

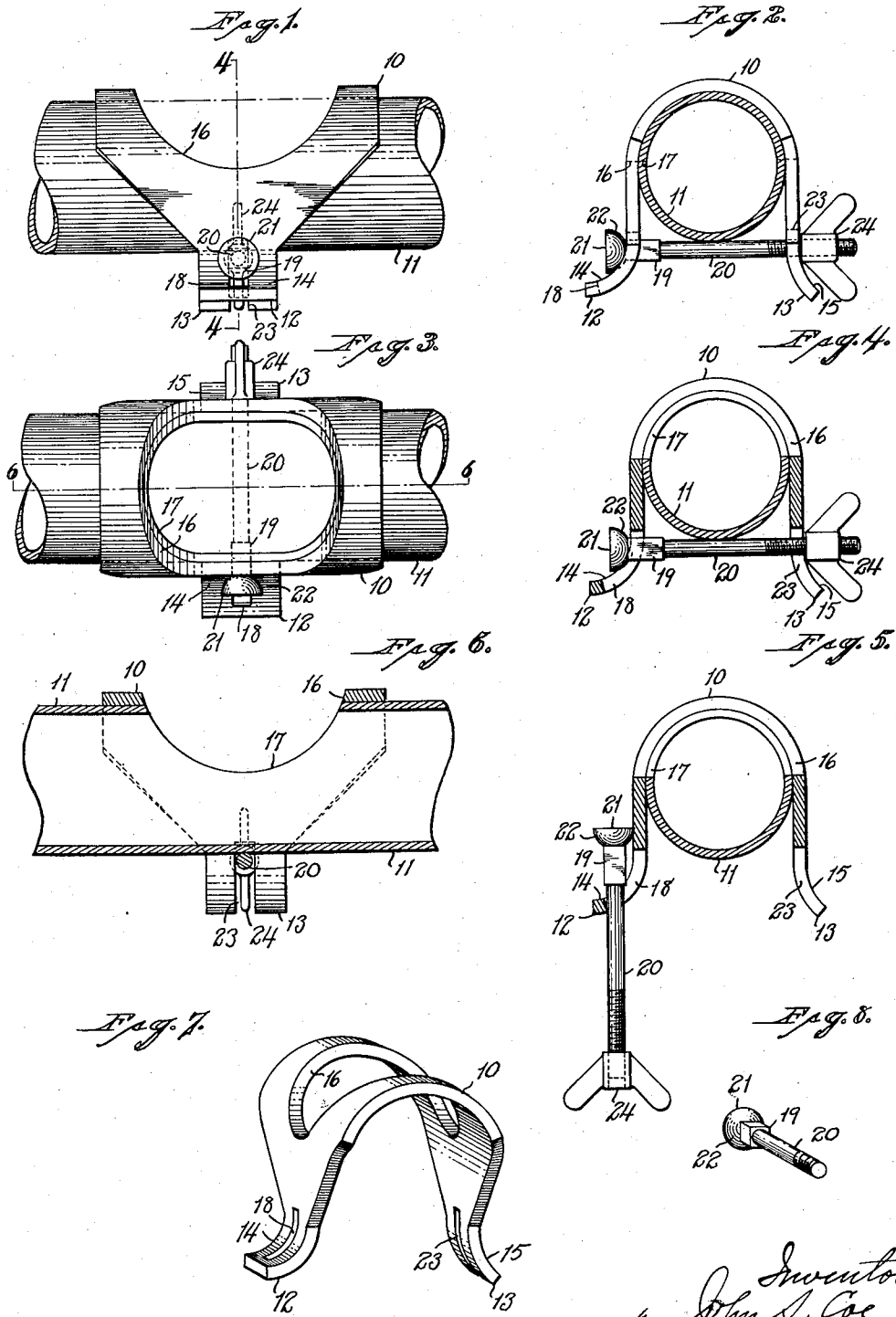
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J. S. COE

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NOTCHING GUIDE FOR TUBES, ETC

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Inventor
John S. Coe
Seymour Carra Nichols
Atty.

UNITED STATES PATENT OFFICE

JOHN S. COE, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE CHASE COMPANIES,
INCORPORATED, OF WATERBURY, CONNECTICUT, A CORPORATION

NOTCHING-GUIDE FOR TUBES, ETC.

