May 1, 1928. 1,668,085

P. ORZEL

PLATE CUTTING APPARATUS

Original Filed Oct. 12, 1920 2 Sheets-Sheet 1

Fig. 1.

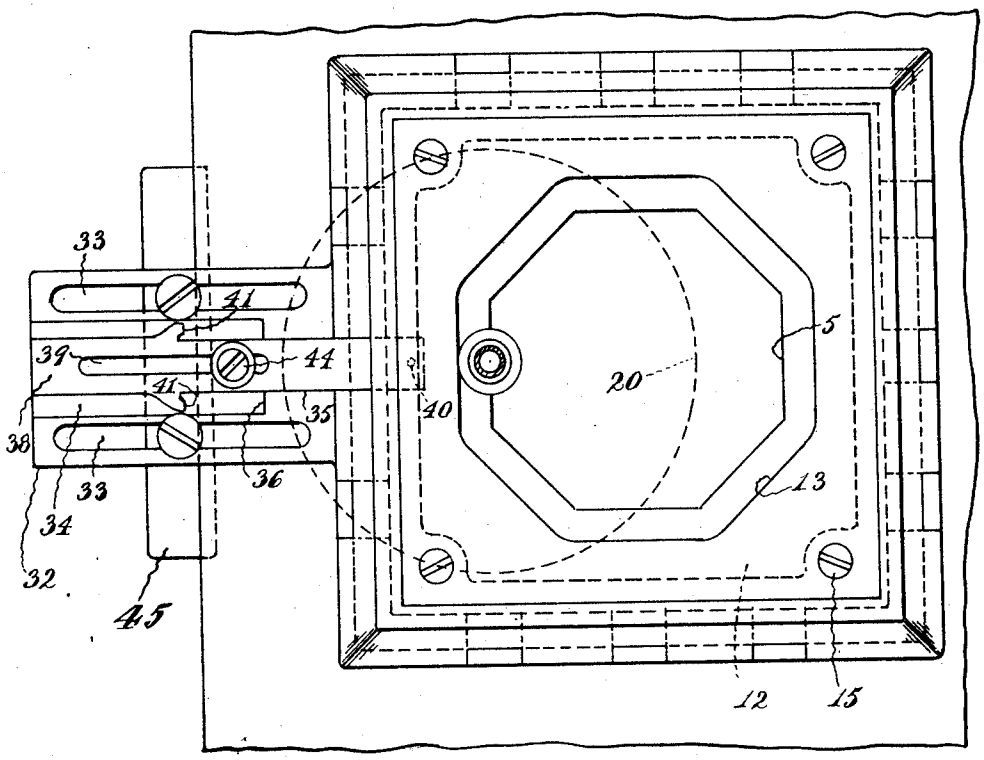
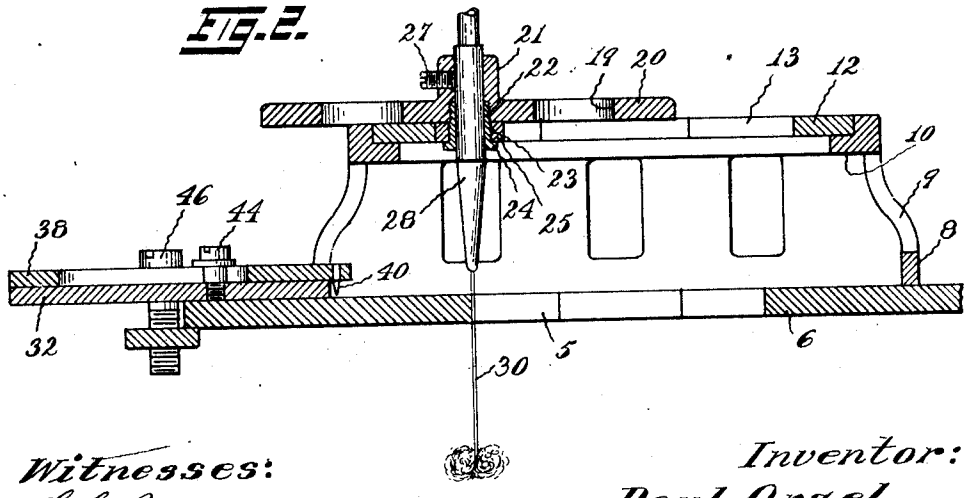


Fig. 2.



Witnesses:
L. C. Badeau
H. D. Penney

Inventor:
Paul Orzel,
By his Att'y, W. H. Richards

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Fig. 3.

