

TAGGING DEVICE

FIELD OF THE INVENTION

The present invention is related to tagging devices. In particular, the
5 present invention is related to tagging devices used for tagging long
products such as round or ribbed bars.

BACKGROUND OF THE INVENTION

In bar mills, reinforced bars are rolled into shape and cut to standard
stock length and the individual bars are bundled up into bundles. Each
10 bundle has to be tagged for the purposes of identification and traceability,
and to provide information required by the downstream processing parties.
Tagging is usually done when the bars are still hot, as it would be very
inefficient and time-consuming if precious time has to be wasted while
waiting for the bars to cool off before tagging.

15 Current tagging practices include wire tying and stud welding. In wire
tying, a wire strung through a tag is simply tied manually onto a bar. This
process is not easy, as the bars are stacked on top of each other and are
still very hot when the wire is tied. The tagger must be very skillful in order to
manipulate the wire with heavily gloved hands, making the process very
20 slow and inefficient. As the tag is usually attached to the wire which is tightly
tied to the bar, the tag often gets caught in between the bars within the
bundle and get damaged. Due to contact of the tag with the bar, the material
used to make the tag must also be able to withstand high temperatures.

In the stud welding method, such as the HBS stud welding system produced by Hematic Bolzenschweiss System GmbH & Co., a stud welding gun is used to weld pins and studs onto the ends of the bars. A tag is then pressed onto the welded pin. A washer is then pressed onto the welded pin to secure the tag. This method, however, may suffer from the problem of inadequate fusion between the stud and the bar, which frequently results in missing tags due to the studs dropping out. Also the washer may not grip on tightly onto the stud, and drop out together with the tag. The stud welder requires power to operate and also requires considerable maintenance. In addition, the sparking caused by the arcing process, is unbearable, particularly during the night shift.

There is therefore a need in the industry to provide an easier, cheaper and efficient method for tagging hot metal bars.

15 OBJECT OF THE INVENTION

It is an object of the present invention to provide a device which can tag bars quickly and conveniently.

It is another object to provide a device which would reduce the cost, time and labor required to do tagging.

SUMMARY OF THE INVENTION

The present invention provides a tagging device comprising a resilient jacket for gripping around the exterior of the object to be tagged, and a tag holder attached to the jacket whereto the tag is secured. In the preferred embodiment for use on an end of a bar, the resilient jacket is a spring coil, and a tail hook is the tag holder whereto the tag is attached. In the most preferred embodiment, the spring coil has one larger end with a larger diameter, and one smaller end extending into a tail hook. The larger end has a diameter larger than or equal to that of the bar to be tagged whereas the smaller end has a diameter equal to or smaller than the bar to be tagged. A simple pushing and twisting action secures the device onto the object efficiently.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front perspective view of the preferred embodiment of the present tagging device.

Figure 2 is a perspective view of the preferred embodiment as attached onto a ribbed bar.

DESCRIPTION OF THE INVENTION

The present invention provides a convenient and effective tagging device particularly for solid objects. It is especially useful for objects which has a stud or arm with at least one free end, for example the end of a bar, whereon a jacket or sleeve may be wrapped around. In order for the wrapping to be performed conveniently, preferably in a one-handed operation, the material used for the jacket should be firm but resilient, with a dimension at one end larger than the bar, while the dimension of the jacket at the other end should be equal or smaller than that of bar. In this way, the jacket may be wrapped securely around the end of the bar by a simple pushing and twisting motion.

Figure 1 shows the preferred embodiment of the present invention. The jacket in this embodiment is a spring coil 20, and the tag holder is a tail hook 22 on one end of the coil. In the most preferred embodiment, this coil is tapered such that the back 24 of the coil wherefrom the tail hook extends is smaller in diameter to the front 26 of the coil. In this way, the coil can be conveniently pushed and twisted onto the object to be tagged. Figure 2 shows the tagging device after it has been twisted over the end of bar 28, with tag 30 attached to the tail hook.

