Oct. 22, 1957 H. E. GIBSON 2,810,420

JOINT LOCK HAMMER

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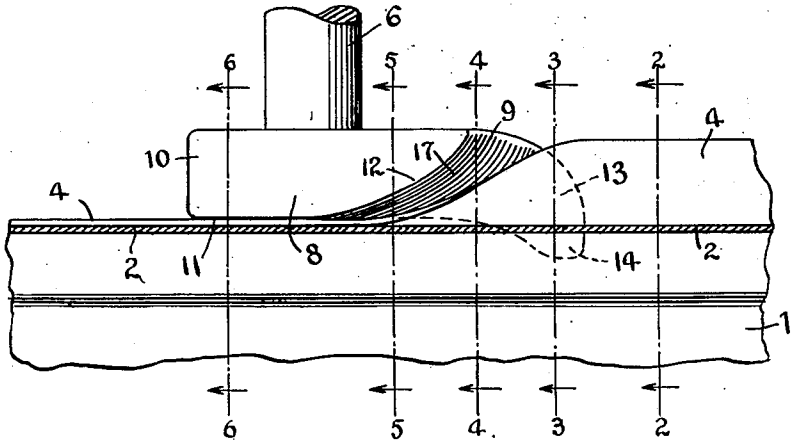


Fig. 1.

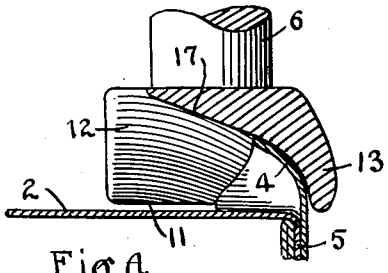


Fig. 4.

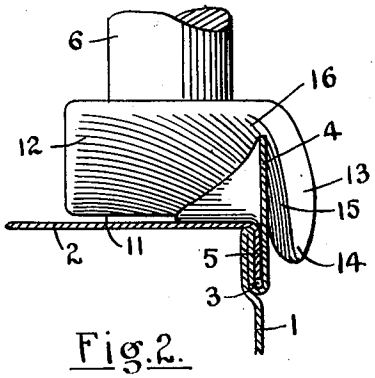


Fig. 2.

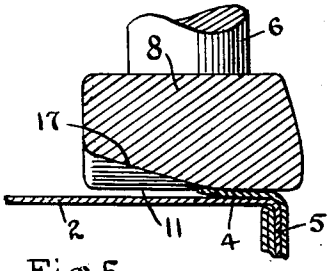


Fig. 5.

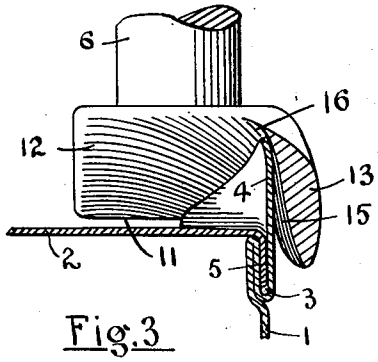


Fig. 3

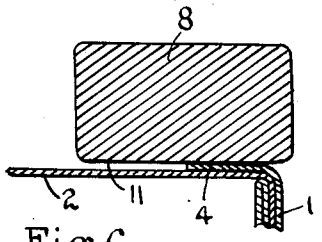


Fig. 6.

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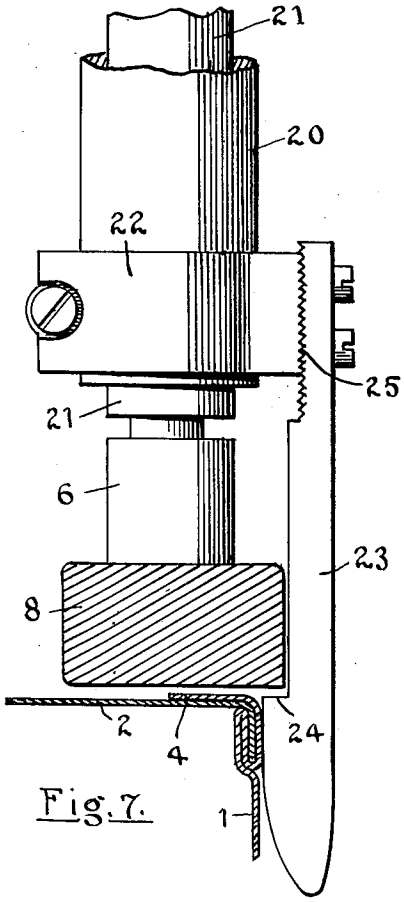


Fig. 7.