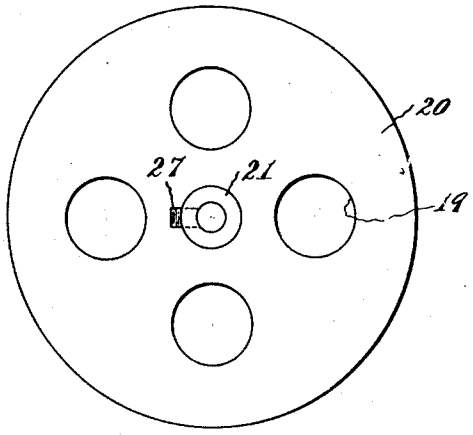


Fig. 4.

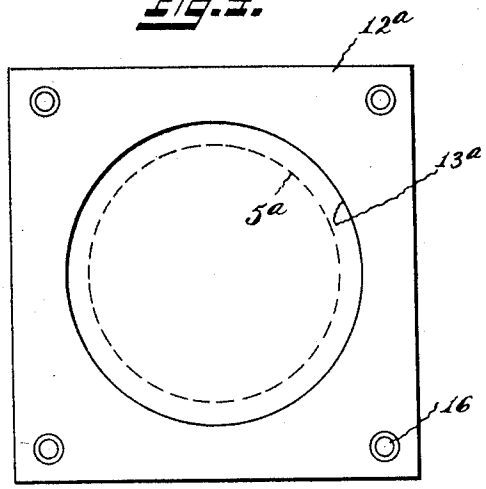
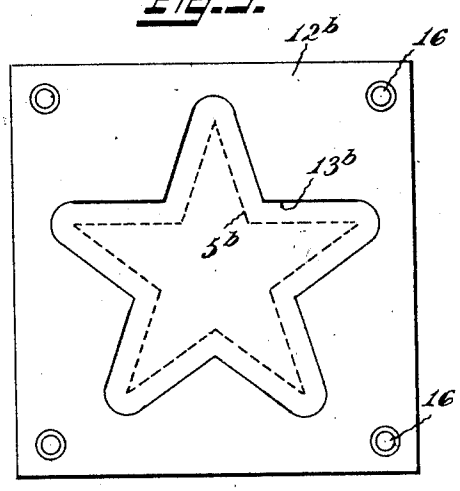


Fig. 5.



Witnesses:
L. C. Badeau
H. D. Penney,

Inventor:
Paul Orzel,
By his Att'y, F. H. Richards.

Patented May 1, 1928. 1,668,085

UNITED STATES PATENT OFFICE.

PAUL ORZEL, OF NEW YORK, N. Y.

PLATE-CUTTING APPARATUS.

Application filed October 12, 1920, Serial No. 416,459. Renewed September 16, 1927.

This invention relates to apparatus for cutting metal by the use of an oxy-acetylene or similar burner, and relates more particularly to devices for cutting holes in metal plates.

One object of the invention is to provide such an apparatus whereby, by the aid of a templet, a hole of a predetermined configuration may be cut in the plate.

Another object is to provide a suitable stand for interchangeably holding the templet in proper spaced relation to the plate to be cut, so that the operator may make his selection of any one of a large number of templets having holes of various configuration.

Another object is to provide a suitable means for holding the burner or blow pipe perpendicular to the templet, so that the hole de-marked by the blow pipe will always bear a fixed and substantially proportional relation to the pattern of the templet.

Other objects of the invention are to provide suitable means for holding the templet stand in position for cutting the hole at the desired place, and means for clamping the stand in said position.

Other objects of the invention will appear as the description proceeds; and while herein minute details of the invention are disclosed, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed.

In the accompanying drawings showing by way of example, several of many possible embodiments of the invention,

Figure 1 is a plan of the templet stand showing a templet thereon, and the means for positioning and clamping the stand in place;

Fig. 2 is a longitudinal central vertical sectional view through the apparatus;

Fig. 3 is a plan view of the face plate; and

Figs. 4 and 5 show two examples of the many possible forms of templets.

My improved apparatus is shown in position for cutting an opening 5 (Fig. 2) in a metal plate 6. The apparatus itself comprises a box-like stand 8 laterally well ventilated as at 9 and open at the bottom and adapted to rest on said plate 6. The stand is open at the top and is provided with an inner flange 10 disposed around and slightly spaced from the top edge of the stand to form a marginal recess receiving any one of the several interchangeable templets 12 (Figs. 1 and 2), 12^a (Fig. 4) and 12^b (Fig. 5). The templets are adapted to rest on said flange and are provided with a pattern opening 13, 13^a or 13^b slightly larger than the opening 5, 5^a or 5^b to be cut. Corner screws 15 passing through holes 16 (Fig. 4) secure the templets to the flange.

