Nov. 9, 1965 L. L. LANG 3,216,136

INSPECTION TAG

Filed Dec. 30, 1963

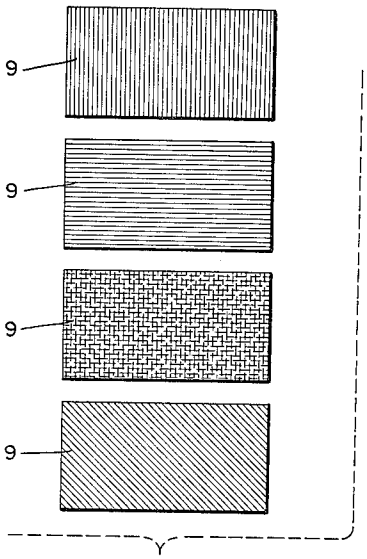


Fig. 6

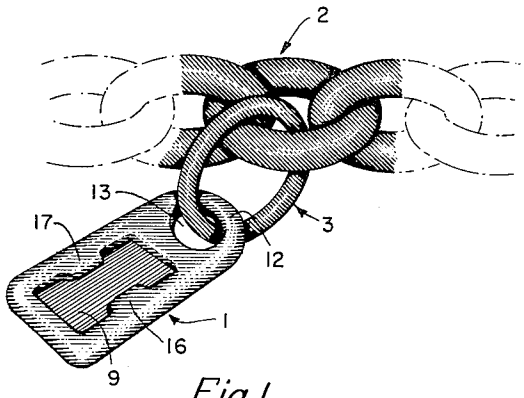


Fig. 1

Fig. 2

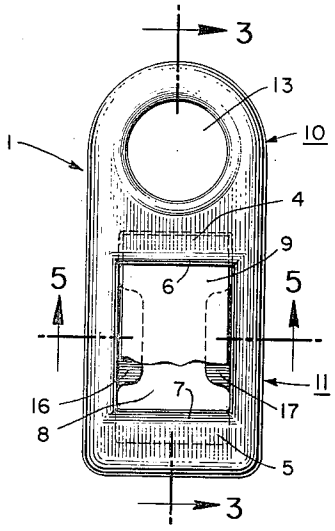


Fig. 3

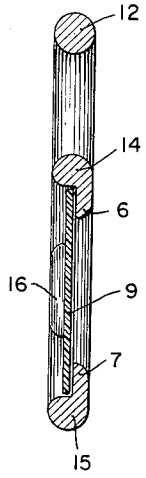
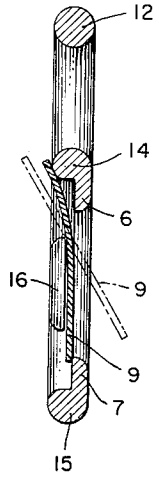


Fig. 4



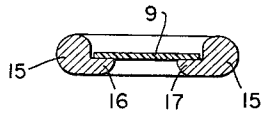


Fig. 5

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INSPECTION TAG

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6 Claims. (Cl. 40—10)

This invention concerns a holder for a flexible sheet and more particularly an improved unitary forged inspection tag for industrial lifting chains.

Heretofore forged steel identification and/or certification tags have been used by chain manufacturers. However, after leaving the manufacturer, no practical or systematic use of the inspection tag is made or contemplated. Some chain users have carried out periodic inspections of their chains, but even here no use is made of the original identification tag. To aid the user in inspection some chain manufacturers have provided warning rings similar to those described in Patent No. 2,966,878.

Certification tags and warning rings are not sufficient assurance to an intelligent skill-worker that the chain he is using will hold the load to be lifted. There has been a long-felt need for a practical, simple device that will immediately inform the skill-worker-user of commercial chains that the chain he intends to use has recently been inspected and/or tested under actual load conditions, thus supplying him with other critical data necessary for safe usage of the chain.

Therefore, it is a general object of the present invention to provide an improved inspection tag for the display of data.

It is a further object of the present invention to provide a novel forged steel inspection tag structure for displaying a flexible data sheet.

It is another object of the present invention to provide a novel forged steel inspection tag structure adapted to convey visual data.

Other objects and advantages of the structure will become evident from the following description when read in connection with the drawings.

FIG. 1 is a perspective view of the rear of the inspection tag structure attached to a link of a lifting chain.

FIG. 2 is a front plan view of the tag structure.

FIG. 3 is a section taken at lines 3—3 of FIG. 2 showing the flexible data sheet in locked position.

FIG. 4 is a section like FIG. 3 showing the flexible data sheet in released position.

FIG. 5 is a section taken at lines 5—5 of FIG. 2.

FIG. 6 is a plan view of four representative flexible data sheets sectioned for color.

In its intended environment the novel inspection tag **1** is connected to a lifting chain **2** by a link or adapter **3**. The tag is preferably hot forged from a single steel billet providing a continuous integral high strength structure resistant to bending. Link **3** is welded together either at the factory or may be attached in service after the particular chain has been calibrated or tested. Since chains will deteriorate due to wear, it is probable that over the useful life of the chain the calibration will change. On the front face of the tag **1** of FIG. 2 two flat data surfaces **4** and **5** are provided upon which permanent calibration and registration data may be engraved.

Should the particular use of the tag demand, the locking tabs **6** and **7** on the front face of the tag may be extended further inwardly into the aperture **8** to provide larger data areas **4** and **5**.

