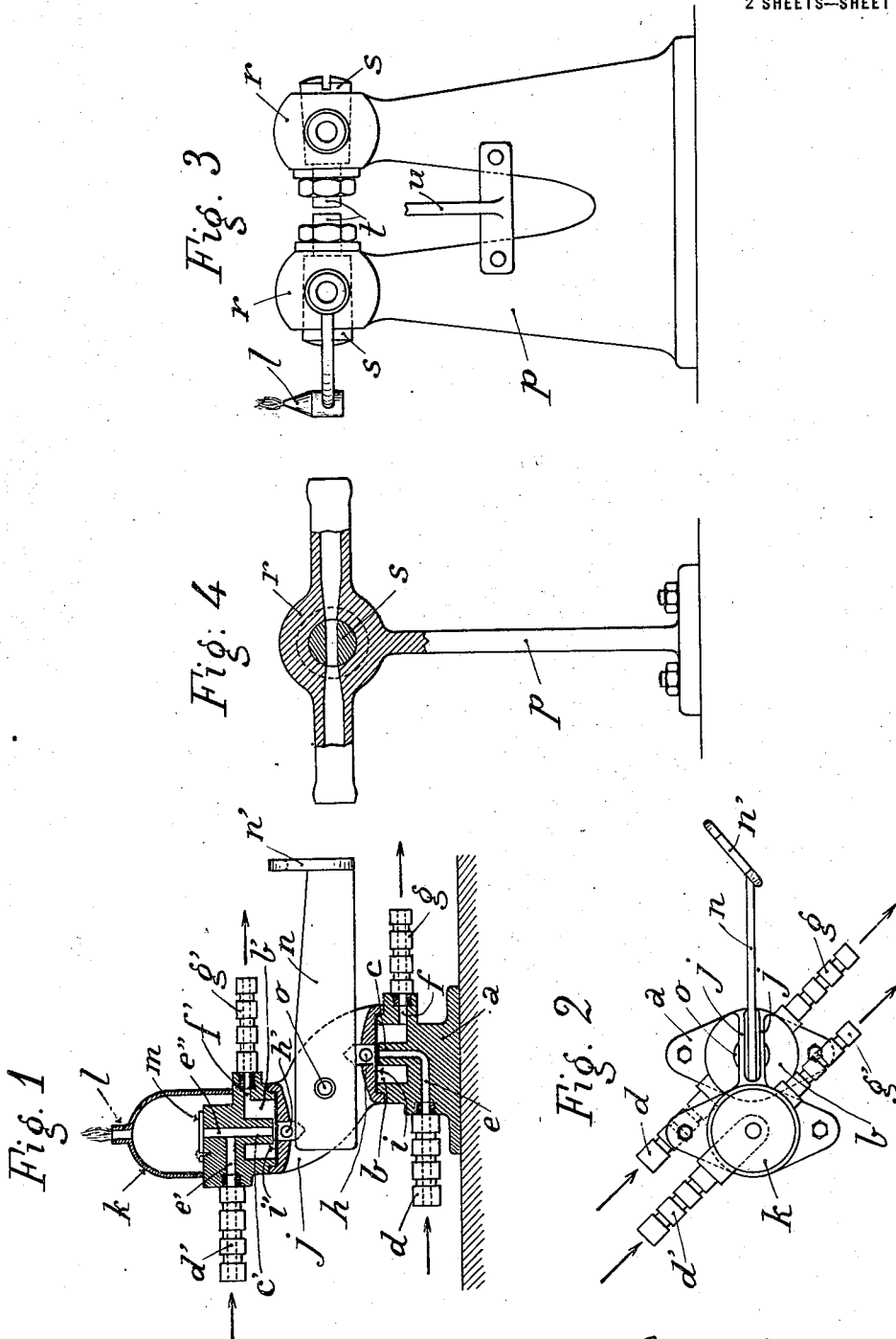


A. SAULZE.
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 APPLICATION FILED SEPT. 24, 1918.

1,335,922.

Patented Apr. 6, 1920.
 2 SHEETS—SHEET 1.