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This invention relates to improvement in notching-guides and particularly to notching-guides for facilitating the formation of ports or openings in the side-walls of water-tubing, etc., in order to provide for the attachment of a branch-tube, fitting, etc.

The main object of my present invention is to provide simple, convenient and reliable means for guiding a cutting-tool, such as a file or saw, in forming a port or opening in the periphery of a tube.

With the above and other objects in view, as will appear from the following, my invention consists in a notching-guide having certain features of construction and combinations and arrangements of parts as will be hereinafter described and particularly recited in the claims.

In the accompanying drawing:

Fig. 1 is a view in side elevation of one form which a notching-guide constructed in accordance with my invention may assume and shown as applied to a tube;

Fig. 2 is an end view thereof;

Fig. 3 is a top or plan view thereof;

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a corresponding view but showing the clamping-bolt released to permit the removal of the guide;

Fig. 6 is a central, longitudinal, sectional view taken on the line 6—6 of Fig. 3;

Fig. 7 is a perspective view of the body-member detached; and

Fig. 8 is a perspective view of the clamping-bolt detached.

In the embodiment of my invention herein chosen for illustration, I employ an inverted U-shaped body-member 10 preferably formed of hardened sheet-steel. The central reach of the said body-member is transversely curved, as shown, to substantially fit the periphery of a tube, such as 11, and terminates in two depending clamping-arms 12 and 13 (preferably yielding), bent outwardly at their lower ends to respectively provide cam-surfaces 14 and 15 sloping downwardly and away from the central reach of the body.

Extending transversely across the central reach of the body 10 in such manner as to

intersect above its upper and lower faces, I form a guide-notch 16, which may assume a variety of forms, such as the semicircular form shown, and provides for the guidance of a saw, file, or other cutting-tool, in forming a lateral port or opening 17 in the tube 11.

The lower end of the arm 12 of the body 10 is provided with a vertical slot 18 intersecting the cam-surface 14 and closed at its lower end. The slot 18 is adapted to receive the polygonal neck-portion 19 of a clamping-bolt 20, which is also provided immediately adjacent its polygonal neck-portion 19 with a head 21 having a convex under-face 22 for coaction with the cam-surface 14 of the said arm 12, as will hereinafter appear. The threaded outer end of the clamping-bolt 20 projects through a downwardly-opening notch 23 formed in the lower edge of the arm 13 of the body-member 10 and intersecting the cam-surface 15 thereof. Mounted upon the threaded end of the bolt 20 is a wing-nut 24 adapted to be screwed against the said cam-surface 15 of the arm 13 for the purpose as will hereinafter appear.

By loosening the wing-nut 24, the clamping-bolt 20 may be slipped out of the open lower end of the notch 23 in the arm 13 and swung downward through the slot 18 into the position in which it is shown in Fig. 5, so that the guide may be readily applied or removed from a tube. When, however, the clamping-bolt is in place, as shown particularly well in Fig. 4, and the wing-nut is screwed tightly upon the clamping-bolt 20, the said clamping-bolt will be caused to ride laterally upward by the coaction of the convex under-face of its head 21 with the cam-surface 14 and also by the coaction of its wing-nut 24 with the cam-surface 15, with the result that the said clamping-bolt 20 will be forcibly engaged laterally with the under-face of the tube 11 and thus draw down upon the body 10 to firmly seat the under-face thereof upon the upper surface of the said tube.

When the under-face of the body-member 10 is firmly seated upon the periphery of a tube, as above described, the transverse guide-notch 16 will serve to limit the action of

a cutting-tool such as a file or saw, and thus definitely define the character of a lateral port such as 17, as regards size, shape, location, etc.

5 While I prefer to curve each of the fingers 12 and 13 so as to provide a cam-surface on each, it is obvious that the novel effect of firmly seating the body of the guide upon a tube would take place to an adequate de-
10 gree if but one cam-surface were provided.

By means of my invention I have provided at a low cost for manufacture a convenient notching-guide which will automatically seat itself upon a tube and be firmly clamped
15 thereon by simply binding up upon suitable clamping-means, such as the bolt 20 and wing-nut 24.

It will be understood by those skilled in the art that my invention may assume varied
20 physical forms without departing from my inventive concept, and I, therefore, do not limit myself to the specific embodiment herein chosen for illustration, but only as indicated in the appended claims.