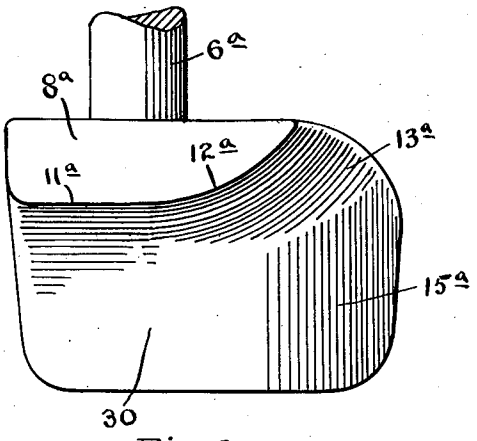


Fig. 8.

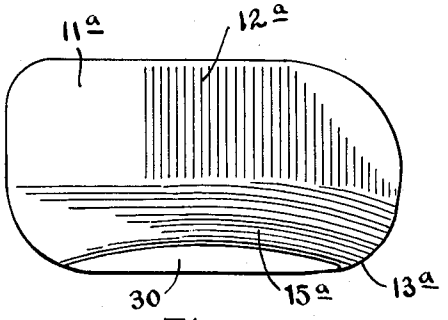


Fig. 9.

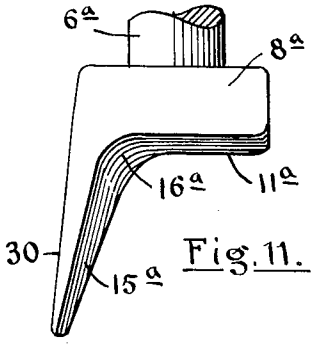


Fig. 11.

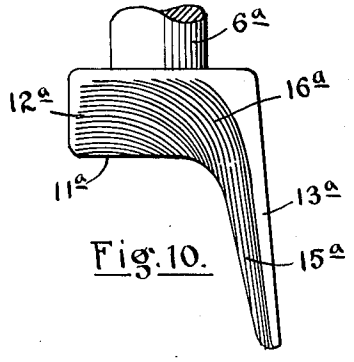


Fig. 10.

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JOINT LOCK HAMMER

Harry E. Gibson, Muskegon, Mich.

Application October 21, 1953, Serial No. 387,406

6 Claims. (Cl. 153—21)

This invention relates to a joint lock hammer. It is specifically designed to close a sheet metal joint commonly known in the trade as a "Pittsburgh lock." This type of lock joint is for the purpose of joining together two pieces of sheet metal, generally at right angles to each other. One of the sheet metal pieces is folded at an edge to provide a groove with an upstanding flange at the outside of the groove and the other piece has a down turned flange which is inserted into the groove and the joint is closed by folding the first upstanding flange over the second piece thus forming a secure joint lock.

This invention provides a vibrating hammer having a head so shaped that when run over the upstanding flange while vibrating it will automatically fold the flange neatly and securely over the second metal piece to close the joint.

The shank of the hammer is carried by a suitable portable manually manipulated power vibrating device such as is shown in my Patent No. 2,646,100, issued July 21, 1953, or it may be used in a pneumatically operated vibrator.

The invention is hereafter more fully described with reference to the accompanying drawings in which,

Fig. 1 is a side elevation of the hammer head of this invention shown in operative position on a Pittsburgh lock joint and

Figs. 2, 3, 4, 5, and 6 are respectively slightly enlarged cross sections on the lines 2—2, 3—3, 4—4, 5—5, and 6—6 of Fig. 1.

Fig. 7 is a fragmentary elevation of the vibrating device with the hammer head shown partly in section.

Fig. 8 is an inside elevation of a modified form of hammer head particularly intended to be used in a pneumatically operated vibrator

Fig. 9 is a bottom view of the head of Fig. 8,

Fig. 10 is a front end elevation of the head of Fig. 8, and

Fig. 11 is a rear end elevation of the head of Fig. 8.

Like reference numerals refer to like parts in all of the figures.

The joint upon which this hammer operates has a first and second sheet metal member 1 and 2 located at right angles to each other. The first member 1 is folded near its edge to provide a groove 3 at the outside of which is an upstanding flange 4. The second member 2 has a downturned flange 5 at its edge which is inserted into the groove 3.

The hammer head 8 of Figs. 1 through 6 has a shank 6 which is carried by the vibrating device above mentioned which causes it to vibrate rapidly and with considerable force in the direction of the axis of the shank.

The hammer head 8 has a forward end 9 and a rear end 10 in the direction of its travel in performing the work. The lower face of the head near its rear end is substantially flat as at 11 and from this flat rear portion the lower face curves upwardly in a forward direction as at 12 and terminates near the forward end of the head.

