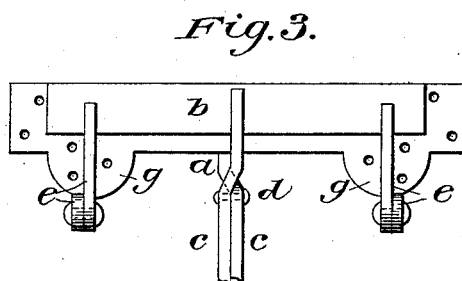
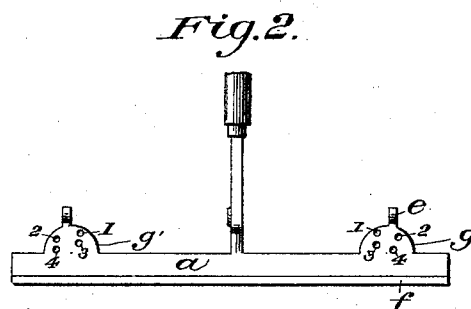
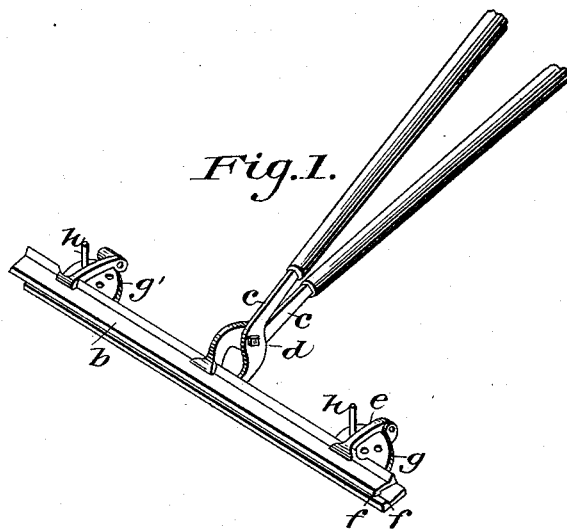


(No Model.)

W. A. LIST.
TINNER'S TONGS.

No. 302,267.

Patented July 22, 1884.



Witnesses:
J. A. Burns,
J. K. Smith

Inventor:
William A. List
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UNITED STATES PATENT OFFICE.

WILLIAM A. LIST, OF WHEELING, WEST VIRGINIA.

TINNERS' TONGS.

SPECIFICATION forming part of Letters Patent No. 302,267, dated July 22, 1884.

Application filed March 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LIST, of Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Tanners' Tongs; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in that class of tongs used in bending or forming lips upon sheet metal, known as "tanners' tongs," and used principally in metallic roofing.

I will now describe my improvement, so that others skilled in the art to which it appertains may manufacture and use it, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my improved tongs. Fig. 2 is a plan view of one of the blades. Fig. 3 is a plan view of the tongs, illustrating the device by which they are made adjustable. Fig. 3 shows a modification.

Like letters of reference indicate like parts wherever they occur.

In the drawings, *a* represents the lower blade of a pair of tanners' tongs, and *b* the upper blade. Each of these two blades is provided with a suitable handle or arm, *c*, and the arms are pivoted or hinged together at *d*. The blades of the tongs are preferably further pivotally united at different points through the extremities of arms *c*, which project back of the blades far enough to permit their considerable movement when opened. The inner surfaces of the blades may be provided with ribs or beads *f f*, which extend longitudinally along the edges of the blades and project somewhat therefrom. The purpose of the beads *f f* is, that when a sheet of tin is grasped in the tongs it may touch the beads *f f* only, and thus be held much more securely than if it were in contact with the entire interior surfaces of the blades. The beads also obviate the necessity of smoothing or planing the entire inner surfaces of the blades after they have been cast—an operation involving considerable expense and labor. On one of the blades of the tongs, preferably the lower one, is an adjusting device, whereby the size of the bend desired on sheet metal is regulated. Its construction is illustrated in

Figs. 1 and 2 of the drawings, in which *g g'* represent rearward extensions of the blade *a*, for convenience' sake integral with the hinged arm *e*, though they may be distinct from the hinges or extended along the entire length of the blade, as desired. In the plates *g g'* are several recesses or perforations, 1 1 2 2 3 3 4 4, each hole in one plate corresponding in distance from the beads *f f* with another similarly-situated hole in the other plate. Pegs *h h* are adapted to be screwed or otherwise movably fitted in the holes 1 2 3 4.

In the use to which tongs of this class are usually applied—viz., for roofing purposes—the gages should be capable of adjustment at intervals of one-quarter of an inch apart, and as the holes *p p* themselves are about of that diameter, I place them on the plates *g g'* alternately on one side and the other of the hinge-arms *e*, as shown in the drawings. By these means the holes are arranged out of line with each other and prevented from forming a continuous slot, which would greatly weaken the strength of the plate.

The operation of this device is as follows: A peg is placed in each of two corresponding holes in the plates. A sheet of metal is inserted between the blades of the tongs until it meets with the pins *h h*. The blades are then closed, and by turning the tongs axially on the outer edge of the blades the metal is bent or upset, the size of the bend being equal to the distance between the pegs and the edge of the blades. The line connecting the pegs *h h* is parallel with the beads *f f*, so that the metal is easily held in the desired position and a straight and perfect bend secured.

A modification of my adjusting device is shown in Fig. 3, in which the lower blade of the tongs is made to project longitudinally beyond each end of the upper blade, and is provided on the projections with holes *p p*, similar to those described above with relation to the plates *g g'*, so that the gage-pegs *h h* may be brought as near to the working edge of the blades as desired and a very narrow bend produced. This is done without necessity for weakening the blades by slotting or otherwise to accommodate the pegs *h h*.

The advantages of my invention are the strength and lightness of the tongs, while at the same time a more perfect means of adjust-

ment is afforded than any which have heretofore been employed, and the weakness incident to a continuous slot is entirely obviated.

I am aware that tinners' tongs having adjustable stops sliding in slots are not new, and I do not desire to claim the same, as the object of my invention is to produce adjustable tongs having sufficient strength and lightness to accomplish the purpose for which they are intended, which object I attain by the use of pin-holes arranged substantially as described, in connection with suitable gage-pins, in the manner described.

I am also aware that tinners' tongs having adjustable gages to regulate the width of the bend of the metal sheet are not new, and I do not desire to claim the same, broadly.

Having thus described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

1. Tongs for bending sheet metal, having

pin-holes for the reception of gage-pins, said holes being arranged on a zigzag line to prevent weakening the tongs, substantially as and for the purposes described.

2. Tongs for bending sheet metal, having the plates *g g* provided with pin-holes arranged alternately on each side of the hinge-arm, in combination with removable gage-pins, substantially as and for the purposes described.

3. Tongs for bending sheet metal, having a lower blade greater in length than the upper blade, and gage-pin holes arranged in the lower blade in such extension, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 17th day of March, A. D. 1884.

WILLIAM A. LIST.

Witnesses:

W. B. CORWIN,

THOMAS W. BAKEWELL.