



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**23.06.2010 Bulletin 2010/25**

(51) Int Cl.:  
**B65B 7/28 (2006.01)**

(21) Application number: **09178662.4**

(22) Date of filing: **10.12.2009**

(84) Designated Contracting States:  
**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 SE SI SK SM TR**

• **Isbilen, Emrah**  
**34394 Istanbul (TR)**  
• **Tikiroglu, Can**  
**34394 Istanbul (TR)**

(30) Priority: **17.12.2008 TR 200809550**

(74) Representative: **Dericioglu, Ekin**  
**Ankara Patent Bureau Limited**  
**Bestekar Sokak No: 10**  
**Kavaklidere**  
**06680 Ankara (TR)**

(71) Applicant: **Aygaz Anonim Sirketi**  
**Istanbul (TR)**

(72) Inventors:  
• **Citil, M.Fevzi**  
**34394 Istanbul (TR)**

(54) **A hologram installation machine**

(57) This invention is related to a hologram installation machine (1) which enables installing a hologram cap onto a valve of a cylinder. The object of this invention is to affix the holograms onto the valves on the tubes by

using automation system, showing that the quality and safety controls of the house type round gas tubes are made and thus to reduce costs and eliminate faults depending on the human factor by automating the hologram installation procedure.

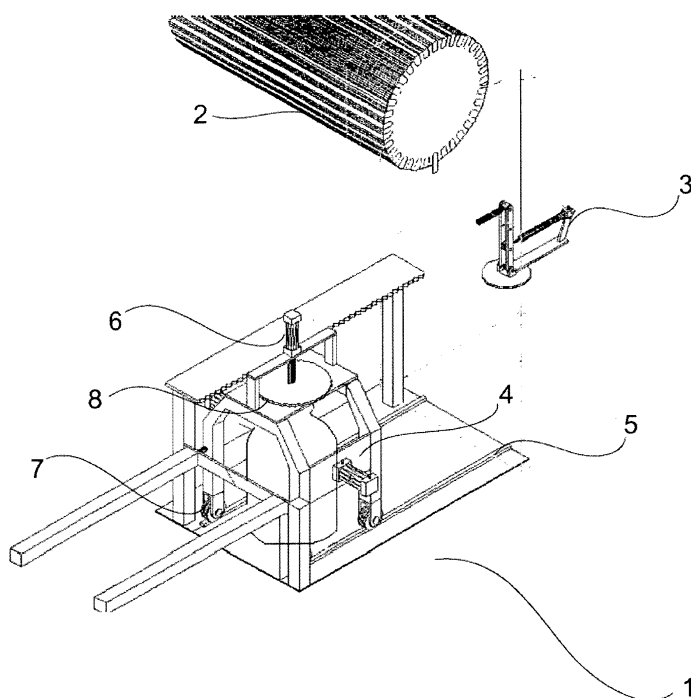


Figure1

## Description

### Field of the invention

[0001] This invention is related to a hologram installation machine which enables installing a hologram onto a valve on the cylinder by using an automation system, showing that house type round LPG tubes have passed quality and safety checks.

### Background of the invention

[0002] House type round bottled gas tubes are used for various needs. These tubes are used in many applications such as furnaces, hot water boilers etc.

[0003] Round hose type bottled gas tubes have LPG in them. LPG is an odorless and colorless gas. But it is specifically odored in the refineries in order enable detection of leaks. It is a flammable gas which is heavier than air.

[0004] It is necessary to ensure control and safety of the bottled gas tubes since they contain LPG. A hologram is affixed onto the valve on the tube indicating that the tube is safe and passes the controls successfully.

[0005] There are safety vents on the valve located on the bottled gas tubes. Safety vents are parts which release the over pressure by opening automatically when the pressure in the gas tube is increased and thus prevent the tube from exploding. Since the safety vents are located on the valves, the valves do not have symmetric shapes. Hologram cap is placed onto the unsymmetric valve due to the safety vent such that the protrusion on the cap which is preformed according to the shape of the valve faces the valve safety protrusion and during shrinking minimum deformation is obtained. The holograms are affixed onto the tubes advancing on the conveyors by people.

