2 Sheets—Sheet 1.

O. B. LAY, Dec'd.

W. L. LAY, Adm'r.

Pipe-Tongs.

No. 210,698. Patented Dec. 10, 1878.

FIG. 1.

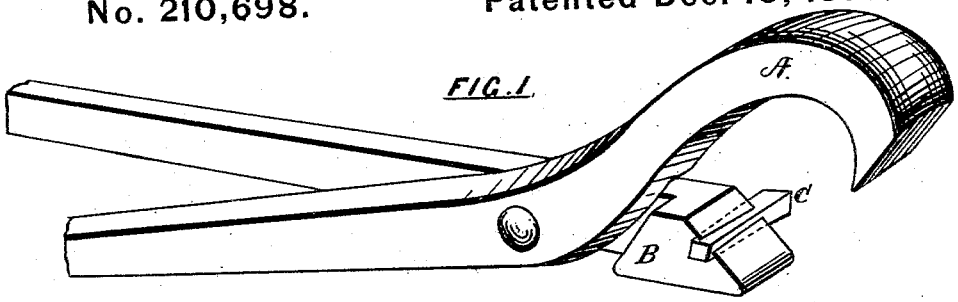

FIG. 2.

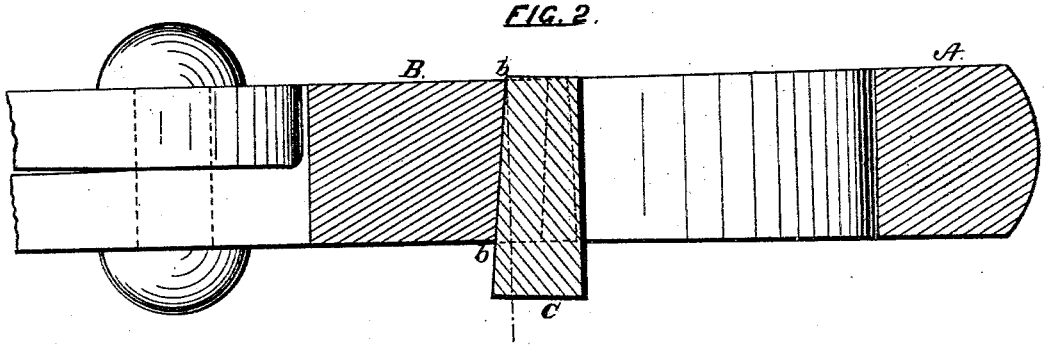

FIG. 3.

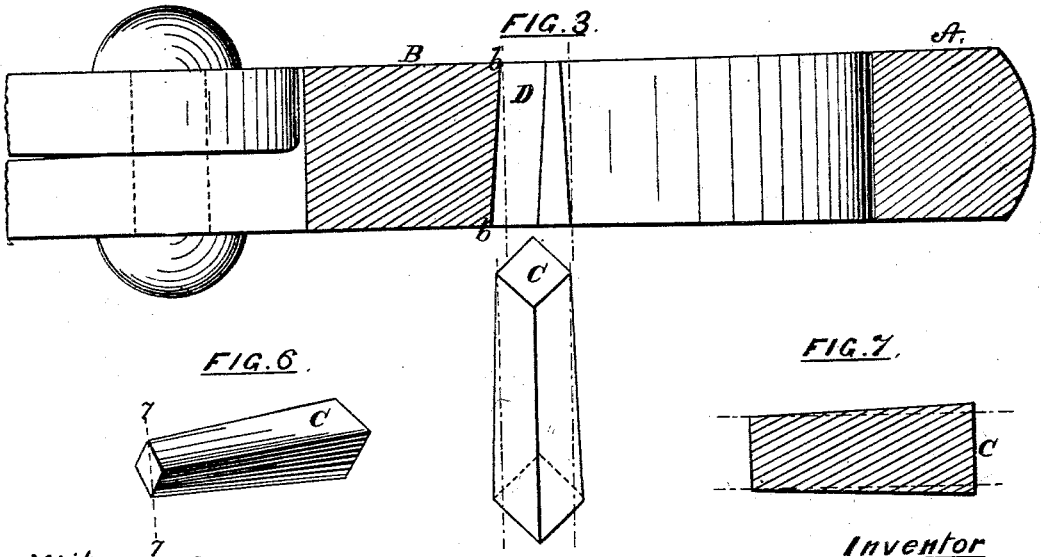

FIG. 6.

FIG. 7.

Witnesses.

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2 Sheets—Sheet 2.

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FIG. 4.

