My invention relates to new and useful improvements in cutting equipment for oxy-acetylene torches and the like and this is a continuation-in-part of my United States patent application dated September 15, 1960, Serial No. 56,168, now abandoned.

Although many nozzle holding devices have been marketed, all of them appear to be restricted in scope and do not allow the necessary flexibility required when operating oxy-acetylene cutting equipment.

I have provided a carriage assembly which not only permits circular cutting to be undertaken at any radius within limits but enables the torch nozzle to be adjusted vertically with respect to the surface, horizontally with respect to the carriage and angularly with respect to a plane parallel to the radius bar.

Furthermore by providing an attachment for the radius bar either on the main carriage portion or offset therefrom, angular cutting in a plane at right angles to the longitudinal axis of the radius bar may be undertaken.

The principal object and essence of my invention is therefore to provide a device of the character herewithin described which is universally adjustable to suit the majority of conditions under which it may be utilized.

Another object of my invention is to provide a device of the character herewithin described which, once set, is relatively easy to use inasmuch as the nozzle tip is maintained at a set angle and distance from the work surface.

Another object of my invention is to provide a device of the character herewithin described in which the radius bar can be situated either on the main carriage or, offset therefrom by engagement with the nozzle holder.

A still further object of my invention is to provide a device of the character herewithin described which can be used with any size nozzle merely by changing the nozzle holder.

Another object of my invention is to provide a device of the character herewithin described which maintains the setting for height and angularity without any difficulty.

A still further object of my invention is to provide a device of the character herewithin described which is simple in construction, economical in operation, and otherwise well suited to the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being made to the accompanying drawings in which:

FIGURE 1 is a perspective view of my device.

FIGURE 2 is an end view of my device.

FIGURE 3 is a fragmentary side elevation showing an alternative embodiment of my device.

FIGURE 4 is an end view of FIGURE 3.

FIGURE 5 is an enlarged end elevation of FIGURE 3 but taken from the opposite end to the view shown in FIGURE 4.

FIGURE 6 is a reversed view of the attachment shown in FIGURE 5.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding therefore to describe my invention in detail, reference should be made to the accompanying drawings in which I have illustrated a main carriage collectively designated 10, torch nozzle holding means collectively designated 11, and a radius bar and pivot point assembly collectively designated 12.

The carriage consists of a main horizontal portion 13, horizontally slotted as at 14 and including a semi-circular portion 15 extending upwardly from the upper side 16 thereof.

Off standing ends 17 are formed integrally with the main portion 13 in spaced and parallel relationship one with the other, said ends carrying a pair of flanged rollers 18 adapted to engage the surface of the work and to roll thereover.

The nozzle holding means 11 consists of a circular clamp 19 within which the associated nozzle 20 may be engaged, screw threaded clamp screw 21 holding this nozzle in position.

This circular component 19 is held by means of a horizontal bracket 22, to one side 23 of an inverted U-shaped member 24.

The two vertical legs 25 of this member engage one upon each side of the horizontal main portion 13 of the carriage and these legs are vertically slotted as at 26 as clearly shown in the drawings.

Clamp bolt means 27 pass through the slot 14 in the horizontal main portion 13 and through the slot 28 in the vertical legs 25 thus clamping the vertical legs in relation to the horizontal main portion.

Due to the closely formed slotted relationship between the two components, it will be appreciated that the nozzle holding means can be adjusted vertically with respect to the carriage, or horizontally with respect to the carriage, and finally in an angular relationship with respect to the carriage parallel to the longitudinal axis of the carriage thus enabling the associated nozzle 20 to be positioned depending upon the work being done.

An off standing portion 28 is formed on one side of the nozzle clamp member 19 and is apertured as at 29 to receive the end 30 of the radius bar 31, clamp screw 32 securing this radius bar into the aperture 29.

The radius bar extends parallel to the longitudinal axis of the carriage and is adapted to carry engravings 33 marking the bar off in integers.