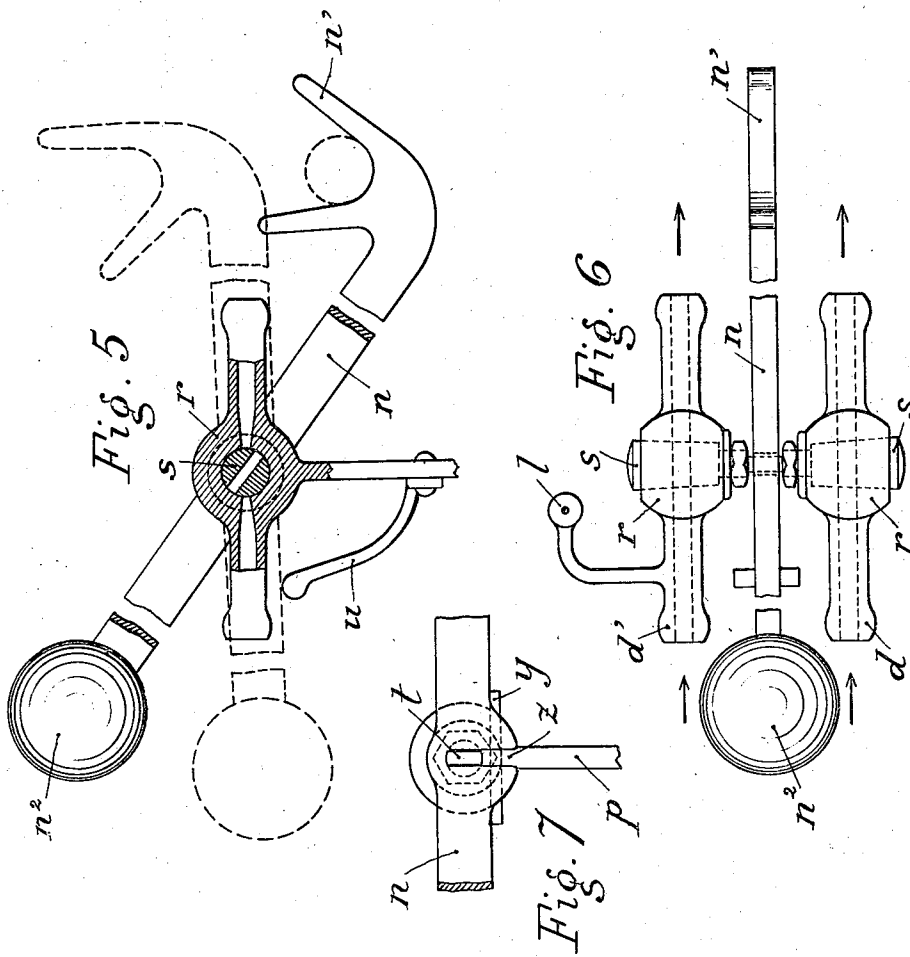


Inventor:
 Antoine Saulze
 By *Emile L. L. L.*
 attys

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 Antonio Saulze
 By Eugene Lucien de la
 attes.

UNITED STATES PATENT OFFICE.

ANTOINE SAULZE, OF LYON, FRANCE.

AUTOGENOUS-WELDING APPARATUS.

1,335,922.

Specification of Letters Patent.

Patented Apr. 6, 1920.

Application filed September 24, 1918. Serial No. 255,478.

To all whom it may concern:

Be it known that I, ANTOINE SAULZE, a citizen of the French Republic, of 53 Rue de la Charite, Lyon, France, have invented a certain new and useful Autogenous-Welding Apparatus, of which the following is a specification.

This invention relates to an improved method of controlling the supply of gases to blow-pipes for autogenous welding and apparatus therefor.

It is known that the blow-pipes employed for autogenous welding are burning during the whole working day although these pipes may not be in constant use. It therefore follows that the use of the oxygen and acetylene gases employed is greater than it should be practically.

The object of the invention is to effect a considerable economy of these gases by automatically stopping the admission of the said gases when the blow-pipe is not in use, and again giving passage to these gases when the pipe is to resume work.

The principle of the invention consists in causing the rocking of a lever under the weight of the pipe when the latter is placed on one of the extremities of this lever, and in utilizing this rocking movement to effect, through the displacement of the said lever, the closing of valves or cocks closing the gas passages. The removal of the pipe from its support allows the lever to return to its normal position of equilibrium and replaces the valves in their opening position.

The annexed drawing illustrates by way of example two practical forms of construction of the invention. The first is shown in elevation with parts in section in Figure 1, and in plan by Fig. 2. The second construction is illustrated in Figs. 3 to 7. Fig. 3 is a view in front elevation:

Fig. 4 is a side view showing one of the pipes and its valve in section.

Fig. 5 is a similar section on a larger scale showing the extreme positions of the rocking lever.

Fig. 6 is a plan view, and Fig. 7 shows in elevation the outer part of the box of one of the valves and the mounting of the rocking lever on the axle of the plug.

The first construction is composed of a base *a* of cylindrical shape hollowed out to form an inner chamber *b*, at the center of which is the oxygen admission jet *c* which is fed by a pipe not illustrated fitted to the

tube *d* which is screwed in at the entrance of the channel *e*. Opposite to this is the outlet channel *f* ending in a tube *g* which receives the pipe termination of the blow-pipe. The chamber *b* is closed by a cap provided with a central hole for receiving a ball *h* which rests on an elastic membrane *i* occupying the lower surface of the cap and held in position by the screwing of the latter on the base.

This base is provided with two cheeks *j* supporting the admission chamber of the acetylene gas which is similar to that receiving the oxygen and to which are soldered the admission tubes *d*¹ and outlet tubes *g*¹ of the acetylene. The admission port *e*¹ is double and it leads to *e*² on the side opposite to the jet *c*¹ into a small reservoir *k* surmounted by a small burner *l*. The outlet *e*² is provided with a leather flap-valve *m* which allows the outflow of the gas under pressure, but prevents its return from the reservoir *k* to the port *e*¹.

