Nov. 19, 1940. W. VAN TRIEST 2,221,825

STARTING ROD FEEDER FOR TORCHES

Filed Aug. 7, 1939 2 Sheets-Sheet 1

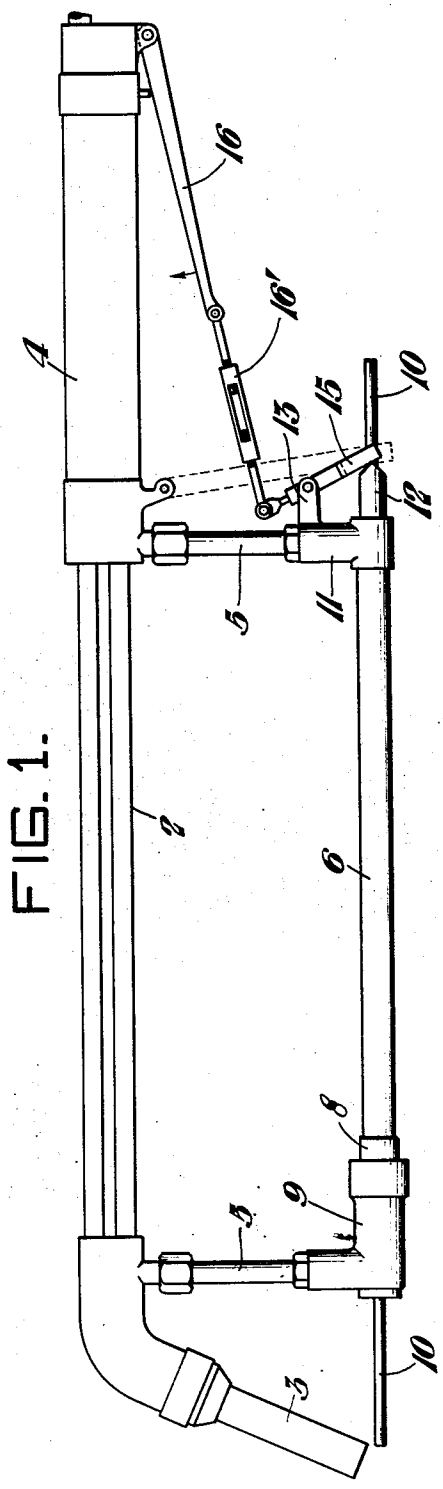



FIG. 1.

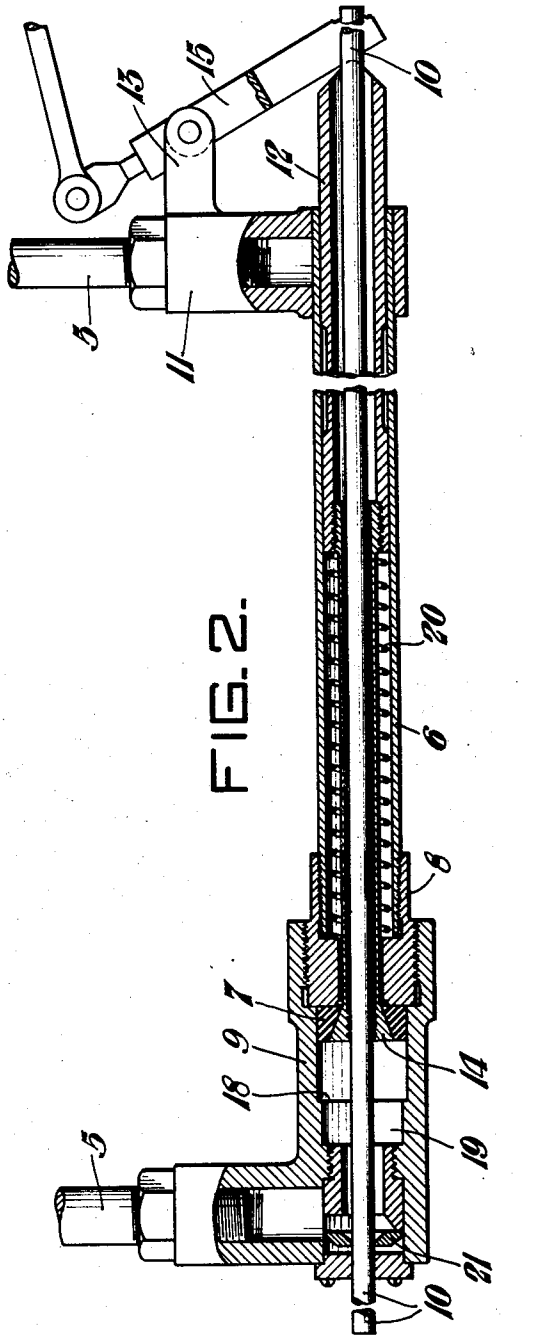



FIG. 2.

