Nov. 4, 1930. E. J. HAYMAN 1,780,232

JOINT

Filed Feb. 28, 1928

Fig. 1.

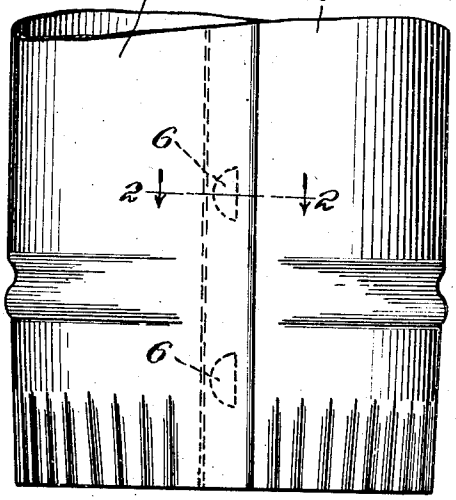


Fig. 2.

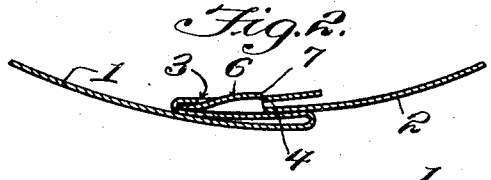


Fig. 3.

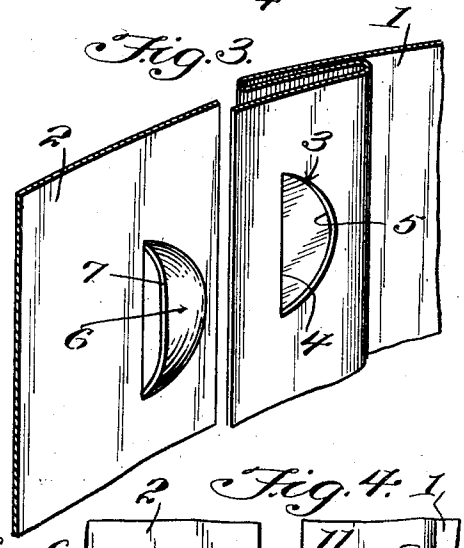


Fig. 6.

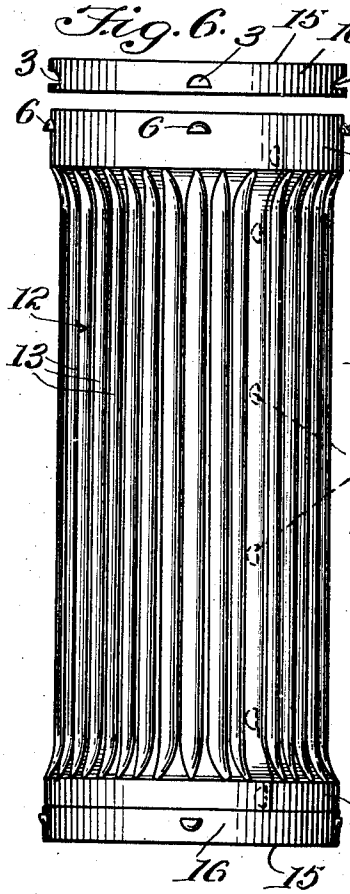


Fig. 7.

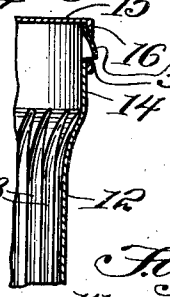


Fig. 4.

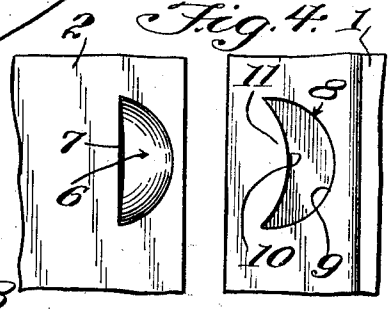


Fig. 8.

