

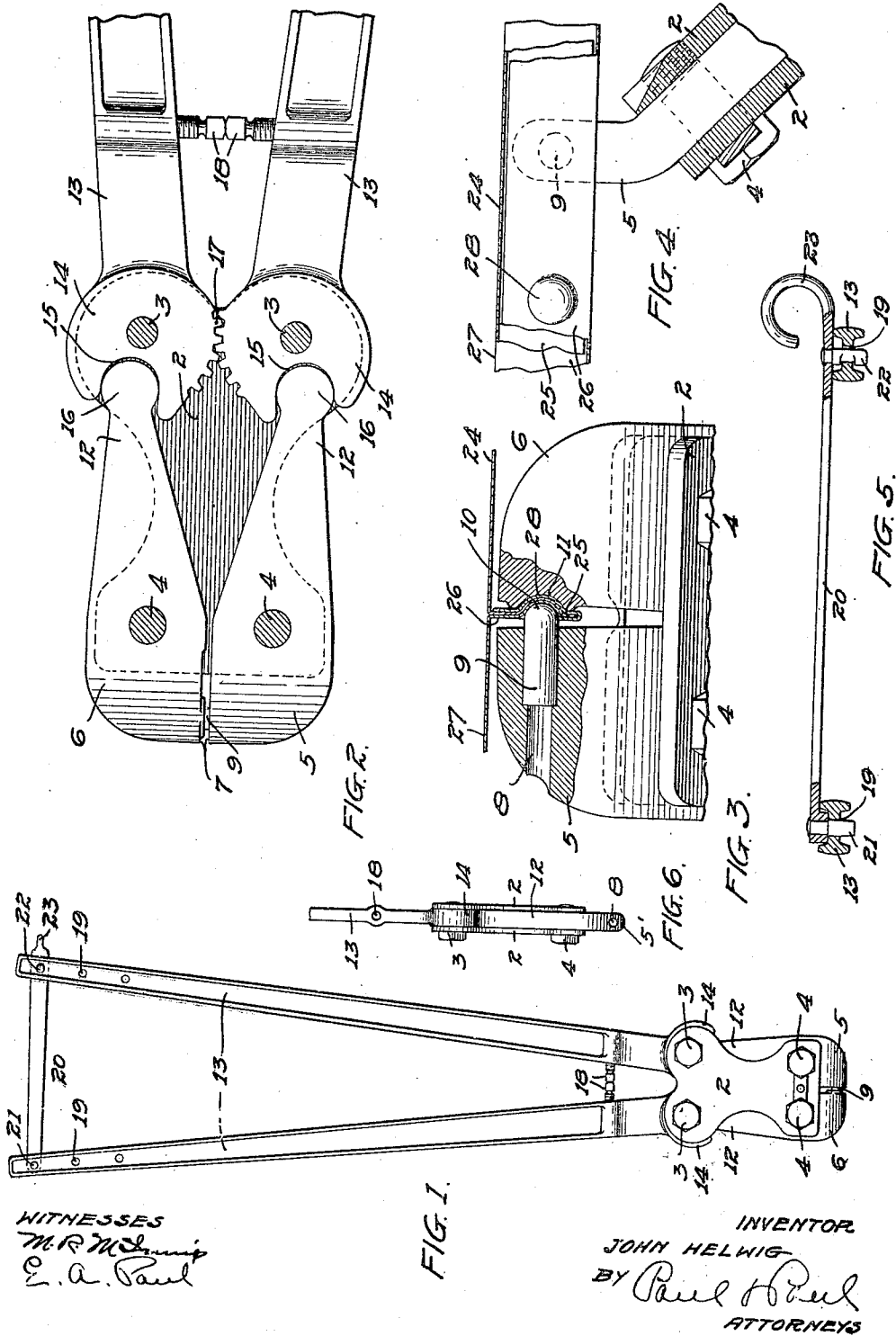
July 22, 1924.

J. HELWIG

1,502,191

METAL PRESSING TOOL

Original Filed March 23, 1916



WITNESSES
M. R. McJannet
E. A. Paul

FIG. 1.

