Nov. 22, 1927. 1,650,194

W. H. DEASY

METAL SHEET FASTENER

Filed Nov. 19, 1924

Fig. 1.

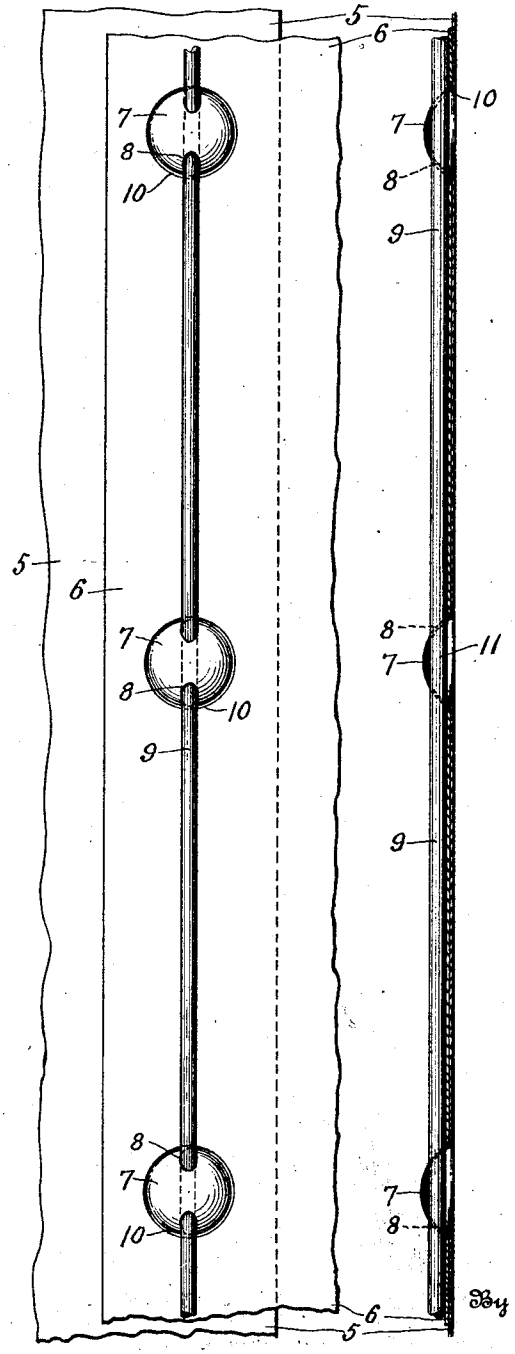



Fig. 2.

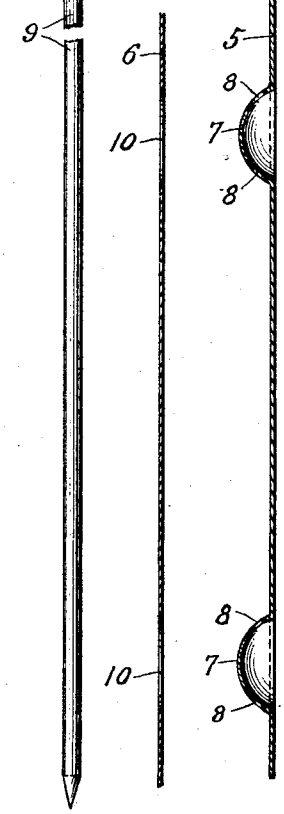



Fig. 3.

Fig. 4.




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Patented Nov. 22, 1927. 1,650,194

# UNITED STATES PATENT OFFICE.

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## METAL-SHEET FASTENER.

Application filed November 19, 1924. Serial No. 750,911.

This invention relates to fasteners, and especially to an improved and simplified metal sheet fastener.

One object of this invention is to provide an improved and very simple means for securing the lapped edges of metal sheets to one another in such relation that leakage between or through these lapped edges is minimized or entirely avoided when such lapped edges constitute parts of a barrel, box, grain-storage bin, tank, garage, concrete form, filing cabinet, shelving, tobacco-storage house, article of office furniture or equipment, or numerous other things to which the invention is applicable.