A pivot point assembly 34 consists of an apertured block 35 adapted to slide along the radius bar and to be clamped into position by means of a clamp screw 35.

A vertically situated scribing bar or pivot point bar 36 is slidably engageable through the block 35 and is clamped in the desired relationship by means of a further clamp screw 37.

From the foregoing, it will be appreciated that the radius described by the nozzle is controlled by the positioning of the pivot point assembly 34 upon the radius bar, the distance between the point 38 of the rod 36 and the center of the clamp ring 19, defining the circle cut by the cutting nozzle 20.

In operation, the nozzle 20 is clamped into position and the necessary adjustments made to the device depending upon the cutting required, whereupon the device may be moved around a circle the center of which is the point 38 so that the nozzle cuts an exact circle either vertically or angularly depending upon the relationship of the U-shaped member with the horizontal main portion 13.

Finally it will be observed that a further outer engaging portion 39 is secured adjacent one end of the main horizontal portion 13 so that the bar can selectively be clamped therewithin by means of clamp screw 40. This enables the device to be angulated in a plane at right angles to the longitudinal axis of the main horizontal portion 13 thus giving further flexibility to the assembly.
It will also be appreciated that by changing the clamp ring 19, different size nozzles can be held therewithin. In the preferred embodiment shown in FIGURES 3 to 6 inclusive, a further supporting arm 41 extends from the torch holding clamp 11. In this connection a further off standing portion 42 is formed on the nozzle holding clamp 11 and the square cross section bar 41 is inserted within this portion 42, being clamped in position by means of clamp screw 43.

Selective engagement of the distal end 44 of the bar 41 is a support assembly collectively designated 45. This consists of a clamp block 46 apertured to engage the bar 41 and being selectively held in position therealong by means of clamp screw 47.

This block 46 is also apertured vertically and adapted to receive a vertically situated spindle 48 adjustably secured within the aperture by means of a further clamp screw 49.

A surface engaging wheel 40 is journaled for rotation upon the lower end of the spindle 48 by means of pin 51 and this spindle 48 is formed in two portions, namely an upper portion 52 and a lower portion 53.

The lower end of the upper portion 52 is bifurcated and adapted to receive the shoulder portion 54, all of the upper end of the lower portion 53, clamp screw 55 securing the portions together. However, this screw 55 also acts as a pivot so that the abutment of the lower portion 53 with respect to the upper portion 52 may be varied and the two parts clamped in position at an angle one from the other as shown in FIGURE 4.

This gives greater support to the devices and makes it more adaptable for use under a variety of circumstances particularly when the torch is being used to cut a bevel aperture within a plate.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from the spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

What I claim as my invention is:

1. A cutting carriage and circular cutting device for oxy-acetylene cutting equipment and the like, comprising a carriage engageable with and movable on the surface to be cut, a radius bar detachably secured by one end thereof to said carriage, a pivot point assembly slidably adjustable on said radius bar, said carriage including a chuck, said chuck holding means and means coupling between said torch nozzle holding means and said carriage whereby said torch nozzle holding means is adjustable with respect to said carriage, horizontally, vertically and angularly in a plane parallel to the longitudinal axis of said radius bar, said carriage including a horizontal main portion, off standing ends on each end of said horizontal main portion, and roller means on said off standing ends, said nozzle holding means being offset from said horizontal main portion substantially above said roller means, said radius bar being selectively engageable with means on said horizontal main portion or with means on said nozzle holding means, and a supporting arm selectively engageable with said nozzle holding means and extending therefrom at right angles to said radius bar, and support means on said supporting arm engageable on said surface to be cut.

2. The device according to claim 1 in which said support means comprises a support assembly, said support assembly including an apertured clamp block slidably engaging said support arm, a vertically situated spindle selectively engageable for vertical adjustment within said clamping block, and surface engaging means on the lower end of said spindle, said spindle comprising an upper portion and a lower portion pivotally connected together and clamp means detachably securing said pivotal connection, whereby said portions may be selectively angulated with respect to one another.

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