25 I claim:

1. A notching-guide including a substantially U-shaped body having a cross-reach and two complementary arms spaced from each other to permit the lateral application of the
30 body to a tube, and formed with a transverse guide-notch; and means for clamping said body to the tube, including a member extending between the bearing upon said arms, and cooperating means on said member and on
35 one of said arms serving to move said member and said cross-reach into engagement with said tube upon the exertion of clamping pressure by said member.

2. A notching-guide including a substantially U-shaped body having a cross-reach and two complementary arms spaced from each other to permit the lateral application of a
40 transverse guide-notch; and means for clamping said body to the tube, including a member extending between and bearing upon said arms, and cooperating means including a head on said member and a cam surface on
45 one of said arms serving to move said member and said cross-reach into engagement with said tube upon the exertion of clamping pressure by said member.

3. A notching-guide for tubes and the like, including a substantially U-shaped body provided with a transverse guide-notch and having a cross-reach and two complementary arms, one of which latter is formed with a slot and the other of which is provided with
50 a notch opening through its edge; and clamping-means including a member extending between the two complementary arms of the said body and through the notch and slot formed respectively therein and adapted for
55 movement longitudinally of said notch and

slot to bear against the tube and clamp the guide upon the tube.

4. A notching-guide including a substantially U-shaped body having a cross-reach and two complementary arms, and provided
60 with a transverse guide-notch and having one of its arms provided with a cam-surface sloping away from its complementary arm; and clamping-means including a member extending between the two complementary
65 arms of the said body, said member provided with means coacting with the said cam-surface for being laterally engaged with the periphery of a tube to firmly seat the said body thereon.

5. A notching-guide including a substantially U-shaped body having a cross-reach and two integral complementary arms, and provided with a transverse guide-notch and having one of its side-arms provided with a
70 cam-surface sloping away from its complementary side-arm; and clamping-means including a member extending between the two integral complementary arms of the said body, said member provided with means co-
75 acting with the said cam-surface for being laterally engaged with the periphery of a tube to firmly seat the said body thereon.

6. A notching-guide including a substantially U-shaped body having a cross-reach and two yielding complementary arms, and provided with a transverse guide-notch, and having one of its arms provided with a cam-
80 surface sloping away from its complementary arm; and clamping-means including a member extending between the two yielding arms of the said body, said member provided with means coacting with the said cam-surface for simultaneously drawing the two said
85 yielding arms together and being laterally engaged with the periphery of the tube to firmly seat the said body thereon.

7. A notching-guide including a substantially U-shaped body having a cross-reach and two complementary arms, and provided
90 with a transverse guide-notch and having one of its arms provided with a cam-surface sloping away from its complementary side-arm; and clamping-means including a member extending between the two complementary
95 arms of the said body and pivotally connected with one of same, said member provided with means coacting with the said cam-surface for being laterally engaged with the periphery of the tube to firmly seat the said
100 body thereon.

8. A notching-guide including a substantially U-shaped body provided with a transverse guide-notch and two complementary arms, one of which latter is provided with a
105 cam-surface sloping away from its complementary arm, and having a transverse passage extending through the said cam-surface, the other of the said arms being provided with a notch opening through its edge; and
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clamping-means including a member extending between the two complementary arms of the said body and through the slot in one and the notch in the other thereof, said member provided with means coacting with the said cam-surface for being laterally engaged with the periphery of a tube to firmly seat the said body thereon.

9. A notching-guide including a substantially U-shaped body provided with a transverse guide-notch and two complementary arms, each of which is provided with a cam-surface sloping away from the complementary arm; and clamping-means extending between the two complementary arms of the said body and coacting with the respective cam-surfaces thereof for being laterally engaged with the periphery of a tube to firmly seat the said body thereon.

10. A notching-guide including a substantially U-shaped body provided with a transverse guide-notch and having two complementary arms each having a portion sloping away from the other arm and each having in its sloping portion a transverse passage, one of which is in the form of a circumscribed passage and the other in the form of a notch opening through the edge of the arm in which it is formed; and clamping-means extended through the respective passages of the said arms in position to be forced by the said sloping portions thereof into lateral engagement with the periphery of a tube to firmly seat the said body thereon.

In testimony whereof, I have signed this specification.

JOHN S. COE.

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