INVENTOR
JOHN HELWIG
BY Paul H. Paul
ATTORNEYS

Patented July 22, 1924.

1,502,191

UNITED STATES PATENT OFFICE.

JOHN HELWIG, OF ST. PAUL, MINNESOTA.

METAL-PRESSING TOOL.

Application filed March 23, 1916, Serial No. 86,167. Renewed November 18, 1921. Serial No. 516,244.

To all whom it may concern:

Be it known that I, JOHN HELWIG, citizen of the United States, resident of St. Paul, county of Ramsey, State of Minnesota, have
5 invented certain new and useful Improvements in Metal-Pressing Tools, of which the following is a specification.

In working sheet metal, particularly in ventilating work, on skylights, cornices and other
10 sheet metal construction requiring a joining together of standing seams, angles or bends, it has been customary to rivet the lapping edges of the metal together. This has been
15 an expensive and inconvenient method, as it necessitates punching holes in the metal and inserting and upsetting the rivets, and requires a great deal of time. Frequently the riveting operation has to be performed
20 in a position where it is inconvenient and sometimes almost impossible to handle the rivets and the riveting tools.

The primary object, therefore, of my present invention is to provide a tool by means of which the lapping edges of sheets of
25 metal can be easily and quickly interlocked or secured together in such a way that their premature or accidental separation will be impossible.

A further object is to provide a tool of
30 simple, rigid and strong construction, and one which will be comparatively cheap and economical to the purchaser and comparatively inexpensive to manufacture, and which will greatly cheapen the cost of binding
35 or securing seams in the work above described.

In the accompanying drawings forming part of this specification,

40 Figure 1 is a side view of a metal pressing tool embodying my invention,

Figure 2 is a detail view, partially in section, of the head of the tool, showing the operating jaws mounted thereon,

45 Figure 3 is a detail view, also in section, showing the jaws in the act of pressing the boss or button into the metal to hold the edges together,

Figure 4 is a detail view, also in section, showing another form of a pressing tool, for
50 use in close or confined work where it is not possible to reach with the flat jaws,

Figure 5 is a detail sectional view of the device holding the levers of the tool in their closed position,

55 Figure 6 is an edge view of one of the

jaws, showing a straight clamping end therefor.

In the drawing, 2 represents a plate having holes therein to receive bolts 3 and 4, arranged in pairs at opposite ends of the
60 plate and passing through said holes and screwed into similar holes provided in a corresponding plate on the opposite side of the tool. Jaws 5 and 6 are pivoted on the bolts
65 4 and project outwardly beyond the plates 2 and have opposing faces 7, the jaw 5 being provided with a socket 8 having two diameters into which a pin 9, of the larger diameter, having a rounded outer end 10, is inserted. The jaw 6 has a recess 11 therein
70 opposing the rounded end of the pin 9, and said jaws, as indicated in Figure 4, are turned laterally with respect to the plane of the tool for the convenience of the operator, the jaws being at an angle to the work,
75 while the tool itself may be inclined either above or below the hands of the operator. This arrangement of the jaws I have found to be of particular advantage in a tool of this kind, as it allows the workman to press
80 the bosses in the lapping edges of the metal above his head or at a point below the normal working position of the hands, the offset allowing the workman to stand in the most convenient position.

Each of the jaws 5 and 6 is provided with
85 an arm 12 which extends backwardly between the plates 2 to a point adjacent to the bolts 3. Levers 13 have flattened end portions 14 which are pivoted on the bolts
90 3 and are provided with recesses 15 to receive heads 16 on the ends of the arms 12. The opposing curved faces of these ends 14 are provided with teeth 17 meshing with
95 each other to insure simultaneous and uniform movement of the levers. Evidently, when the levers are swung toward each other, the arms 12 will be separated and the jaws brought together to clamp the material between them.

