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H. W. C. SCHRÖDER

BURNER FOR THE AUTOGENOUS CUTTING OF METALS

Filed Aug. 18, 1921

Fig. 1

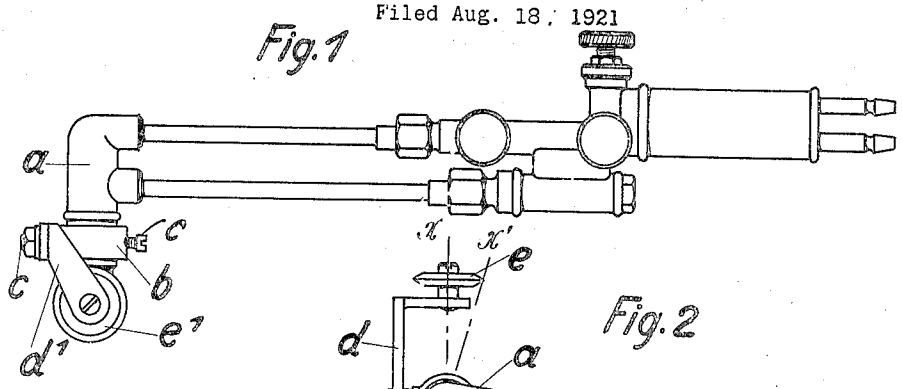


Fig. 2

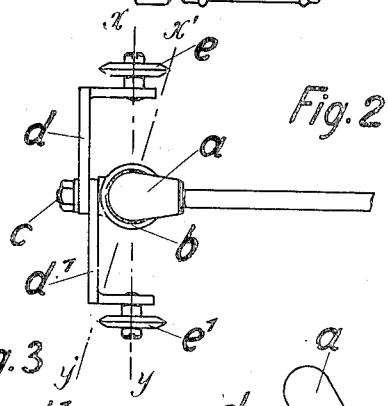


Fig. 3

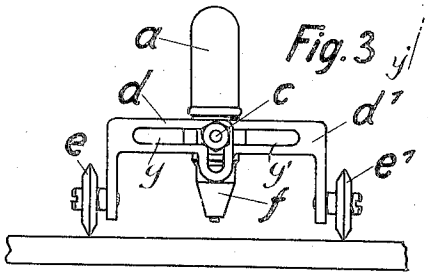


Fig. 4

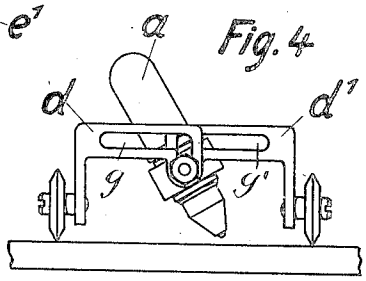


Fig. 5

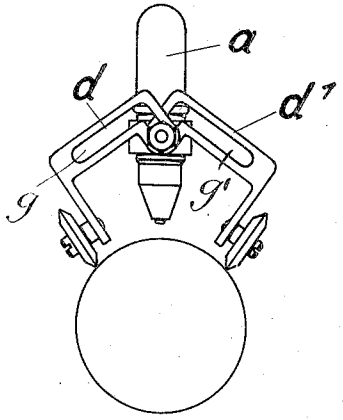
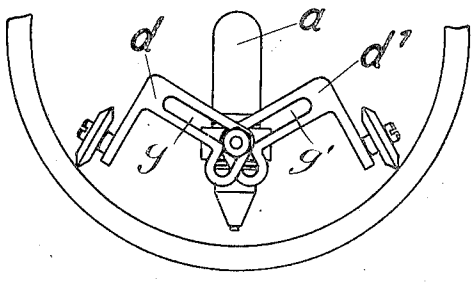


Fig. 6



INVENTOR

Hans Wilhelm Christian Schröder

BY

Wiesen & Schrenk

ATTORNEYS

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UNITED STATES PATENT OFFICE.

HANS WILHELM CHRISTIAN SCHRÖDER, OF LUBECK, GERMANY, ASSIGNOR TO ALEXANDER BERNHARD DRÄGER, OF FINKENBERG, LUBECK, GERMANY.

BURNER FOR THE AUTOGENOUS CUTTING OF METALS.

Application filed August 18, 1921. Serial No. 493,485.

To all whom it may concern:

Be it known that I, HANS WILHELM CHRISTIAN SCHRÖDER, a German citizen, residing at Lubeck, Germany, have invented certain new and useful Improvements in Burners for the Autogenous Cutting of Metals, of which the following is a specification.