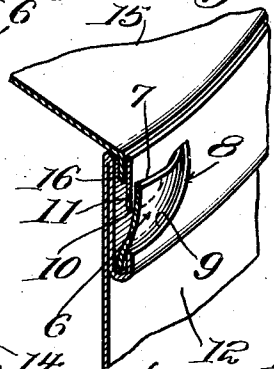
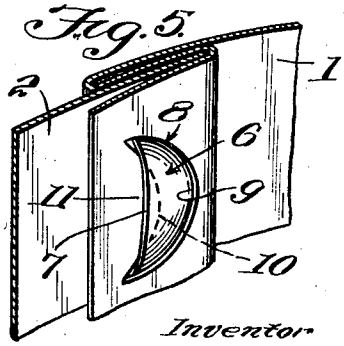


Fig. 5.



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UNITED STATES PATENT OFFICE

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JOINT

Application filed February 28, 1928. Serial No. 257,739.

This invention relates to a joint for sheet members and has particular reference to a joint of an interlocking nature which has wide application in the arts.

One adaptation of the invention is to stove pipe sections wherein they may be shipped in an unlocked or open nested condition and then the edges snapped or locked together by the user. Such a structure has particular advantages in that a large number may be shipped in a small space, and also that such sections may be readily unlatched when it is desired to move the same such as in tourist camps, and for army use or the like. Of course the invention contemplates a lock of such a nature that will not accidentally separate while in use, and that will be comparatively tight.

Another adaptation of the invention is to a receptacle in which either the longitudinal seam or the head or end may be secured together or to the body in a more or less detachable manner.

To this end the invention contemplates in one of its aspects a joint for articles of sheet material which in the case of stove pipes, receptacles or crates will be of sheet metal. In the former, the joint contemplated is a longitudinal one, that is the seam formed by overlapping the edge portions of the sheet, thereby forming a closed structure. This joint is formed by doubling one edge portion upon itself to form three thicknesses of material between which the other edge portion is enclosed. One of these edge portions is provided with an aperture, the other with an offset lock projecting toward the inside or axis side of the pipe. A raw edge of the aperture engages a raw edge of the offset lock thereby preventing separation of the parts. However, due to the sloping sides of the offset lock, the edge portions may be slid upon each other longitudinally and thus separated when it is desired to unlatch the pipe.

In another form, the aperture may take the form of a crescent, one edge thereof defining a tongue which underlies the offset lock, and thus more efficiently secures the parts together.

The invention may be applied to a container such as a crate within which stove pipe sections may be shipped, to nail kegs, powder kegs, in fact any receptacle which requires a locked or latched joint either as a longitudinal seam or as a top, head or bottom.

The invention as thus applied contemplates a receptacle having overlapping edge portions which may be either longitudinal, or an edge of the end, head or bottom overlapping the edge portion of the body. Between these parts an interlock is provided in which an offset lock in one portion engages an aperture in the other. It is preferable that a raw edge in the offset lock engage a raw edge of the aperture as this has been found to be the most efficient arrangement. Where the aperture is substantially crescent shaped and defines a tongue which underlies the offset lock, the parts are most securely fastened together. The two overlapping edge portions may or may not be doubled upon themselves as desired, but in all cases I contemplate the use of an offset lock having sloping ends so that in the case of a longitudinal seam, movement in that direction will cause the lock to ride out of the recess and thus separate the parts. In case the lock is applied to the end, head or bottom of a container, rotation of the end in its plane will have the same effect.

Such a construction in a container, enables one to supply this article to the trade with either or both ends removable, and capable of being unlatched longitudinally so that the body and ends may be shipped from the factory to the jobber or dealer in a knocked down or flat condition, and by him assembled as desired.

The invention further consists in the novel arrangement, combination and construction of parts more fully hereinafter described and shown in the accompanying drawings, in which:

Fig. 1 is an elevation of a stove pipe embodying my invention.

Fig. 2 is a sectional view along the line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the lock of Figs. 1 and 2.

Fig. 4 is an elevation of a modified form of lock.

Fig. 5 is an assembled view of the lock of Fig. 4.

Fig. 6 is an elevation of a receptacle embodying my invention and showing one end removed.

Fig. 7 is a detail of the receptacle of Fig. 6.