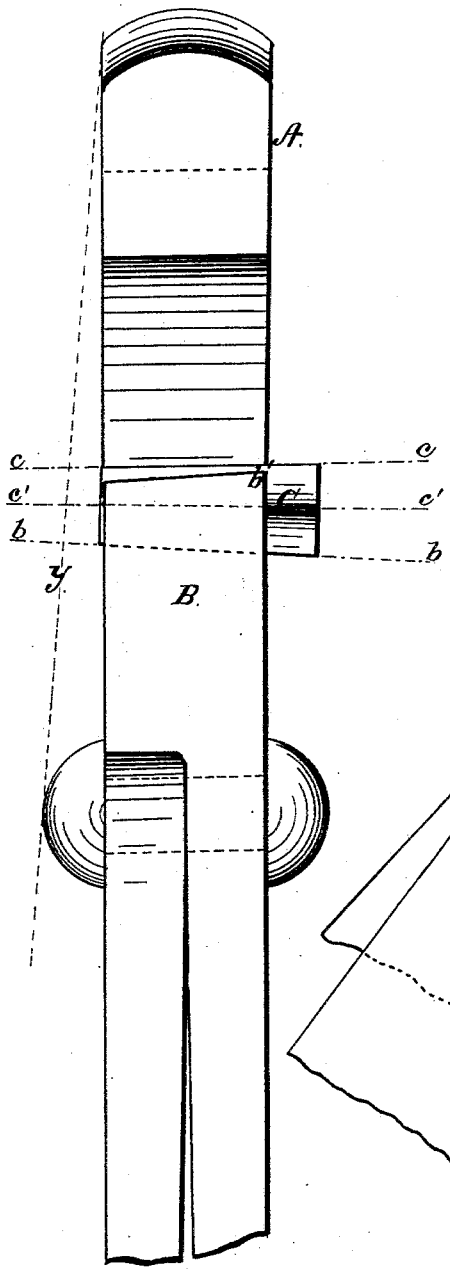
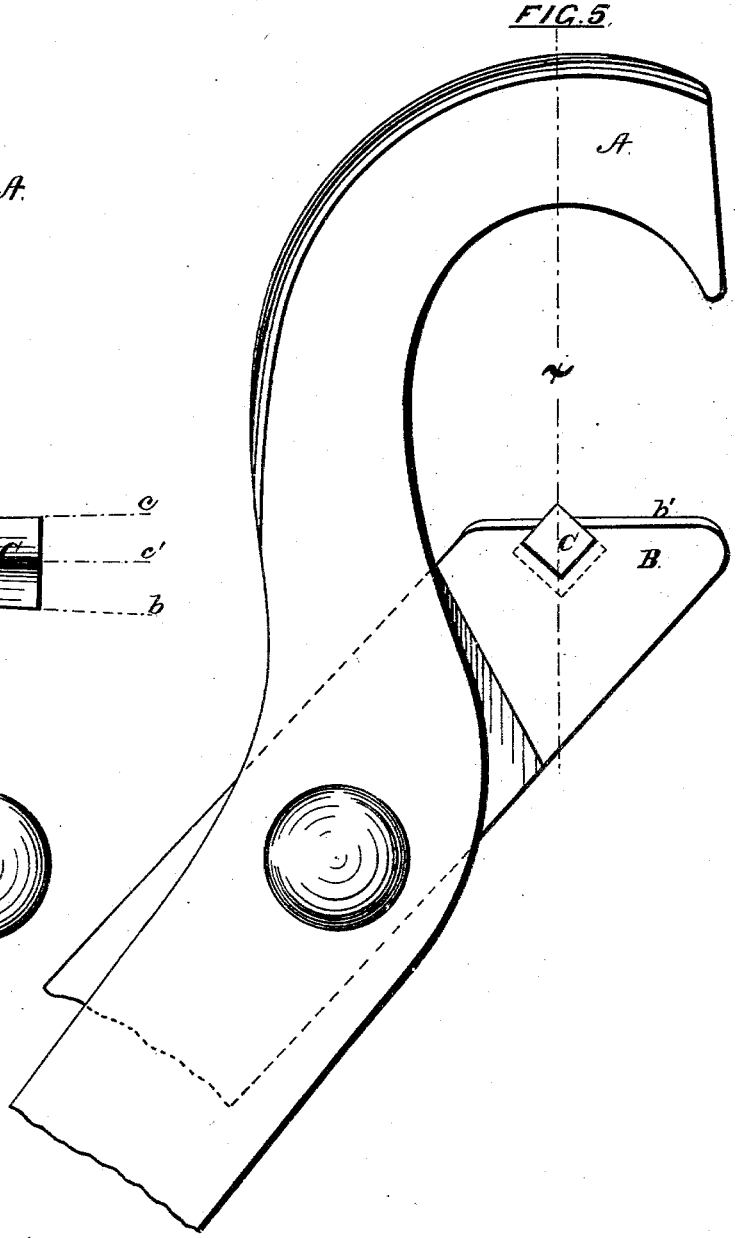


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM L. LAY, OF OIL CITY, PENNSYLVANIA, (ADMINISTRATOR OF OLIVER B. LAY, DECEASED,) ASSIGNOR TO THE EATON, COLE & BURNHAM COMPANY.

IMPROVEMENT IN PIPE-TONGS.

Specification forming part of Letters Patent No. **210,698**, dated December 10, 1878; application filed February 23, 1878.