[0006] The tubes coming on the conveyor at different positions makes it hard to affix the holograms. The hologram cap should be rotated to suitable position in order to affix the hologram accordingly. First the hologram cap is brought to the correct position by human power and then affixed onto the valve. Placing the hologram in a suitable manner enables that the cap deforms minimally during shrinking.

[0007] In present day, hologram installation process is a man powered job in LPG facilities. This situation both increases the costs and arises faults depending on the human factor.

[0008] In the international patent document no W09858359 of the known state of the art, a layered labeling with corners, having integrated clamping hooks is disclosed. In order to label, the roots are at equal distances from half the circumference of the bottle and the total length of the label should be equal to the circumference of the bottle. When the bottle is placed by the automatic distribution device, one of the two roots detaches in order to close the advancing corner.

In the Japanese patent document no JP9132220 of the known state of the art, it is disclosed to install the hologram to the desired location at a very high accuracy. The transmission part feeds the hologram and paper parts and the stopping indicator is detected by a sensor. When the sign and the part where the sign will be affixed reach the transmission part on the paper, the hologram and the paper stop and the sign is transferred onto the paper from the hologram.

### Brief description of the invention

[0009] The object of this invention is to affix the holograms onto the valves on the tubes by using automation system, showing that the quality and safety controls of the house type round gas tubes are made.

Another object of the invention is to reduce costs and eliminate faults depending on the human factor by automating the hologram installation procedure.

### Detailed description of the invention

[0010] A hologram installation machine provided for accomplishing the objectives of the invention is shown in the annexed figure.

[0011] Figure 1 is a general view of the hologram installation system.

[0012] Each part in the figure is given a reference number and these numbers refers to:

1. Hologram installation machine
2. Cartridge
3. Pneumatic piston
4. Body
5. Rail
6. Rotating head
7. Reel
8. Gearwheel

### Detailed description of the invention

[0013] Hologram installation machine (1) of the invention comprises a cartridge (2) which accommodates the holograms in the feeding system, a pneumatic piston (3) which helps installing the hologram in the installation system, a body (4) where the system is in the rotating system, a rail (5) on which the body (4) slides, a rotating head (6) which ensures that the gas tube comes at the desired angle, reels (7) that help the body (4) to advance on the rail (5) and gears (8) that help movement of the rotating head (6).

[0014] Hologram installation machine (1) has a feeding system that comprises of cartridges (2) accommodating the hologram caps. The width of the feeding is such that it does not hinder the process. The feeding system which is cylindrical in shape consists of thirty or thirty five cartridges (2). There are one hundred hologram caps in each cartridge (2). The feeding system checks the state of

hologram cap in the cartridges (2) by the sensors in the feeding system. When there is no holograms on the line where the cartridges (2) are lined up, the sensors detect this situation and rotate the cylindrical feeding system about its own axis by sending a signal to the feeding system. The feeding system rotates and enables using the line with the full cartridges (2) by the system. The sensors check the number of hologram caps taken from the cartridges (2) and transmit an error signal when more than one hologram cap is received. The sensors send a cap-received signal to the system when each of the hologram caps is received from the cartridges (2). The caps are pushed down by the pneumatic system in order to facilitate the installation system to take the hologram caps.

**[0015]** In another embodiment of the invention, the caps are pushed down by a mechanical system in order to facilitate the installation system to take the hologram caps.

**[0016]** The hologram installation machine (1) includes an installation system which takes the hologram cap in the feeding system and affixes it onto the gas tube. The robot arm which is a part of the installation system takes the hologram cap from the cartridge (2). The gas tube on which the hologram cap will be affixed is fixed. The pneumatic pistons (3) are used to install the hologram caps to the valve on the tube. The pneumatic pistons (3) let the installation system move flexibly since they have high mobility. The robot arm that received the hologram cap goes down onto the fixed tube. It press-fits the hologram cap on the valve. The robot arm which pressed the hologram cap onto the valve goes up from the tube and takes a new hologram cap from the feeding system. The tube becomes free on the line after the robot arm rises and it continues advancing on the line.

