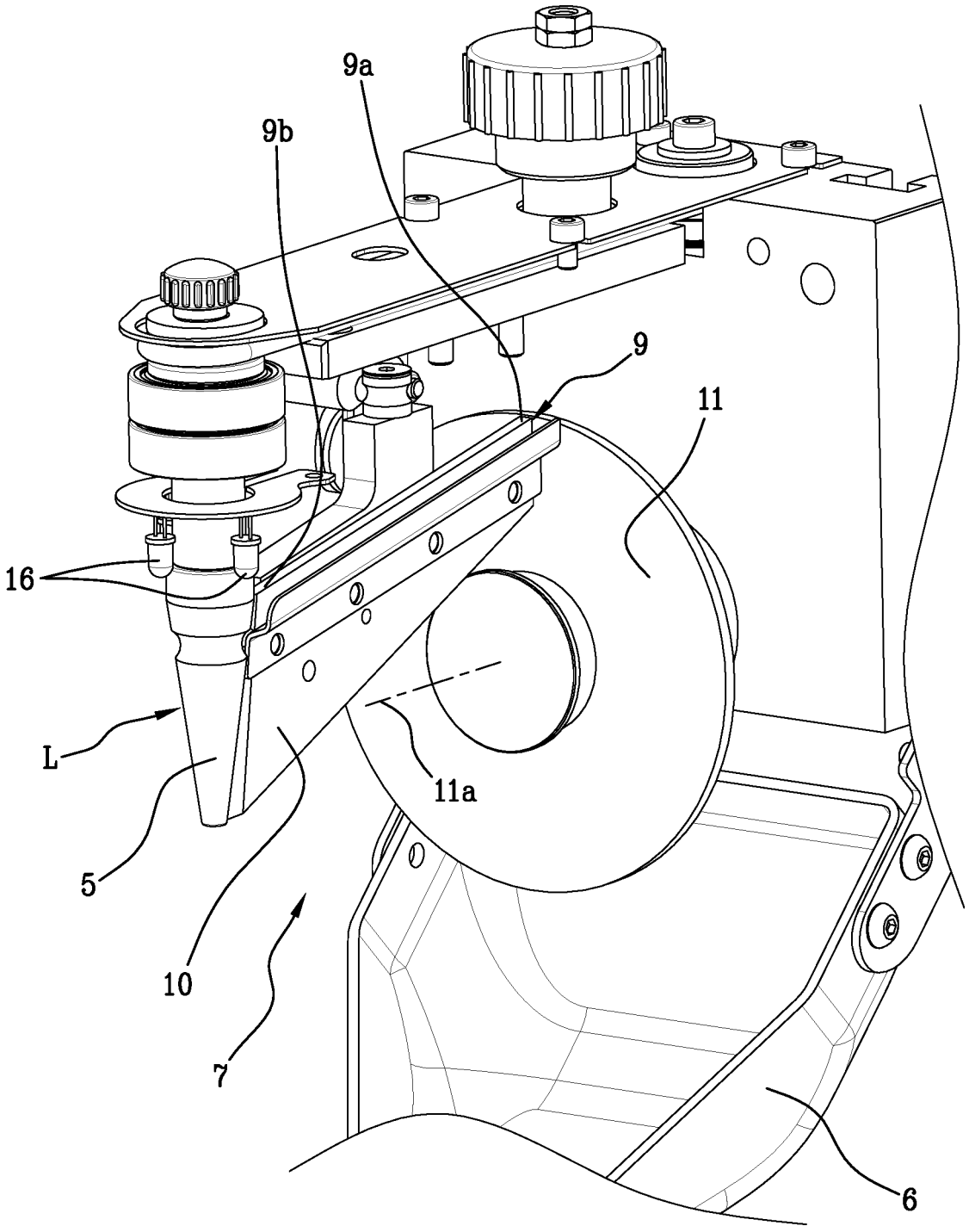


Fig.6

Fig.7



REFERENCES CITED IN THE DESCRIPTION

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