Set-screws 18 are preferably mounted in the levers 13 in position to contact with each other and regulate the travel of the levers and jaws by which means proper adjustment can be obtained to suit different
105 thicknesses or gauges of metal. At the outer ends of the levers holes 19 are provided. A bar 20 has pins 21 and 22 mounted therein to enter the holes 19 for the purpose of locking the levers in their closed position and
110

said bar 20 is preferably provided with a loop 23 by means of which the bar may be conveniently raised for locking and unlocking, or hung on a support, or may be lifted with the work clamped between the jaws.

When the tool is used on sections of a ventilator, cornice, skylight work or straight sheets, or parts of same, it will be found convenient to raise the section by means of the tool itself, the jaws being closed, clamping the lapping edges and held in their closed position by the bar 20. The levers 13 may be of any suitable length and the jaws may be varied in size, as desired.

In Figure 3 I have shown the tool at work on an overhead seam. A sheet metal wall 24 has a flange 25 around which a flange 26 of the wall 27 is looped by any suitable means used in the forming or folding of sheet metal. The workman then takes the pressing tool and positions the jaws to grip the folded and lapping edges of the metal between them, and upon closing the jaws the pin 9 will force the metal of the lapping edges into the recess in the opposite jaw and form a boss or raised portion 28 on one side and a corresponding depression on the opposite side. The jaws are then released and moved along the fold and the operation repeated.

The bosses may, of course, be as close together as the operator desires and according to the character of the work and strain to which the fold will be subjected, and when completed, the folded edges will be firmly secured together and the use of punching tools and riveting devices entirely eliminated for this class of work.

In Figure 6 I have shown a jaw 5' with a straight clamping face instead of one that is offset or curved, as indicated in the other figures. These jaws are mounted in the plates in substantially the same way and are operated through the movement of the lever handles 13.

In various ways the details of construction herein shown and described may be modified and still be within the scope of my invention.

I claim as my invention:

1. A tool of the class described comprising a head composed of plates and bolts passing therethrough for holding said plates in parallel relation, spaced from each other, a pair of levers mounted on a corresponding number of said bolts at the outer ends of said plates, the outer ends of said levers projecting beyond the corresponding ends of said plates and laterally turned with respect thereto, one of said projecting ends having a socket therein and a male die fitting within said socket and provided with a rounded outer end, the projecting end of the other lever having a concave depression

therein to register with the rounded end of said male die and form a female die therefor, said projecting ends being adapted to clamp the interlocking edges of sheet metal together and form a boss on one side thereof and a corresponding depression on the other side for securing said edges together, and operating levers having hand grips mounted on bolts at the other end of said plates for simultaneous movement and having means for engaging and actuating said first named levers.

2. A tool of the class described comprising a head composed of plates and bolts passing therethrough for holding said plates in parallel relation, spaced from each other, a pair of levers mounted on a corresponding number of said bolts at the outer ends of said plates, the outer ends of said levers projecting beyond the corresponding ends of said plates, one of said projecting ends having a socket therein and a male die fitting within said socket and provided with a rounded outer end, the projecting end of the other lever having a concave depression therein to register with the rounded end of said male die and form a female die therefor, said projecting ends being adapted to clamp the interlocking edges of the sheet metal together and form a boss on one side thereof and a corresponding depression on the other side for securing said edges together, and operating levers having hand grips mounted on bolts at the other end of said plates for simultaneous movement and having means for engaging and actuating said first named levers.

3. A tool of the class described comprising a head composed of plates and two bolts at either end of the plates passing therethrough for holding said plates in parallel relation, and spaced from each other, a pair of levers pivotally mounted on the two bolts at the outer ends of said plates, the outer ends of said levers projecting beyond the corresponding ends of said plates, and having opposing faces, one of said faces being provided with a rigid socket with a projecting pin seated in said socket and projecting beyond said face and the other face with an opening registering with said pin, and operating levers having hand grips pivoted on bolts at the other end of said plates and means between the levers for causing simultaneous movement thereof and having means for engaging and actuating said first named levers.

In witness whereof, I have hereunto set my hand this 17th day of March, 1916.

JOHN HELWIG.

Witnesses:

E. A. EISENMENGER,
W. C. HENKE.