Fig. 8 is a view showing a modified form of lock for a receptacle.

In the embodiment of Figs. 1 and 2 I have shown a stove pipe section of sheet metal having edge portions 1 and 2. Edge portion 1 is doubled upon itself to form three thicknesses of material between two of which the edge portion 2 is enclosed.

In one of the thicknesses of the edge portion 1 I provide an aperture 3 having a straight edge 4 and a substantially semicircular edge 5. This aperture is formed by punching out or removing the metal from the sheet and therefore the above edges are what I shall term "raw".

The aperture is free in the sense that there is no wall portion overlying or covering it, which is liable to be crushed down and prevent the lock from properly interlocking with the edge of the aperture.

The edge portion 2 is provided with a lock 6 in the form of an offset element outstanding from the face of the sheet and projecting toward the axis or inside of the pipe or structure. This is necessary in order to prevent the lock from accidentally leaving the aperture when the pipe is flexed to form a cylinder.

This offset lock includes a substantially semi-circular or arc shaped raw edge 7, the ends of the arc sloping downwardly toward and merging with the face of the sheet. As shown the raw edge 7 of the offset lock engages with the raw edge 4 of the aperture and thus opposes any direct tendency to separate. However, the two edge portions may be slid or moved relatively to each other in a longitudinal direction due to the sloping shoulders or ends of the offset lock, and thus separated when it is desired to unlatch the sections.

It is to be noted that the offset lock must be forced between the two thicknesses in the opposite edge portion, whereupon the lock snaps into the aperture 3 and is securely retained therein.

In Fig. 4 I have shown a modified form of latch in which the aperture is shown at 8. This aperture has the arc of semicircular raw edge 9 as in Figs. 1 and 2, and in addition has a second raw arc shaped edge 10. Thus a substantially crescent shaped aperture is formed, the edge 10 defining a tongue 11. A lock 6 offset as before is provided in the coooperating edge portion.

When the two edge portions are assembled as in Fig. 5 it will be seen that the tongue 11 underlies the offset lock 6 thus securely fastening the two edge portions together. Such being the case, this joint will stand a considerable amount of flexing and battering without permitting the offset lock 6 to slip out of the aperture.

In both the forms shown, Figs. 3 and 4, the arch or semicircular form of the offset lock 6 strengthens the structure and renders it less liable to be crushed or distorted during shipment.

A particularly advantageous embodiment of the invention is shown in Figs. 6 and 7 in which a receptacle or crate is illustrated in which nested stove pipe or the like may be shipped.

This container comprises a body 12 of sheet material preferably metal having strengthening corrugations 13 therein. At each end of the body 12 an uncorrugated edge portion 14 is provided, that portion of the crate being of the largest diameter.

The longitudinal edges of the crate are latched together with the latch of Fig. 1.

The crate body 12 is provided with detachable ends or heads which consist of a plane portion 15 having a depending wall 16.

In Fig. 5, the edge portion of the body 12 is provided with offset locks 6 which seat and snap into apertures 3 in the wall or edge portion of the top, the latter overlying the former. Thus it will be seen that the ends may be snapped into place by slipping the wall 16 over the edge portion 14 of the body and allowing the parts to latch.

Due to the fact that the lock 6 has sloping ends, the entire top may be given a slight rotative movement relative to the body whereupon the locks ride out of the apertures and the end may be removed.

The body 12 of Fig. 8 has its end portions folded upon itself to form three thicknesses of material and between two of them, the wall of the top is enclosed.

The crate of Fig. 6 is particularly advantageous in the shipment of stove pipe sections in that the unlatched sections may be nested and packed tight within the crate until the outermost section abuts the body corrugations. As the end portions 14 of the body are of larger diameter than the body proper, upon removing one end or head, it is a comparatively simple matter to remove one or a number of the nested sections as a space exists between the section end and the inner face of the end portion 14.

The crate after use as a shipping container may be used as a container for loose articles in stores such as seeds, bulbs, pick handles or the like, or as a waste basket or container.