Inventor:
WILLIAM VAN TRIEST,
by: John E Jackson
his Attorney.

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STARTING ROD FEEDER FOR TORCHES

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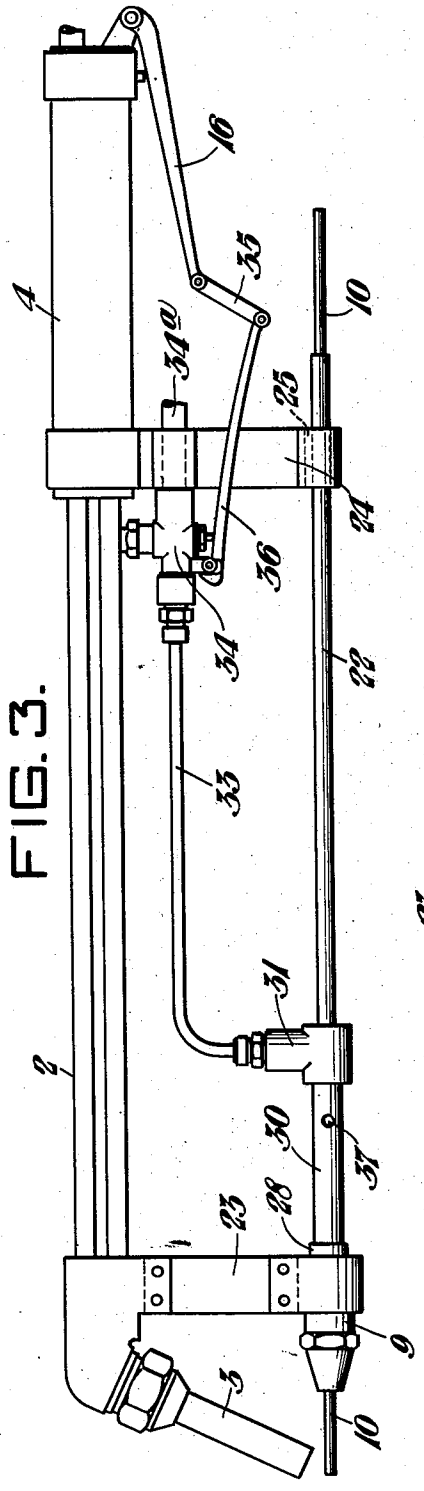


FIG. 3.

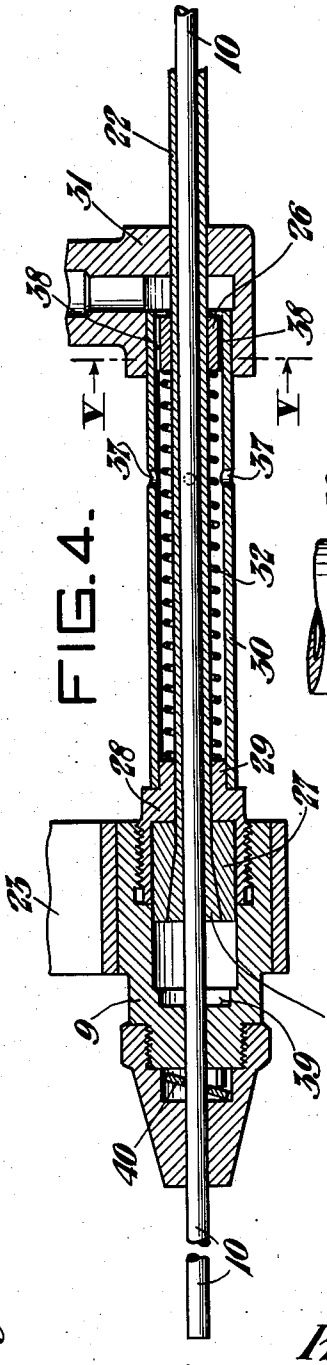


FIG. 4.

