Practical Notes on

The Use and Care of Blowlamps

By A. J. T. Eyles

THE blowlamp is a workshop tool often used for soldering and brazing operations, but it seldom receives the care and attention it merits. A timely overhaul by the model engineer will avoid trouble and give a new lease of life to either petrol or paraffin blowlamps. Explosions and fires are fairly common experiences in the use of blowlamps. These may have been due to faulty construction and absence of suitable fittings (in home-made blowlamps), lack of proper maintenance and other preventable causes. There are two types of blowlamps, paraffin-burning and petrol-burning, and no matter how well made, a blowlamp will not give satisfaction unless the fuel for which it has been designed is used to operate it. Further, there is a risk, if petrol is used in a blowlamp designed for burning paraffin. The construction of the two types and the methods of vaporising the fuel into gas are totally different.

The internal construction, as shown in the sectional view, Fig. 1, can be taken as applying to most kinds of paraffin blowlamps. In paraffin-burning blowlamps the fuel is conveyed from the container to the heated vaporiser by force obtained by means of a pump. On entering the vaporising chamber it is vaporised into an inflammable gas, becomes mixed with air, and burns with an intensely hot blue flame, which is maintained under pressure from the pump.

The internal construction, as shown in the sectional view, Fig. 2, can be taken as applying to all kinds of petrol-burning blowlamps. The petrol is conveyed from the container up to the heated vaporising chamber by the wick which is located in the central tube. On entering the vaporising chamber the petrol is vaporised into a highly inflammable gas, becomes mixed with air, and burns with an intensely hot bluish flame. Blowlamps of either type should be fitted with safety-valves, so placed as to discharge away from the engineer or brazier using the lamp. In the case of petrol lamps which work normally at a pressure of 15 lb. per sq. in., the valve should be set to blow at 30 lb. to 50 lb. per sq. in. In the case of paraffin blowlamps working at 40 lb. pressure under air pressure only, the safety-valve is usually set to blow at 50 lb. per sq. in.

A safety-valve is designed to make it as difficult as possible for the user to put it out of action. Safety-valve springs are usually made of rustless steel and are very satisfactory in practice, since the heat to which they are likely to be subject does not affect their resilience. The old type of safety-pin sometimes used in place of a safety-valve is not reliable. All paraffin blowlamps should be provided with air-relief valves in addition to the safety-valve. In the case of a petrol blowlamp this is effected by the burner valves.

The lamps illustrated herewith are British made by John Shaw & Sons (Wolverhampton) Ltd.; this firm having practical blowlamp manufacturing experience for over 20 years.

When a blowlamp is under repair in your workshop it is a wise precaution to fit new washers. Even if they do not appear to be giving trouble, it is a well worth-while expense, because sooner or later they will require renewal.

The use of methylated sprits for the priming of blowlamps is recommended by the writer, because the heat value of methylated spirits is greater than that of petrol or paraffin. It is highly dangerous to start a blowlamp from the heat of a gas stove or fire, as mechanics often do, and it takes considerably longer.

When lighting up a blowlamp in an exposed position, always arrange for the nozzle to be pointing in the same direction as that in which the wind is blowing, so that the

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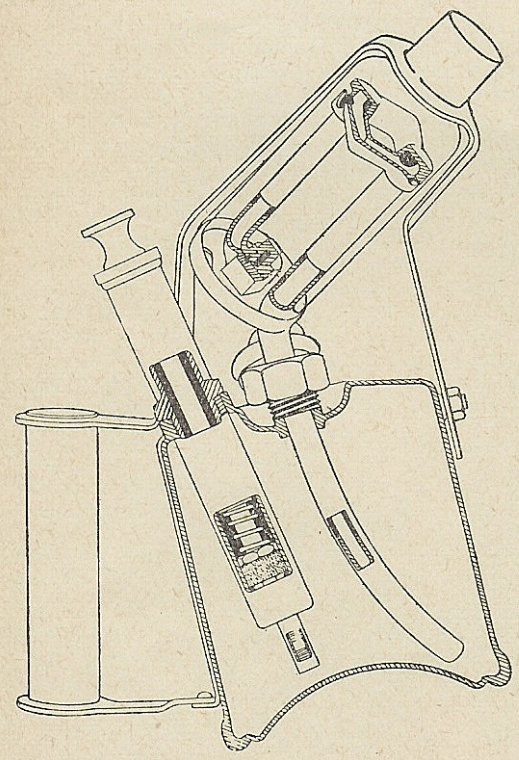


Fig. 1. Sectional view of paraffin blowlamp.

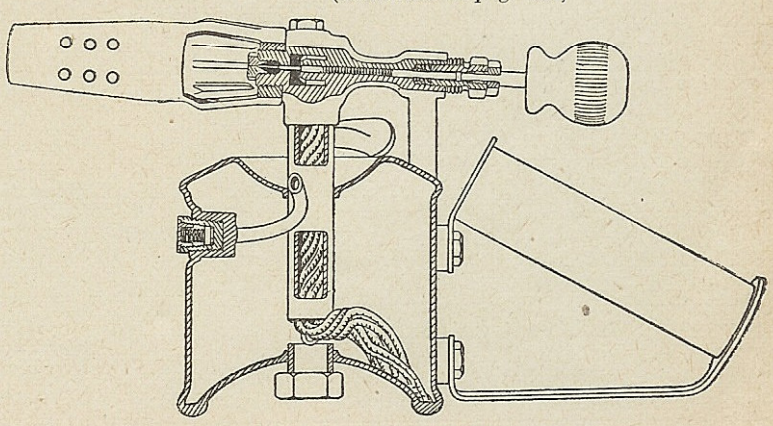


Fig. 2. Sectional view of petrol-burning blowlamp.