When it is desired to use the crate in which to store comparatively long articles such as shovels or rakes which would otherwise cause the whole to topple over, the two ends may be removed and one secured to the store floor or other support as by nails, screws or the like. The open ended body may then be

snapped into the top and a container is provided which will not fall over. Were both ends not made removable it would be extremely difficult if not impossible to reach inside to fasten the container to the floor.

In another form of this lock, the offset lock may take the form of a crescent, the edge thereof defining a tongue which overlies one edge of the aperture and thus more efficiently secures the parts together.

I claim:

1. A joint for metallic members comprising overlapping edge portions, an uncovered aperture in one edge portion, an offset lock in the other edge portion, a raw edge adjacent the aperture engaging a raw edge of the offset lock, said offset lock being so shaped that the two edge portions are capable of relative longitudinal movement to disengage the same.

2. A joint for metallic members comprising overlapping edge portions, a substantially crescent shaped aperture in one edge portion having a raw edge, an offset lock in the other edge portion, the raw edge of the aperture in part engaging a raw edge of the offset lock and having a portion extending beyond the edge of the offset lock to overlap the same.

3. A joint for metallic members comprising overlapping edge portions, an offset lock in one edge portion, a tongue in the other edge portion, the tongue projecting beyond the edge of and underlying a portion of the offset lock.

4. A closed metallic structure having overlapping edge portions, one of said portions being doubled on itself to form three thicknesses, one edge portion being enclosed between the doubled thickness of the other edge portion, an uncovered aperture in one edge portion, an offset lock in the other edge portion, a raw edge in the aperture engaging a raw edge in the offset lock, the edge portions being capable of relative movement.

5. A closed metallic structure having overlapping edge portions, one of said portions being doubled on itself to form three thicknesses, the other portion being enclosed between the doubled thickness of the other edge portion, an uncovered aperture in one edge portion, an offset lock in the other edge portion and within the aperture, the offset lock projecting toward the inside of the structure, a raw edge of the offset lock engaging a raw edge of the aperture, the edge portions being capable of relative movement.

6. A closed metallic structure having overlapping edge portions, one of said portions being doubled on itself to form three thicknesses, the other edge portion being enclosed between the doubled thickness, an uncovered aperture in the innermost thickness of the doubled edge portion, an offset lock in the other edge portion and lying in the aperture, a raw edge of the aperture engaging a raw edge of the offset lock, the two edge portions being capable of relative movement.

7. A closed metallic structure having overlapping edge portions, one of said portions being doubled on itself to form three thicknesses, the other edge portion being enclosed between the doubled thickness, an uncovered aperture in one edge portion, an offset lock in the other edge portion, a wall of the aperture underlying the offset lock.

8. A closed metallic structure having overlapping edge portions, one of said portions being doubled on itself to form three thicknesses, the other edge being enclosed between the doubled thickness, a substantially crescent shaped aperture in one edge portion forming a tongue, an offset lock in the other edge portion, said tongue underlying the offset lock.

9. A joint for metallic members comprising overlapping edge portions, one having an aperture and the other having an offset lock to enter said aperture, whereby an edge of the lock will engage an edge of the aperture, one of said edges being crescent shaped, substantially as described.

10. A closed metallic structure having overlapping edge portions, one of which edge portions is doubled upon itself to provide a free flange connected with the main body of the member by an intermediate layer, forming a recess between the free and intermediate layers in which recess the other overlapping edge is received, said last mentioned overlapping edge having within its margin an offset lock with a raw edge, and the free flange having a free opening formed by complete removal of the material, said free opening having a raw edge engaged by the raw edge of said offset lock when the overlapping edge portions are brought together, said offset lock projecting towards the inside of the structure, substantially as described.

11. A joint for cylindrical metallic members comprising an edge portion folded back upon itself on the axis side of the member and refolded to provide a flange spaced apart from the first fold with a groove between said folds, said flange having an uncovered opening therein, the other portion being adapted to enter said groove and having an offset lock to enter the uncovered opening of the flange, said offset lock having its end portions extending at an inclination to the plane of the apertured flange for separation of the joint by a relative movement of the overlapping edge portions longitudinally of the joint.

In testimony whereof, I affix my signature.

EBER J. HAYMAN.