While the present invention has been described particularly with references to Figs 1 and 2 for bar tagging, it should be understood that the figures are for illustration only and should not be taken as limitation on the invention. In addition it is clear that the method and device of the present invention has utility in many applications where tagging is required. It is

contemplated that many changes and modifications may be made by one of ordinary skill in the art without departing from the spirit and the scope of the invention described.

The spring coil shown in Figure 1 is particularly useful for tagging objects which have an arm extension with at least one free end. As shown in Figure 2, the tagging device can then be simply pushed and twisted into place. Three to seven coils gives a good grip on the object to be tagged, although there may be other applications where more or less coils are preferred. The pitch of the coils may be adjusted according to different applications. This device is particularly useful in bar mills, where the bars produced are very hot initially. Using this device, the operator simply has to hold the tagging coil by the tail hook, and twist the tag onto the bar. This virtually eliminates any accidental contact with the hot bar, giving substantial protection to the operator compared to the current methods. The tail hook allows for one-handed operation of the tagging process, and also allows for the tag to be prepared and attached to the device ahead of time. Using this method, the time required to tag the bundle of bar, is shortened significantly.

Although Figure 2 shows a ribbed bar, the object does not have to be ribbed for firm gripping to result, as the inherent resilience of the coil upon exertion of the twisting force is sufficient to give a firm grip even on a smooth surface. Although bars are used as examples of objects to be tagged, it is contemplated that other objects, for example rectangular block or studs, may also be tagged by the present invention.

For the application of tagging a hot bar, the material of the device has to be heat resistant, thus a metallic spring coil is preferred. It is contemplated

that other materials which are firm and resilient can also be used for tagging other objects. For tagging a bundle of bars, it is desirable that the tag holder be a relatively long tail hook, as this keeps the tag as distance away from the bundle, and prevents the tag from being physically damaged by
5 neighbouring bars or by the high temperature of the bundle. For other application, other tag holder can be designed using the teaching provided in this invention. It is also contemplated that the process of tagging using this device may be automated.

CLAIMS

- 1 1. A tagging device comprising :
 2 a resilient jacket for gripping the exterior surface of an object for
 3 tagging; and
 4 a tag holder connected to the jacket for attachment of a tag.
- 1 2. A tagging device according to claim 1 wherein the jacket is a spring
 2 coil.
- 1 3. A tagging device according to claim 2 wherein the tag holder is a tail
 2 hook.
- 1 4. A tagging device according to claim 2 wherein the spring coil has a
 2 first and a second end, the first end having a diameter larger than the
 3 diameter of the second end.
- 1 5. A tagging device according to claim 4 wherein a tail hook is
 2 connected to the second end of the spring coil.
- 1 6. A tagging device according to any one of the preceding claims
 2 wherein the tagging device is adapted for tagging onto one end of a
 3 long object.
- 1 7. A tagging device according to any one of the preceding claims
 2 wherein the object for tagging is a bar.
- 1 8. A tagging device according to any one of the preceding claims
 2 wherein the object for tagging is a round or ribbed bar.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED



- 1 9. A method for tagging an object with at least one free end, said
2 method using a tagging device having a resilient jacket and a tag
3 holder, said method comprising the step of :
4 wrapping the jacket around the end of the object by asserting a
5 pushing and twisting action such that the jacket is securely gripping
6 the object.
- 1 10. A method for tagging an object according to claim 9 wherein the
2 resilient jacket is a coiled spring.
- 1 11. A method for tagging an object according to claim 10 wherein the tag
2 holder is a tail hook.
- 1 12. A method for tagging an object according to claim 9 wherein the
2 coiled spring has a first end with a larger diameter and a second end
3 with a smaller diameter, and the coiled spring is wrapped around the
4 arm of the object by pushing and twisting the first end of the coil onto
5 the end of the arm.

This Sheet Has Been Replaced



THIS SHEET HAS BEEN
REPLACED