Flexible sheets **9**, preferably of colored plastic material are provided to convey visual information pertaining to periodic inspections. However, realizing the infirmities of color perception, the sheet selected should be easily embossed or engraved with permanent color designation.

Other data may be applied thereto as the situation demands.

In the preferred embodiment shown, the upper end of the tag in FIG. 2 comprises the attachment portion **10** and the lower end comprises the data portion **11**. Side walls **12** of attachment portion **10** surround attachment aperture **13** and are here shown to be circular in cross-section and formed as a ring or torus.

While this preferred shape provides maximum strength with minimum volume of metal other forms having geometric shapes and rounded edges may be employed.

The side wall **14** at the center of the tag is shown in FIGS. 3 and 4 having a circular cross-section, however, this section fans out into side walls **15** of data portion **11** and forms a mutual side wall **14** between portions **10** and **11**.

Side walls **15** are also shown to be circular in cross-section.

A second pair of locking tabs **16** and **17** are provided on the rear face of the tag removed from tabs **6** and **7** both circumferentially and axially.

The axial space between tabs and the data aperture **8** defines a compartment into which the data sheet **9** is locked. This space between the tabs locates the flexible data sheet at a neutral plane between the front and rear faces of the tag, thus shielding the data sheet from damage or accidental removal.

Flexible sheet **9** is very strong and cannot be removed easily except with the aid of a knife-like blade to form an inclined ramp upon which the deflected or bent sheet **9** will readily follow when a strong longitudinal force is applied. Insertion of the plastic sheet **9** is accomplished without tools as shown in FIG. 4.

In actual practice a lifting chain is placed on a tension testing table and placed under actual recommended test loads. After visual and load test the inspection tag of the present invention is attached by link **3**. The chain is now registered, calibrated and certified by its removable flexible sheet that it has been inspected and is safe for the load represented on the tag. Periodically the chain is returned to the testing lab and the test repeated and the old flexible data sheet is replaced. The skilled lifting chain user is informed by the safety department which color data sheet is indicative of current inspection and which color data sheet was the last to be applied. All other colors of data sheets inform the skilled chain user that the chain to which it is applied has not been currently inspected and may not represent a true approved calibration.

The present inspection tag structure performs a function that former calibration tags and warning rings in a chain cannot possibly perform. Experience has shown that a warning ring is not a substitute for calibration, for it may not be the weakest link in an old chain. To be effective the warning ring must collapse while the chain is still safe. When this happens, an intelligent user avoids the use of a chain with a collapsed warning ring.

The present invention not only presents an improved rugged tag structure but provides for a cooperating flexible data sheet which extends the field of application of such inspection tags.

Those skilled in the art will be able to extend the above described uses and modify the preferred embodiment shown without departing from the present invention which is only limited by the appended claims.

What is claimed is:

1. A forged steel inspection tag adapted to convey visual data comprising:

an attachment portion having a ring shape of uniform cross-section,

a data portion extending from said attachment portion and having a rectangular aperture therein,

said data portion comprising a continuous side wall encompassing said aperture and joined at one edge of said wall integral with said attachment portion,

a first pair of locking tabs disposed opposite each other and extending inwardly from said side wall into said aperture, said pair of locking tabs being disposed from the neutral plane of said tag,

and a second pair of locking tabs disposed opposite each other and extending inwardly from said side wall into said aperture, said second pair of locking tabs being circumferentially disposed from said first pair of tabs and further disposed from the neutral plane of said tag, said tabs being adapted to hold a flexible sheet locked in said aperture of said data portion at the neutral plane of said tag.

2. A forged steel inspection tag for lifting chains comprising:

an attachment portion having a ring shape of uniform side wall cross-section surrounding an attachment aperture adapted to accept a link connecting said attachment portion to a lifting chain,

a data portion connected to and extending from said attachment portion and having side walls surrounding a recessed data aperture adapted to accept a data sheet therein,

a plurality of locking tabs spaced apart from each other and extending from said side wall of said data portion inwardly into said data aperture,

and a normally flat flexible sheet shaped to fit in said data aperture and locked in a compartment in said data aperture formed by said locking tabs and said data portion side walls,

said flexible sheet being removable from said compartment by bending said flexible sheet out of its normally flat plane.

3. An inspection tag adapted to accept a flexible sheet indicative of data comprising:

an attachment portion,

a first aperture in said attachment portion,

a data portion connected to said attachment portion,

a second aperture in said data portion,

a first pair of locking tabs disposed opposite each other at the front face of said data portion and extending inwardly into said second aperture,

and a second pair of locking tabs disposed opposite each other at the rear face of said data portion and extending inwardly into said second aperture, said first pair of locking tabs being displaced from said second pair of locking tabs to permit a flexible sheet to be fitted therebetween and to be locked in said aperture by said tabs.

4. An inspection tag according to claim **3** wherein said attachment portion and said data portion consist of uniform cross-sectional wall sections surrounding said apertures.

5. An inspection tag according to claim **3** wherein one of said pairs of locking tabs extending inwardly into said second aperture forms a closure of said aperture at one face of said tag.

6. An inspection tag according to claim **3** wherein said apertures in said tag are of uniform geometric shapes having rounded cross-sectional wall sections.

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