The forward end of the head has a forwardly and downwardly extending lip 13 extending outwardly over the flange 4 and its forward end or nose 14 extends to a plane below the lower face of the head. The inner face of the lip 13 at its nose portion has a rather steep vertical inward inclination as at 15 and near its upper side it curves inwardly and merges into the upwardly curved lower face 12 of the head toward its forward end as at 16.

The inward inclination of the inner face 15 of the lip 13 progressively flattens out in a rearward direction until the lip completely merges into the main body of the head and disappears.

The lower face of the head, in addition to its upward curvature in a rear to front direction also has a slight upward and inward inclination as at 17 at its forward portion, such incline flattening out and merging with the flat rear surface 11.

In Fig. 7 the vibrating device has a body 20 which carries the reciprocating member 21 in which the shank 6 of the hammer head 8 is mounted. On the body 20 is a clamp 22 which carries a depending guide 23 which extends alongside of the head 8 and has a shoulder 24 against which the head 8 strikes at the lower end of its stroke. The guide 23 has a serrated connection at 25 with the clamp 22 by means of which it may be adjusted to vary the length of stroke of the hammer head.

The modified form of hammer head shown in Figs. 8–11 is generally like that of Figs. 1–6 excepting that the forwardly extending lip 13*a* extends somewhat lower and continues in the nature of a guide 30 to the rear part of the head.

This modified head has the shank 6*a*, the body 8*a*, the flat rear surface 11*a* and the upward curved face 12*a*. The inner face 15*a* of the lip 13*a* extends upwardly and inwardly at a steep vertical inclination and at its upper part it curves inwardly at 16*a* and merges into the face 12*a*.

The inner face 15*a* of the guide portion 16 is convex from front to rear, and the whole length of the upper inner face 15*a* of the guide is curved inward and merges into the adjoining lower faces 11*a* and 12*a* of the head at 16*a*.

In operation, the vibrating head is held against the joint in the position shown in Figs. 1 and 2 with its forward lip 13 lying outside the upstanding flange 4 and is moved forwardly along the flange and joint. In this movement the vibrations cause the head to deliver rapid blows to the flange 4 which is progressively bent over in conformity with the inner and lower faces of the head, first the steep upward inclined face 15, then the inwardly curved portion which merges with the face 12, then the slightly inward upturned portion 17 and finally the flat rear portion 11 which completely bends the flange 4 down upon the piece 2 and completes the joint as shown in Fig. 6.

The hammer head shaped and used as described bends over the sheet metal flange to complete the Pittsburgh lock joint rapidly and neatly. The closing flange is smooth and without dents or contortions as occurs when the flange was bent over with an ordinary hand hammer or mallet as has been customary.

The terms "rear," "forward," "outer" and "inner" as used herein are relative and apply to the device as it is normally used and as shown in the drawing, "forward" being the direction of movement of the hammer when in use, "outer" being the direction toward the outer side of the joint, and "inner" being toward the joint.

The invention is defined by the appended claims and is to be considered comprehensive of all forms coming within their scope.

I claim:

1. A hammer head of the class described comprising a body and an attaching shank, said body having a rear and a forward end and a bottom surface, the bottom surface of the body being substantially flat near its rear end and curved upwardly and forwardly therefrom toward its forward end, and a forwardly and downwardly extending lip on the body, said lip having a relatively steep upwardly and inwardly inclined inner face which is curved inwardly at its upper portion and merges into said upwardly forwardly curved bottom surface, both of said curved surfaces flattening out progressively in a rearward direction and merging into said substantially flat rear surface.

2. The elements of claim 1 in which said lip has a forward nose portion extending downwardly into a plane below the bottom surface of the body.

3. The elements of claim 2 in which said upwardly and-forwardly curved bottom surface is also inclined upwardly and inwardly at its forward portion which upward and inward incline flattens out progressively in a rearward direction and merges into said substantially flat rear surface.

4. A hammer head of the class described comprising,

a body and an attaching shank, said body having a rear and forward end and a bottom surface, the bottom surface of the body being substantially flat near its rear end and curved upwardly and forwardly therefrom toward its forward end, and a downwardly extending guide lip on one side of the body, said lip having a relatively steep upwardly and inwardly inclined inner face which is curved inwardly at its upper portion and merges into the adjoining bottom surface of the body.

5. The elements of claim 4 in which said inner face of said lip is convex in a front to rear direction.

6. The elements of claim 5 in which said lip extends forwardly of the main portion of said body.

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