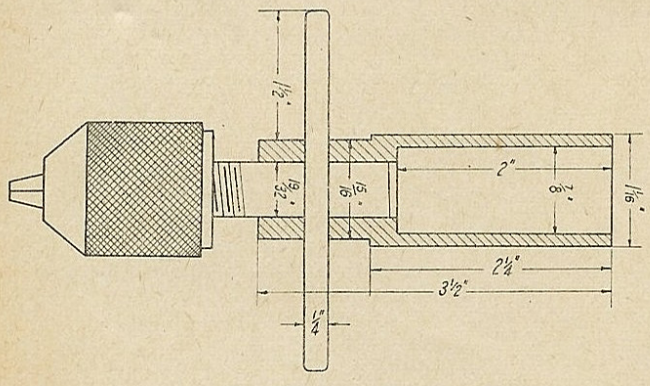
A Tailstock Tap Holder

By C. J. Fisher

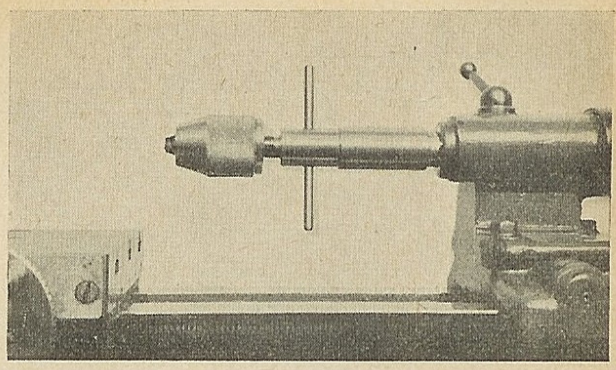
ALTHOUGH there have long been on the market several designs of die holder for fitting to the tailstock, no-one appears to have filled the need for a tap holder to permit of the true tapping of holes drilled in material held on the face-plate, or in the chuck.

With the larger sizes of tap, having a centre at the square end, it is, of course, a simple matter to tap a hole truly, but where no such provision is made it is not an easy matter to prevent the tap from wobbling as it is turned or held by hand holder or spanner.

To overcome this trouble the simple device shown in the photograph was made, the dimensions on the sketch being



suitable for the 3½ in. Drummond lathe, although the only material alteration for any other make would appear to be in regard to the bore of the hole, which must be bored a



nice sliding fit on the outside of the tailstock sliding barrel, and, of course, the size of the hole for the shank of the particular chuck to be used, in this case 19/32 in.

For the body of the holder a length of round steel, 3½ in. by 1 1/16 in. dia. is required, the actual piece used being a portion of an axle shaft, obtained from the local car-breaker very cheaply.

The steel bar is held in the chuck, trued up outside for a length of about 2½ in., and the hole to fit the tailstock barrel bored, that for the parallel shank of the drill chuck which is used to hold the tap in use, being bored at the same time to ensure that both are concentric. The chuck shank should be a tight driving fit in the hole, and is further secured by the length of round steel, which must be a driving fit, forming the handle to prevent rotation of the holder in use.

It may be found an advantage to drill a small hole at the inner end of the larger bore to allow for the expulsion and entrance of air when fitting and removing the tool, but in many cases this will not be necessary, as the keyway on the tailstock barrel provides an air passage.

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force of the wind will be against the handle or back of the lamp. This facilitates the heating up of the vaporiser.

A common trouble with paraffin blowlamps is that the burner nipple becomes choked. The makers invariably supply a proper cleaning needle, and this should be used on each occasion this type of lamp is used. If a pricker one-thousandth larger than the size of the burner should be used, the blowlamp would burn badly and there would be a tendency to over-pump. Should the flame, after the lamp has been working normally, become elongated, it is an indication that the hole in the burner nipple has become enlarged and the remedy is to fit a new nipple.

Some Important Don'ts

(1) Don't fill a blowlamp near a fire or naked light.

(2) Don't try to light up a blowlamp by heating over a fire or by flooding it with spirit and igniting.

(3) Don't use petrol in a blowlamp designed for burning paraffin—because it is dangerous.

(4) Don't use paraffin in a blowlamp designed for burning petrol—because it will not function, except to eject a long flame of unvaporised fuel.

(5) Don't over-fill the container, three-parts full is a safe rule.

(6) Don't remove the burner nipple unless it is worn out and requires renewal.

(7) Don't try to extinguish the flame of a petrol blowlamp by unscrewing the filler cap or valve. Turn the regulator knob clockwise as far as it will go.

(8) Don't attempt to clear obstructions from the burner nipple by pump force, use the correct cleaning needle.

(9) Don't attempt to fit spare parts such as nipples, filler caps, valve screws, other than those supplied for the particular lamp being used—crossed or slack threads invariably result in leakage and loss of pressure.

(10) Don't swear at a blowlamp which refuses to burn properly—remedy the defects if possible—if it is beyond satisfactory repairs—scrap it and buy a British, Canadian, or American blowlamp.

These blowlamps are strong and efficient. After assembly each lamp is subjected to severe tests to many times the normal working pressure—as well as practical flame tests.