Between the cheeks *j* is a lever *n* rocking on an axle *o* passing through the said cheeks, this lever is of a size, shape and weight so calculated that it may be kept balanced between the two balls *h* and *h*¹, without exerting pressure on the said balls. The extremity *n*¹ of the said lever is hook-shaped in order to serve as support to the blow-pipe.

The working is as follows: When the blowpipe is working, the apparatus is in the position illustrated, the respective burners of the oxygen and acetylene gases are open, and assure the feed of the blowpipe. When the operator no longer requires the latter he puts it on the working table, taking care to rest its end on the support *n*¹ formed by the lever *n*. Under the weight of this blowpipe the said lever rocks around its axle *o*, its lateral sides then simultaneously exert pressure on the balls *h*, *h*¹, and push them against the membranes *i*, *i*¹, which they involve in their movement and which are applied against the end of the burners *c* and *c*¹, therefore instantaneously stopping the gas inlets.

However, a small quantity of acetylene gas continues to pass through the port *e*² to feed the reservoir *k* and keep the small burner *l* alight.

When the operator has to again use the blowpipe, he removes it from its support, the lever *n* being lightened immediately resumes its position of equilibrium; on the

other hand, the membranes push back the balls owing to their elasticity. The burners c and c^1 being no longer stopped, can then again supply the gases required to keep the blowpipe in the lighted state. The lighting of the latter is effected by simply submitting it to the flame of the small burner l .

The second device shown in Figs. 3 to 7, is composed of a base formed of a horizontal plate intended to be fixed on any frame or support and comprising centrally a frame p formed by a plate cut so as to form two branches, at the top of each of which is fixed or cast a hollow member r provided with two diametrically opposite tubes, to which are fitted the rubber pipes coming on the one hand from the respective reservoirs and passing on the other hand to the blowpipe. The oxygen passes into the tubes d and the acetylene into the tubes d^1 , in the direction shown by the arrows. The back tube d^1 includes in parallel a pipe of slight diameter ending in any burner l forming a by pass.

The plugs s are mounted as usual in their box and symmetrically arranged one in a line with the other, but without their ends touching each other. These ends t , which project from the fixing nut, carry two washers as shown in Fig. 7. These washers allow the lever n to grip both plugs at once through a slot z provided in the lever at a given place on its length. When the said lever is in place on the plugs, a peg y is inserted below the lever n so as to close the lower end of the slot z and confine therein the ends t of the plugs. The lever cannot then be raised, but it can rock to the one side or the other under the influence of the balance-weight n^2 fixed at one of its ends, or by the weight of the blowpipe when the latter is placed between the branches n^1 .

The working is very simple. When the two plugs are in the position shown in Fig. 3 and bring the two tubes in extension into communication, the blowpipe is in use and the lever n is in the horizontal position under the influence of the balance-weight n^2 , which causes this lever to be applied on the support u , as shown in dotted lines in Fig. 7. The welding being terminated, the blowpipe is placed on the fork n^1 , and its weight causes the rocking of the lever which takes the inclined position shown in full lines Fig. 5. In this rocking movement, the lever has caused the two plugs s to perform a part of a revolution broadly sufficient for stopping of the passage of the acetylene and oxygen gases. When the operator resumes the blowpipe, the balance weight n^2 causes the lever to rock in the reverse direction, and automatically reestablishes the communication.

This device is of simple and strong construction,

easily mounted and regulated, and of assured working.

The cocks might be arranged so as to employ a single plug.

The rocking under the weight of the blowpipe can be obtained in different ways and the stopping can be obtained by any known stopping members, without departing from the principle of the invention, which resides in the automatic opening and closing of the passages for the oxygen and acetylene gases by the weight of the blowpipe in order to cause either the rocking of a lever or similar member, or the rotation of any part effecting the opening or the automatic and simultaneous closing of any means stopping the passage for the gases.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. An autogenous welding apparatus of the character described comprising a support, a tube for conveying oxygen gas, and a tube for conveying acetylene gas, and mounted on said support, a valve in each of said tubes, a balanced lever mounted on said support, means actuated by said lever whereby when the lever is depressed the said valves are operated to prevent the passage of the gases through said tubes, and when released, the valves are operated to allow the gases to pass, a by pass burner, and means allowing the gas to constantly pass to said by pass burner.

2. An autogenous welding apparatus of the character described comprising a base containing a chamber, means for conveying oxygen gas to said chamber, an outlet pipe from said chamber, a cover comprising a central orifice closing said chamber, an elastic membrane under said cover, a ball in said orifice, cheeks mounted on said base, an acetylene chamber supported by said cheeks and having an orifice in its base, a ball in said orifice, a membrane stretched across the upper end of said orifice, a valve body in said acetylene chamber, means for conveying acetylene gas to said chamber, an outlet pipe from said chamber, a by pass burner on said chamber, and a balanced lever mounted between said cheeks and adapted to prevent the passage of the acetylene and oxygen gases when depressed, by acting on said membranes through said balls, and when released to allow the passage of said gases by releasing said balls.

In witness whereof I have signed this specification in the presence of two witnesses.

ANTOINE SAULZE.

Witnesses:

GASTON YEUNAUX,
GRADE CORBETT.