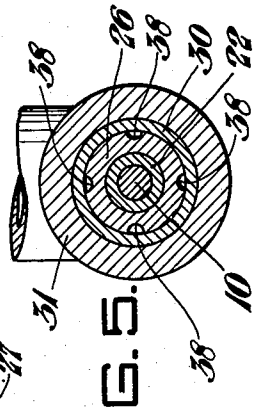


FIG. 5.

Inventor:
WILLIAM VAN TRIEST,
by: John E Jackson
his Attorney.

Patented Nov. 19, 1940 2,221,825

# UNITED STATES PATENT OFFICE

2,221,825

## STARTING ROD FEEDER FOR TORCHES

William Van Triest, Pittsburgh, Pa.

Application August 7, 1939, Serial No. 288,891

1 Claim. (Cl. 266—23)

The present invention relates to an improved starting rod feeder for torches and more particularly to a starting rod for torches used in scarfing processes.

An object of the present invention is to provide a starting rod feeder automatically interlocked with the main oxygen supply valve of a scarfing torch.

A further object is the provision of a simple and convenient means for carrying a fair length of starting rod without damage of becoming bent in handling.

Other objects and advantages will become apparent as the description proceeds and reference is had to the accompanying drawings, in which:

Figure 1 is a side elevation of the embodiment of the present invention;

Figure 2 is a detailed section of the feeding means for the starting rod;

Figure 3 is a side elevation of a further modification of the present invention;

Figure 4 is a detailed section of the feeding means for the starting rod of Figure 3; and

Figure 5 is a section on line V—V of Figure 4.

In the drawings, a commercial scarfing torch of conventional design is diagrammatically shown at 2. This torch includes a burner tip 3 at one end and a handle 4 at the other end between which is positioned the conventional tubes for conveying the oxygen and fuel gas and main supply of oxygen to the nozzle 3 for removal of the surface imperfections in the material being scarfed.

Secured, in any conventional manner, to the torch construction by brackets 5, is an outer tube 6, having at one end thereof a muzzle 9, which muzzle contains the feeding mechanism for the low carbon steel starting rod or wire 10, to be hereinafter described. An inner hollow tube 12 envelopes the starting rod 10 and is provided on one end thereof with a split collet-clutch 14 positioned within one end of the muzzle 9 and maintained therein by the packing 7 and threaded bushing 8, which bushing is connected to the end of muzzle 9 and the outer tube 6.

As illustrated in the drawings, the brackets 5 are spaced longitudinally of the torch proper for mounting the outer tube 6 and its muzzle 9, one of the brackets being adjacent the torch tip or the head of the torch and the other bracket at the handle 4, whereby to provide a balanced construction in respect to the mass and weight of the torch and starting rod mechanisms. Further, the spacing of said brackets and the extent of the tube 6 therebetween provides an enclosure and support for the starting rod 10 substantially throughout the length thereof and prevents the rod from becoming bent in use.

Secured to one of the brackets 5 is a bracket 11 through which the outer tube 6 and inner tube 12 extends. This bracket is provided with a lateral extension 13 which pivotally supports a forked lever 15, so that it will contact the end of said inner tube 12 and feed the starting rod 10 forwardly when the oxygen valve lever 16 is depressed, which lever is interconnected with said forked lever 15 by means of a turnbuckle 16'. As the clutch 14 approaches the end of its stroke, due to the forked lever moving the inner tube 12 forwardly when the oxygen valve lever 16 is depressed, the packing 7 is stopped in its forward movement by the shoulder 18 formed on the muzzle 9, thus permitting the collet-clutch 14 to expand in chamber 19 formed in the end of the muzzle 9 and release its grip on the starting rod 10.

When the operator releases pressure on the valve lever 16 at the end of his scarfing cut, the spring 20 returns the tube 12 and collet-clutch 14 to their normal positions.

Positioned within the muzzle 9 is a lock washer 21 which prevents the starting rod 10 from moving rearwardly when the collet-clutch 14 is returned to its normal position for gripping said rod to move it forwardly upon the next downward movement of the lever 16. This lock washer is retained within said muzzle 9 by a closure member which also serves to support the rod 10.