In burners for the autogenous cutting of metals it is necessary that the openings in the nozzles or jets for the heating gas and the oxygen, be kept at the correct distance from the material to be cut and that the guiding supports or rollers occupy a suitable position. Hitherto there have been used for the adjustment of the distance, either a rigid stirrup, which being movably arranged can be adjusted in height on the head of the burner and is provided with two rollers and a slot for the purposes of lateral adjustment, or two side rods which can be pushed up and down on the head of the burner and each of which is furnished with a guide roller.

These known guiding carriages do not, however, enable the position of the guide rollers relatively to the burner and the work to be correctly adjusted in addition to the correct distancing of the nozzles from pieces of work of different kinds. Furthermore, the head of the burner in such instances must have a considerable height so that in the case of bevelled cuts or in the cutting of arched or hollow objects the stirrup can be adjusted upwards and downwards to a sufficient degree.

The above mentioned defects are obviated by the present invention which is illustrated in the accompanying drawing by various working examples and consists substantially in the use of a guiding carriage constituted by two, roller- or pin-supported arms, arranged and adapted to be rocked up and down and moved in the direction of the transverse axis of the carriage independently of each other with relation to the head of the burner.

Figure 1 shows an example of a constructional form of a burner with a two-part guiding carriage seen from the side.

Figure 2 is a plan view of the front portion of the burner and the carriage.

Figure 3 shows the head of the burner with the carriage seen from the front.

Figures 4, 5 and 6 are similar views to Figure 3 showing various positions which may be assumed by the parts with a burner according to the present invention.

The head a of the burner carries a rotatable ring b (clamp or the like) with a radial bolt c, and a set screw c^1. This ring acts as carrier for the two halves of the stirrup or guiding arms d and d^1 which are provided with L-shaped guiding slots g and g^1 and with guide rollers e and e^1.

To make a vertical cut through a plate the parts are set in the position shown in Figure 3. When cutting close to an edge or a narrow piece one arm or both can be so moved laterally in the slot that the wheels on which the stirrup runs are brought nearer to the mouthpiece. If sectioned pieces are to be cut longitudinally, the wheels also may be rocked upwards to different heights, or the curved or angularly bent portion of the slot may be used, in order to obtain the correct distance of the burner nozzle away from the cutting line.

In the case of bevelled cuts as shown in Figure 4 the angular course of the slots in the guiding arms is of advantage, as by this means the necessary vertical movement between the bolt c and the upper surface of the material is made possible, without setting the guide rollers obliquely.

Figures 5 and 6 show the mutual adjustment of the parts when cutting arched or hollow pieces of work. The guide rollers are in this case always set in such a position that they are directed radially or approximately radially with respect to the curvature of the work and consequently enable an efficient guiding action to be obtained. It is therefore possible to cut shafts of comparatively small diameter and tubes of comparatively small width. For the latter work a distinct advantage is accrued by the fact that the head of the burner may be very low.

It is not absolutely necessary that a special rotatable ring be provided for the attachment of the guiding arms, on the contrary the bolt c may if desired, be rigidly mounted on the head of the burner. In like manner separate bolts such as c may be provided for each guiding arm.

In cases where the ring b is employed, however, it will be appreciated that the direction of the transverse axis x—y of the carriage (see Fig. 2) will depend upon the

position of the ring *b*. Thus, if the ring *b* is rotated a little the transverse axis of the carriage may correspond to the position indicated by the line x^1—x^1.

In order to enable the guiding arms to be more easily adjusted, in such a way that they shall not drop out of their position when the nut of the bolt *c* is unscrewed, it is convenient to insert a spring between the guiding arm and the nut of the bolt or between the guiding arm and the surface where it comes into contact with the ring or the head of the burner.

Instead of the rollers *e*, e^1 simple pins or supports may be used.

I claim:

1. In a burner for the autogenous cutting of metals, the combination of a burner head, a carrier rotatably mounted upon said head, a fastening device for fixing said carrier against rotation thereon, guiding members carried by said carrier and pivotally adjustable thereon independently of each other about an axis transverse to the rotative axis of said carrier, said guiding members being further adjustable toward and away from each other relatively to said carrier, and means, independent of said fastening device, for fixing said guiding members in position on said carrier.

2. In a burner for the autogenous cutting of metals, the combination of a burner head, a guiding carriage connected with said head and comprising two arms provided with L-shaped slots whereby said arms are capable of being rocked up and down and moved in the direction of the transverse axis of the carriage relatively to said burner head and guiding rollers journalled on said arms.

HANS WILHELM CHRISTIAN SCHRÖDER.

Witnesses:
FELIX SCHWAIBLER,
CHAS. A. H. L. MUMMERHOFF.