A face plate 20, ventilated (Fig. 2) with large holes 19 is adapted to rest on the templet and has a central hub 21 having a bore therethrough having an enlarged interiorly threaded lower end 22 carrying a bushing 23 having a lower flange 24 and receiving an anti-friction roller 25 engageable with and guided by the edge of the pattern opening 13. A downwardly pointing burner or blow pipe 28 is secured in said bushing and bore by a set screw 27 in said hub, and the face plate holds the blow pipe always perpendicular to the templet so that the flame 30 will cut the plate always the same horizontal distance inward from the edge of the templet, thus cutting the hole 5 substantially the same shape as, but smaller than, the opening 13, the burner end being spaced away from the work to prevent injury to the burner by blow-back from the work.

Means is provided for positioning and clamping the apparatus in place and will now be described. An extension plate 32 extending from the lower edge of said stand 8 is provided with a pair of parallel slots 33 (Fig. 1) and with a central depressed slideway 34 having a reduced inner end 35 forming shoulders 36. A slide 38 slidable in said slide-way is provided with a central slot 39, a downwardly projecting pointer 40 at the inner end, and a pair of lateral lugs 41 engaging said shoulders 36 when the pointer 40 engages over the point of the opening 5 at the middle of the side nearest said extension, thus indicating that the stand is set in proper position for commencing cutting. A holding screw 44 in said slideway and said central slot is adapted for holding the slide in any position of adjustment in the slot.

A clamping plate 45 (Fig. 2) under the edge of the plate 6 is held by clamping bolts 46 passing through said parallel slots 33 for clamping the apparatus in place.

The operation of the device is very simple. The operator selects or has prepared a templet of the desired shape and size and

secures it in the stand 8 by means of the corner screws 15. He then pushes the slide 38 inwardly until the lugs 41 engage the shoulder 36, whereupon the pointer 40 will indicate where will be the said position of the edge of the hole nearest the extension plate 32. The pointer 40 is then placed upon the metal plate where this desired point of the edge is to be, whereupon the screws 46 may be moved to the edge of the plate 6 and clamped in position, thereby to hold the stand and templet fixed in the desired position. The blow pipe having been already secured in the face plate, as shown in Fig. 2, the face plate is placed face down upon the templet with the blow pipe projecting through the face plate and the roller 25 in contact with the edge of the hole 13. The blow pipe is then moved slowly around the edge of the templet, with the roller in contact with said edge until the hole 5 is completely cut.

The screws 46 may be then loosened and the stand moved and positioned for the cutting of another hole.

I claim:

1. In combination, a templet stand having a flange disposed around its inner edge; an interchangeable templet resting on said flange and provided with a pattern opening slightly larger than the opening to be cut; a ventilated face plate adapted to rest on said templet and having a central hub having a bore therethrough having an enlarged interiorly threaded lower end; a bushing in said end having a lower flange; a roller on the bushing engageable with the edge of the pattern opening; a downwardly pointing blow pipe in said bushing and bore; and a set screw in said hub and engaging said blow pipe.

2. In combination, a templet stand; an extension plate extending from the lower edge of said stand and provided with a pair of parallel slots perpendicular to the side of the stand; a clamping plate engageable under the edge of the plate to be cut; and clamping bolts passing through said parallel slots into said clamping plate for clamping the apparatus in place.

3. In combination, a templet stand; an extension plate secured to the stand and provided with shoulders; a slide slidable on said extension and having a pointer, and a pair of lugs adapted to engage said shoulders when the pointer is in operative position.

4. In combination, a templet stand; an extension plate extending from the lower edge of said stand and provided with a central slide-way having a reduced inner end forming shoulders; a slide slidable in said slide-way and provided with a central slot, a downwardly projecting pointer at the inner end, and a pair of lateral lugs engaging said shoulders when the pointer is in operative position; and a holding screw in said slide-way and said central slot for holding the slide in the slot.

5. In combination, a templet stand; an extension plate secured to the stand and provided with shoulders; a slide slidable on said extension and having a pointer, and a pair of lugs adapted to engage said shoulders when the pointer is in operative position; and a clamping device for securing said extension and stand to the plate to be cut.

6. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe guided by the templet; and means whereby said blow pipe is held by the templet at an angle to the templet.

7. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe guided by the templet; and means whereby said blow pipe is held by the templet against movement transverse to the templet in one direction.

8. In combination, a templet having a templet opening; means for supporting the templet relative to a work piece to be cut; a blow pipe passed through said opening; a guide member around the blow pipe concentric therewith and engaging the edge of said opening.

9. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe guided by the templet; and means whereby said blow pipe is entirely supported by the templet held entirely by the templet against movement transverse to the templet toward the work piece.

10. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe guided by the edge of the templet; and means including a face plate disposed around the blow pipe and engaging the outer face of the templet, whereby said blow pipe is held by the face plate and templet against movement transverse to the templet toward the work piece.

11. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe; and means including a member disposed around and concentric with the blow pipe and respectively engaging the outer face and guiding edge of the templet, whereby said blow pipe is guided by the templet and held by the templet against movement transverse to the templet toward the work piece.

12. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe; and means including a wide face plate disposed around the blow pipe and a roller disposed around and concentric with the blow pipe, said roller and face plate respectively engaging

the outer face and guiding edge of the templet, whereby said blow pipe is guided by the templet and held by the templet against movement transverse to the templet toward the work piece.

13. In combination, a templet; means for supporting the templet relative to a work piece to be cut; a blow pipe guided by the templet; and a wide face plate provided with large intramarginal ventilating openings and disposed around the blow pipe and engaging the outer face and guiding edge of the templet, whereby said blow pipe is held by the templet against movement transverse to the templet in one direction.

14. In combination, a blow pipe; a templet for guiding the blow pipe when the latter is held by hand; and a wide flame deflector engaging the templet and protecting the hand from slag and the heat of the flame.

15. In combination, a templet; a stand for supporting the templet relative to the work piece in any one of a plurality of predetermined positions; and means for locating the templet in any one of said positions.

16. In combination, a stand adapted to rest on a work piece to be cut and provided at the top with a frame provided with an inner flange; and a templet resting in said frame on said flange.

17. In combination, a templet having a templet opening; a stand for supporting the templet in spaced relation relative to the work piece; and means forming a socket receiving the templet for locating the templet in any one of a plurality of predetermined positions on the stand.

18. In combination, a templet having a templet opening; a stand for supporting the templet relative to the work piece; and means on said stand for holding the templet in any one of a plurality of predetermined positions of rotation in the plane of the templet on the constant axis of the templet opening.

19. In combination, a templet having a templet opening; and a stand for supporting the templet relative to the work piece; and means on said stand for holding the templet in predetermined positions 180 degrees apart and in the plane of the templet.

20. In combination, a templet having a templet opening; a stand for supporting the templet relative to the work piece; and means on said stand for holding the templet in any one of four predetermined positions 90 degrees apart.

21. In combination, a templet having a templet opening; a stand for supporting the templet relative to the work piece means on said stand for locating the templet in any one of a plurality of positions apart and in the plane of the templet with the templet on the axis of the templet opening and on a constant axis transverse to the templet; and means for fastening the templet after it is thus located.

22. In combination, a templet; and a supporting stand therefor adapted to rest against a plate to be cut and extending on all sides laterally beyond the geometric projection of the active edge of the templet to said plate.

23. In combination, a templet; and a stand therefor adapted to rest on a plate to be cut and laterally extending on all sides beyond the downward projection of the active edge of the templet.

24. In combination, a stand having a top frame and bottom frame adapted to rest on a plate to be cut, the top being of smaller dimensions than the bottom frame; and a templet carried by said top frame parallel with and spaced from said plate.

25. In combination, a box like stand open at the top and bottom and adapted to rest on a plate to be cut and provided in its side walls with a plurality of ventilating openings; and a templet resting in said open top parallel with and spaced from said plate.

26. In combination, a templet stand adapted to engage a work piece to be cut; a templet thereon having a guiding edge; a blow pipe guided by said edge and adapted to cut said piece with its flame; and a pointer secured to said stand and having its indicating end disposable adjacent to said piece.

27. In combination, a templet stand adapted to engage a work piece to be cut; a templet thereon having a guiding edge; a blow pipe guided by said edge and adapted to cut said piece with its flame; and a pointer movably secured to said stand and retractible from the path of the flame and having its indicating end disposable adjacent to said piece near the path of the cutting.

28. In combination, a templet stand adapted to engage a work piece to be cut; a templet thereon having a guiding edge; a blow pipe guided by said edge and adapted to cut said piece with its flame; a pointer movably secured to said stand and retractible from the path of the flame and having its indicating end disposable adjacent to said piece near the path of the cutting; and means for limiting the movement of the pointer relative to said path.

29. In combination, a templet stand adapted to engage a work piece to be cut; a templet thereon having a guiding edge; a blow pipe guided by said edge and adapted to cut said piece with its flame; and a pointer secured to said stand and having its indicating end disposable adjacent to said piece at a predetermined starting point of the path of the cutting.

PAUL ORZEL.