**[0017]** The hologram installation machine (1) includes a rotating mechanism for orienting the different oriented tubes to the same position. A head goes down onto the tube advancing on the line when it reaches the rotating mechanism. This head is located on the body (4). The upper part of the rotating head (6) is shaped as a circle and the edges are formed of gears (8). There are also gears (8) on the column next to the body (4). The gears on the rotating head (6) the gears (8) on the column are in contact with each other. When the tube enters the rotating system, it advances on the line until the desired orientation is achieved. During this advance, the gears of the rotating head (6) move the body (4) forward on the line by contacting with the gears of the column. There are reels (7) under the legs of the body (4). The reels (7) touch the rails (5) on the line. The rotating system accommodating the tube is moved forward on the line until the tube reaches desired orientation by the help of gears, reels and rail system. The size of the rotating system is sufficient enough to accommodate the house type round gas tubes. When the tube advancing on the line reaches the rotating system, the tube enters into the body (4). A head (6) goes down onto the tube in the body (4). This

head fits on the valve. The tube is inside the body (4) while advancing on the line and the rotating head (6) also advances on the tube. The rotating head (6) applies a slight pressure to the valve while advancing on the tube. The rotating head (6), at the same time, rotates around its own axis while advancing on the tube. The rotating head (6) which applies a slight pressure on the valve while rotating around its own axis completely fits on the valve due to the applied pressure when it comes to the angle where the safety vent is located on the valve. The rotating head (6) which completely fits on the valve rotates the tube with itself. The rotating head (6) has the ability to rotate 360 degrees. The rotating head (6) that fits on the valve rotates the tube with itself and completes a full 360 degree turn. Thus, regardless of the angle of the incoming tube, the tube is oriented to the desired position after the rotating head (6) goes up since the rotating head (6) fits on the valve and completes the rotation together with the tube.

**[0018]** The hologram installation machine (1) is centered on the conveyor when the tubes are rotated to the same position. There are pistons on both sides of the conveyor band to enable centering on the band. The tube is held by the pistons and prevented from rotating. The pistons fix the tube and prevent the tube from losing its position after leaving the rotating system.

**[0019]** Around these fundamental concepts, it is possible to develop various applications of a hologram installation machine (1) of the invention and the invention can not be limited to the examples described here and it is essentially as described in the claims.

## Claims

1. A hologram installation machine (1) in its basic form **characterized by** a cartridge (2) which accommodates the holograms in the feeding system, a pneumatic piston (3) which helps installing the hologram in the installation system, a body (4) where the system is in the rotating system, a rail (5) on which the body (4) slides, a rotating head (6) which ensures that the gas tube comes at the desired angle, reels (7) that help the body (4) to advance on the rail (5) and gears (8) that help movement of the rotating head (6).
2. A hologram installation machine (1) according to Claim 1 **characterized by** sensors which control the state of hologram caps in the cartridges (2) and which send a signal to activate another line when there is no hologram cap on the line.
3. A hologram installation machine (1) according to any of the preceding claims which comprises the cartridges (2) accommodating the hologram caps and the sensors, **characterized by** the cylindrical feeding system which activates the other line by rotating

around its own axis when hologram caps on each line is finished.

4. A hologram installation machine (1) according to any of the preceding claims **characterized by** a centering system which stops the tubes leaving the rotating system and which prevents them from losing their position and which comprises pistons (3) on both sides of the line. 5  
10
5. A hologram installation machine (1) according to any of the preceding claims **characterized by** a robot arm on the installation system which takes the hologram cap from the feeding system and installs the hologram cap onto the centered and fixed tube. 15
6. A hologram installation machine (1) according to any of the preceding claims **characterized by** pushing the caps down by a pneumatic system in order to facilitate the installation system to easily take the hologram caps. 20
7. A hologram installation machine (1) according to any of the Claims 1-5 **characterized by** pushing the caps down by a pneumatic system in order to facilitate the installation system to easily take the hologram caps. 25
8. A hologram installation machine (1) according to any of the preceding claims **characterized by** a rotating head (6) which can complete the rotation movement together with the tube regardless of the position of the tube and which can rotate 360 degrees. 30