Another object is to provide a device of this character of which the manufacturing cost is minimized, and the degree of practicability, strength and efficiency maximized, by forming certain of the securing elements integrally with one of the sheets without materially weakening this sheet, while obtaining excessive rigidity and strength in these securing elements.

Other objects and important features are pointed out or implied in the following details of description, in connection with the accompanying drawings in which:

Fig. 1 is a face view or elevation of a fastener made according to this invention: Fig. 2 is a central vertical sectional view of the structure shown in Fig. 1: Fig. 3 is a detail view showing parts of the structure, shown in Figs. 1 and 2, separated from one another; and Fig. 4 is a detail view showing part of one of the diametrically apertured circular bosses or cups in the position for looking through its pin-receiving apertures.

Referring to these drawings in detail, in which similar reference characters correspond to similar parts in the several views: The metal sheet parts 5 and 6, may be the meeting edges of a cylindrically formed sheet, or may be two separate sheets, and in either case they are lapped on one another and lie close against one another to prevent leakage of grain, granular material or powder, etc. The plate or sheet 5 is provided with any desired number of circular bosses or cups 7, that is, their bases are circular or substantially circular, having no abrupt corners or edges, thus having the maximum strength and being easily formed by any well known method of metal pressing or embossing without danger of fracturing the metal. Each boss 7 is formed with diametrically opposite elliptical apertures 8 which appear perfectly circular when looking through them (Fig. 4), and which receive a pin 9 which is circular in cross section. Each aperture 8 is spaced a distance from the base of the boss, such space being equal to the thickness of the sheet 6, so the pin 9 is held close against the latter plate and holds the latter close against the plate 5.

It should be understood that the plate 5 is provided with circular apertures 10 which fit snugly around the bases of the respective bosses or cups 7, and that the apertures 8 fit snugly around the pin 9, so that granular or powdered material can not leak through these apertures. It should also be understood that the gradually sloping sides of the bosses 7 render it comparatively easy to pass the bosses 7 into the apertures 10 preparatory to placing the pin 9 in the apertures 8.

While I have here shown three alined bosses and the corresponding apertures 10, and a single pin combining with the three sets of fastening elements, it should be understood that I may either increase or decrease the number of sets thus cooperating with a single pin, or may use a separate pin for each set of elements 7 and 10, and may provide any appropriate means for securing the pin or pins in the apertures 8. For instance, where the device is included in a sheet metal container I may use only one pin for a series of the bosses 7, depending on the bottom and top of the container (one or both) for preventing displacement of the pin 9; but where the bosses 7 are not alined, I may use ordinary split keys, or may apply cement or solder to the pin at 11. I may also use one or more of these sets of fasteners as a closure fastener and sealer, by filling these hollow bosses with sealing wax and impressing a seal on the wax, thereby insuring the contents of the container against having been tampered with, when the seal is unbroken.

It is not intended to limit my patent-protection to the exact construction and arrangement here shown, for the invention includes numerous forms not here shown.

What I claim as my invention is:

1. In a fastener for a metal sheet joint, the combination of a cup or boss formed of an integral part of one metal sheet and having a continuous base-periphery and having

apertures spaced a slight distance from the surface surrounding the base, a second part of sheet metal having an aperture for fitting snugly around the said surface surrounding the base of the boss, and a pin for fitting snugly in the apertures of said boss, substantially as shown, for the purpose specified.

2. In a fastener for an openable joint between sheet metal parts, the combination of a cup or hollow boss formed of an integral part of one of said sheet metal parts and having a circular base and having diametrically opposed apertures a slight distance from the surface surrounding the base, the other sheet metal part having a circular aperture therethrough of a size to fit snugly around said base, and a pin to fit snugly in the apertures of said boss and being long enough to extend beyond the margin of the aperture of the second said sheet and to fit against the latter and thus hold it against the first said sheet.

In testimony whereof I affix my signature.

WILLIAM H. DEASY.