The mechanism is so adjusted that the initial movement of the oxygen valve lever 16 causes the forked lever 15 to move about the pivot on lateral extension 13 so as to contact the inner tube 12 for moving it forwardly, which forward movement feeds the starting rod 10 to a point beneath the nozzle 3, so that upon contact of the starting rod with the preheating flame being ejected from said nozzle 3, instantaneous melting of the starting rod is effected. Upon further movement of the oxygen valve lever 16, the valve controlling the main supply of oxygen is opened, so that said oxygen may be supplied through its proper pipe to the torch tip for igniting the starting rod metal on the surface of the bloom or billet and at the same time, igniting the steel of the bloom or billet at the beginning of the furrow to be cut.

It may be desired to have the forked lever 15 operable independently of the oxygen valve lever 16 and if such be the case, said lever 15 is pivot-

ally connected to the handle 4 as shown in dotted lines in Figure 1.

In the showing in Figure 3, the feeding of the starting rod 10 is effected pneumatically with the operating medium preferably being the compressed oxygen as connected to the torch or, if desired, compressed air being supplied from any suitable main source.

In Figure 3, the starting rod 10 is held within a tube 22 which tube is supported, in any conventional manner, by brackets 23 and 24, suspended from the conventional design of scarfing torch 2. The bracket 24 contains a bushing 25 within which said tube 22 is slidable, while bracket 23 supports the muzzle 9.

The feed tube 22 has a collet-clutch 14 formed on one end thereof, which clutch is similar in construction to that previously described with respect to Figure 1. Secured, in any conventional manner, to said feed tube 22, at a point removed from the collet-clutch, is a sleeve 26 serving as a piston. Surrounding the said feed tube 22 adjacent the collet-clutch 14 is a loose sleeve 27 retained within the muzzle 9 by means of the threaded nut 28, which nut is provided with a flange 29 upon which is secured, in any conventional manner, the tubular member 30, said tubular member 30 being securely fitted within the bore of a cylinder fitting 31 and surrounding the piston 26. Encircling said feed tube 22 and enclosed by said tubular member 30, is a coil spring 32. Compressed air or oxygen is supplied to the cylinder fitting 31 through the tube 33 which is connected to a conventional control valve 34.

This control valve 34 is interlocked with the torch oxygen lever 16 through the levers 35 and 36. The tubular member 30 is provided with vent openings 37 which permit free movement of the piston within the tubular member 30. The piston 26 is provided with bleeder grooves 38 so proportioned around its periphery that when said oxygen valve lever 16 is depressed to admit oxygen to the nozzle 3, said valve 34 is automatically opened, due to the movement of levers 35 and 36, to permit compressed air or oxygen supplied from pipe 34a to pass through pipe 33 into the cylinder fitting 31. This causes a forward movement of the piston 26, which movement carries with it the feed tube 22 and starting rod 10 to position the latter beneath said nozzle 3. During the forward movement of the piston 26, the spring 32 is compressed and the collet-clutch 14 caused to move into the chamber 39 within said muzzle 9, which movement advances the starting rod 10. When the lever 16 is released at the end of the scarfing cut and the valve 34 closed, the spring 32 will automatically return said piston 26 and feed tube 22 to their normal positions. In so doing, the compressed air trapped in said tubular member 30 bleeds out through the grooves 38 and vent openings 37. Also, within the muzzle 9 there is provided the washer 40 which prevents rearward movement of the starting rod 10 upon return of said feed pipe 22 to its normal position.

Therefore, it becomes apparent that under the present invention, there is provided novel means for supporting a starting rod upon a conventional design of scarfing or other type of torch so that said starting rod is advantageously moved forward, as desired, to a position beneath the burner nozzle to be contacted by the preheating flame and assist in instantaneous ignition with the oxygen and remove the danger of damaging the bloom or ingot during the initial removal of the surface defects.

While I have shown and described specific embodiments of the present invention, it will be seen that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claim.

I claim:

A scarfing torch or the like including a bracket secured to the torch proper adjacent the head end thereof, a second bracket secured to the handle of the torch proper, said brackets mounting a tubular member therebetween in spaced relation to the torch proper, said member having a muzzle at the end thereof adjacent the torch tip and being adapted to receive and support a starting rod therein, means for advancing the starting rod through said member and muzzle, said means including a tubular member within the supporting tube having a rod-engaging chuck at the forward end thereof, said inner tube extending rearwardly beyond the said second bracket, a movable lever on the torch handle, means movable by the lever for actuating the rod advancing means, said lever and movable means being spaced rearwardly beyond both of said brackets, said brackets, tubular member and lever being spaced longitudinally of the torch for balanced distribution of the weight thereof.

WILLIAM VAN TRIEST.