35

40

45

50

55

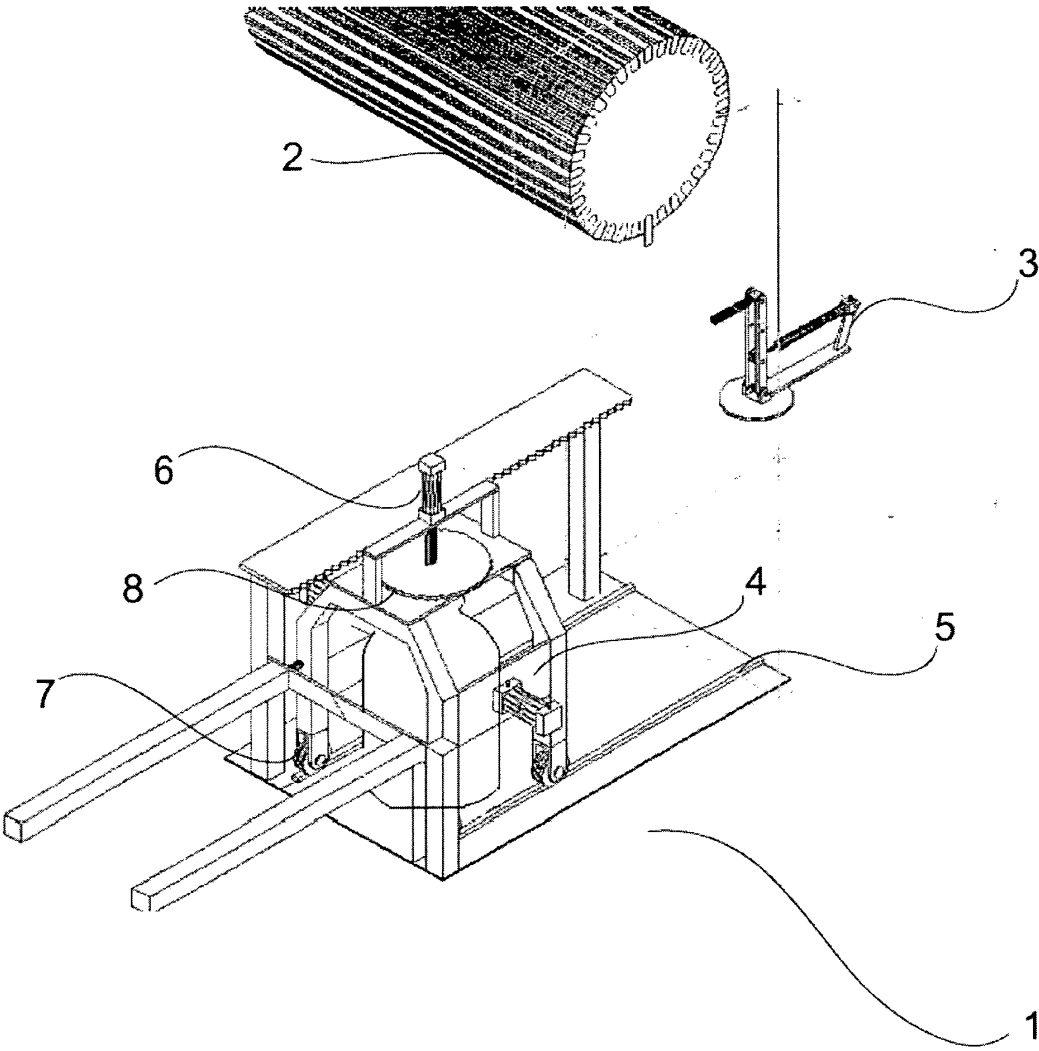


Figure1

**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 9858359 A [0008]
- JP 9132220 B [0008]