To all whom it may concern:

Be it known that OLIVER B. LAY, late of the city of Oil City, in the county of Venango and State of Pennsylvania, deceased, in his life-time invented certain new and useful Improvements in Pipe-Tongs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 represents a perspective view of said improved pipe-tongs. Fig. 2 is a sectional view on the line *x* of Fig. 5 with the bit inserted. Fig. 3 is the same view with the bit withdrawn. Fig. 4 is an edge view. Fig. 5 is a side view. Fig. 6 is a perspective view of the bit. Fig. 7 is a longitudinal sectional view of the bit on the line 7 7 of Fig. 6.

The defect in ordinary pipe-tongs is that they wear rapidly at the jaw, becoming practically useless until repaired.

The object of this invention is to obviate the necessity of repair by overcoming such defect. This is done by fitting into the jaw a removable bit, made of steel, with sharp equal corners, so that when one edge is worn the bit can be withdrawn and turned and a new edge presented, and when all the edges are worn they can be resharpened, or a new bit can be inserted with comparatively little expense.

The invention consists both in the shape of the bit and in the preparation of the jaw of the tongs for its reception. Said bit is made in the form of a frustum of a pyramid, as shown at C. Its two ends should be similar and all the angles of its ends equal. It should be a little longer than the width of the jaw of the tongs. In the drawings it is shown as square in cross-section, and this is probably its best form; but it may be made with three, four, or even more edges. This bit C should be made of hardened steel, as it is intended to slightly bite into the pipe to which it is applied.

The groove in the tongs for the reception of the bit is made tapering, so that the said bit C can be tightly driven into it. It should be made so that the smaller end of the bit C should project but very little, if any, beyond the jaw. If it should project too far the bit would be liable to be accidentally knocked out; and as a resharpening of the bit diminishes its size, it would project still farther each time it would be repaired. It never ought, under any circumstances, to project as far as the dotted line *y* in Fig. 4. Said groove must be cut so that one edge of the bit C shall project from the jaw, as shown in Figs. 1, 4, and 5, so that the upper edge of the bit shall be parallel to the surface of the pipe to be grasped. The bit C being tapering it is necessary that more metal be cut from the jaw of the tongs on one side than on the other, and the side of the jaw which has the larger end of the groove (being the right-hand side of Fig. 4 and the rear of Figs. 1 and 5 and the lower sides of Figs. 2 and 3) should be re-enforced by metal to give additional strength to compensate for the metal being cut away in the groove in such side more than on the other side; and by reason of such re-enforcement said jaw is not square across, as in ordinary tongs, but the side which contains the larger end of said groove projects above the other side, as is shown in the drawing at *b'* of Figs. 4 and 5. More than one of these bits may be inserted, if desired, in either jaw or both jaws of the tongs; but it is recommended that the bit C be inserted in the jaw B and not in the jaw A.

In this specification the best manner of applying the invention is intended to be shown, but it is not confined rigidly to the manner described.

The taper of the bit C is about five degrees, but it can be made more or less, as desired.

On Fig. 4 the line *c c* is a continuation of the line of the projecting edge of the bit C. The line *c' c'* is drawn through the center of said bit C, and the line *b b* is a continuation of the line of the lower part of the groove, designated by D in Fig. 3. The angle which the line *b b* makes with the line *c c* is double the angle which the line *c' c'* makes with said line *c c*.

What is claimed as the invention of said OLIVER B. LAY is—

1. A bit for insertion in the jaws of pipe-tongs, shaped with equal angles at all its biting-edges, so as to enable it to to be turned and a different edge presented as one is worn, and made with a taper, so as to be firmly driven into a proper groove for its reception, substantially as shown and described.

2. A jaw of a pair of pipe-tongs made with a tapering groove for the reception of a removable tapering bit, such groove being so cut in such jaw as to allow one edge of such bit to project against the pipe to be grasped by such tongs, and the lower edge of such groove cut in said jaw on a line which makes with the line of said projecting edge of such bit an angle double that made by the line of said projecting edge with the center line of said bit, so that the said projecting edge of the tapering bit shall be parallel to the grasping-surface of the other jaw of the tongs, substantially as shown and described.

3. A jaw of a pair of pipe-tongs with a tapering groove for the reception of a tapering bit, and strengthened at the larger end of such groove, as shown at b', by additional metal, to compensate for that cut away by such larger end of said groove, substantially as shown and described.

4. A tapering bit for the jaw of a pipe-tongs, made longer than the width of said jaw, and so inserted in such jaw that its larger end projects from such jaw, and its smaller end is nearly flush with the other side thereof, or projects therefrom less than the distance of such side from the line between the end of the jaws and the rivet of the tongs, substantially as described.

5. A tapering groove cut transversely across the jaw of a pipe-tongs, for the reception of the smaller end of a removable tapering bit, but not large enough to receive the large end thereof, so that said bit cannot be driven through said groove, substantially as shown and described.

6. A bit for insertion in the jaw of pipe-tongs, made of steel, or other hard metal, in the form of the frustum of a pyramid, with three or more sharp equiangular edges, substantially as shown and described.

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Administrator of Oliver B. Lay, deceased.

Witnesses:
F. W. HAY,
JAMES C. BOYCE.