A method for detecting a link plate type when assembling a chain having a plurality of chain links having various link plates. A particular link plate form is associated with a specific link plate thickness, and the respective material thicknesses of the link plates is used as the recognition feature for detecting the respective plate types as the link plates are conveyed along a transport path.

[Diagram of a link plate with dimensions]
METHOD FOR DETECTING A PLATE TYPE FOR A CHAIN

BACKGROUND OF THE INVENTION

[0001] Field of the Invention

[0002] The present invention relates to a method for detecting a plate type when assembling a chain having a plurality of chain links with different link plates.

[0003] Description of the Related Art

[0004] Known chains include chain links with various link plates, for example outer plates, inner plates, and middle plates. When assembling the chains, it is important for the correct link plate to be supplied in each case, so that correct assembly of the chain is made possible. In a known method for detecting a certain plate type, the different link plates are detected by means of their different outside contours. That approach serves to prevent a link plate of an incorrect plate type being installed during assembly.

[0005] Recognizing the particular outside contour of every link plate is, however, very complicated. That is due to the fact that using outside contours as a recognition feature for a plate type is very difficult, because of similar outside contours or outside shapes. In addition, there is a risk that confusion can occur with the outside contours, so that erroneous detections occur with the known method.

[0006] An object of the present invention is to provide a detection method of the type described above, wherein the simplest possible method for detection of the particular plate type among different link plates is carried out.

SUMMARY OF THE INVENTION

[0007] That object is achieved in accordance with the invention by a method for detecting a plate type when assembling a chain having a plurality of chain links having various link plates, wherein the respective material thicknesses of the link plates is used as the recognition feature for the respective plate type.

[0008] That type of detection of the particular plate type is especially advantageous during assembly, since that type of detection is especially simple and straightforward, and hence chain assembly errors are prevented.

[0009] In an advantageous embodiment of the present invention, the thickness of the material of each link plate can be determined using the method in accordance with the invention. The determined material thickness is compared to a defined material thickness. If there is a difference between the determined material thickness and the defined material thickness, the link plate is ejected.

[0010] The manner of determining the material thickness of each link plate can be chosen as desired. For example, either mechanical or optical detecting devices can be used. Preferably, a sensor or the like that detects the particular material thickness of the link plate can be used.

[0011] A different embodiment of the invention can provide for the material thickness of each link plate to be determined through an inquiry of its height above a link plate conveyor plane, or the like. Preferably, a maximum height above the conveyor plane along which the link plates move can be set as the height limit, where the maximum height corresponds substantially to the defined material thickness. In that way, for example, only link plates that have at least the defined material thickness can be conveyed further. As a result, link plates of a different plate type that does not conform to the defined material thickness are simply sorted out. In that way, incorrect assembly of the chain can be prevented. Other arrangements for performing the height inquiry are also possible, however.

BRIEF DESCRIPTION OF THE DRAWING

[0012] The structure, operation, and advantages of the present invention will become further apparent upon consideration of the following description, taken in conjunction with the accompanying drawing in which:

[0013] FIG. 1 is a top view of a link plate having a predetermined material thickness, and

[0014] FIG. 2 is a top view of another link plate having a smaller material thickness.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] FIGS. 1 and 2 show link plates 1, 1' having different material thicknesses $s_1$ and $s_2$, respectively. Link plates 1, 1' can also have different outside contours. The contours have no influence on the thickness of material $s_1$, $s_2$ of each link plate 1, 1'. Furthermore, link plates 1, 1' normally each have two openings for receiving chain pins or chain bushings, the axes of the openings being indicated by dashed lines 2.

[0016] In accordance with the present invention, in the proposed method for detecting a plate type when assembling a chain, the particular material thickness $s_1$, $s_2$ of the link plates 1, 1' is used as the recognition feature for the respective plate type. For example, if a material thickness $s_2$ is determined as the defined material thickness for link plate 1, in a height inquiry link plate 1 in accordance with FIG. 1 and having a material thickness $s_{1'}$ which is greater than defined material thickness $s_2$, is simply not transported further and hence is ejected, so that incorrect assembly of the chain is prevented by the method in accordance with the invention.

[0017] Although particular embodiments of the present invention have been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications can be made without departing from the spirit of the present invention. It is therefore intended to encompass within the appended claims all such changes and modifications that fall within the scope of the present invention.

What is claimed is:

1. A method for detecting a desired link plate type when assembling a chain composed of a plurality of chain links having various link plates, said method comprising the steps of:

   providing types of link plates having different forms, each link plate form having a specific link plate thickness;

   conveying the link plates; and

   detecting a desired link plate type based upon a determination of the thicknesses of the respective link plates.
2. A method in accordance with claim 1, including the step of sorting from the conveyed link plates those link plates that do not have a desired specific link plate thickness.

3. A method in accordance with claim 1, wherein the specific link plate thickness is detected by a sensor.

4. A method in accordance with claim 1, wherein the specific link plate thickness is determined by detecting a height of the link plates as they are conveyed along a transport path, wherein the height of the link plates corresponds with a specific link plate thickness.

5. A method in accordance with claim 4, including the step of setting a maximum height above the transport path as a height value for detecting the desired link plate type.