

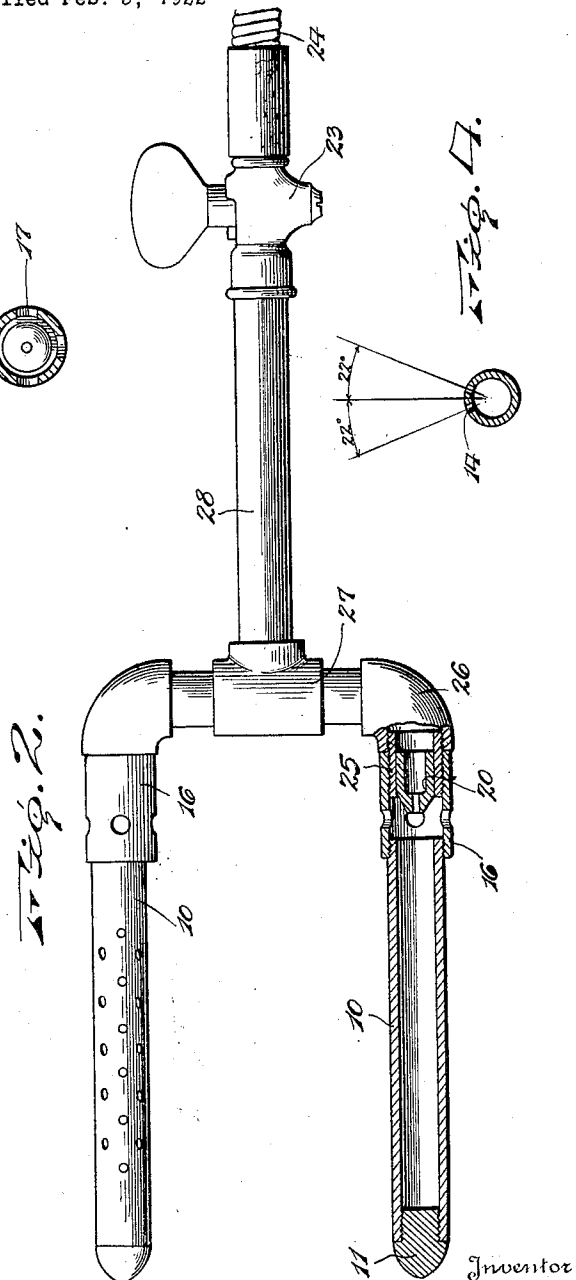
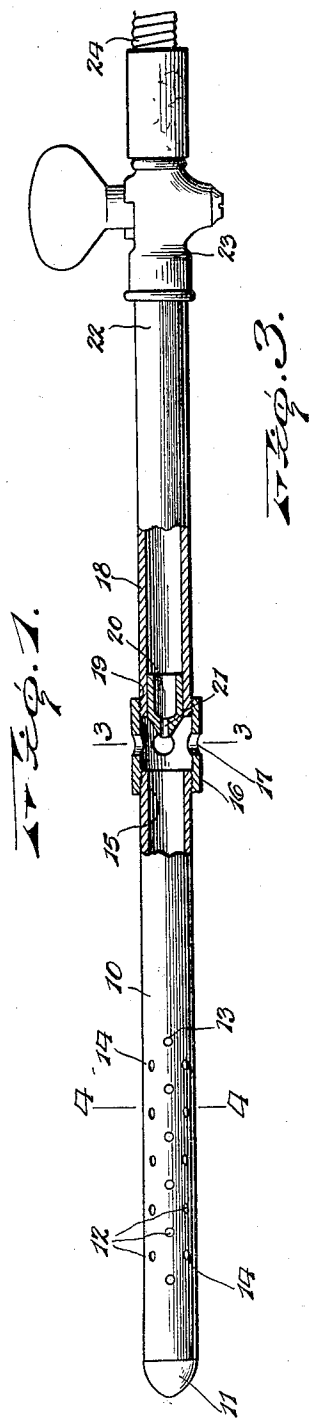
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FIRE KINDLER AND BLOWTORCH

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UNITED STATES PATENT OFFICE.

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FIRE KINDLER AND BLOWTORCH.

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To all whom it may concern:

Be it known that I, ALFRED G. COUTU, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Fire Kindlers and Blowtorches, of which the following is a specification.

The present invention relates to fire kindlers, and the main object of the invention is to provide an implement of this class, that is able to start a good fire without the assistance of kindling wood, charcoal or the like. From actual tests made, it has been proved, that a good hard-coal fire can easily be started in about fifteen minutes and a white hot fire in about thirty minutes, requiring only about 50 cubic feet of gas or at the rate of about 100 cubic feet per hour, the fire kindler producing a blue flame about $3\frac{1}{4}$ inches long.

Another advantage of this fire kindler is, that it may be applied under the grate directly to the coal, or if ashes and cinders have collected in the pan under the coal or in the fire box, the fire kindler may be inserted into the ashes without injury to it, as it is self-cleaning and no ashes can clog the orifices.

Another object of the invention is to construct the device in such a manner, that it may be used as a blow torch for welding or soldering. All that is necessary in that case, is to remove the burner and thereby expose the gas jet nozzle, which will produce in this case a blue flame about five inches long with the same rate of consumption of gas.

Still another object is to provide an implement of a convenient size, one part thereof forming a handle of sufficient length to prevent the burning of the operator's hand, and which will be very simple, so that it may be manufactured cheaply and those parts, which are apt to wear, may be easily replaced at a small cost.

In the accompanying drawings one embodiment of the invention is illustrated; and Figure 1 shows the fire kindler in top plan view partly in section;

Figure 2 is also a top plan view partly in section of a double-burner fire kindler;

Figure 3 is a transverse section along line 3—3 of Figure 1; and

Figure 4 is another transverse section, along line 4—4 of the same Figure.

The fire kindler consists of a tubular

burner 10 which is closed at its free end by a plug 11 preferably threaded into the tubular burner. On the upper side of the burner 10 is provided a number of lighter holes 12 which are preferably arranged in three rows, a central row 13 of about six uniformly spaced holes situated in the vertical longitudinal plane of the tube and two parallel side rows 14 which are situated in planes inclined about 22° to the vertical plane as best seen in Figure 4. By this arrangement a long fan shaped flame will be produced, which with ordinary gas pressure projects about $3\frac{1}{4}$ inches above the burner, this position of the holes and the direction of the flame has been experimented upon and proved to be the most desirable.

The inner end 15 of the burner 10 is threaded into a sleeve 16 which is provided with a number of air orifices 17, four being shown in Figure 3, arranged in the same transverse plane of the sleeve and spaced 90° apart. The inner end of the sleeve 16 is also threaded and engages the outer end 19 of the gas pipe 18, sufficient length of thread being provided so that the sleeve 16 may be screwed in or out on the end of the pipe for properly locating the orifices 17 with relation thereto. In this end 19 of the gas pipe 18 is inserted a nozzle 20 tapering outwardly and provided with a central aperture 21 through which the gas is fed into the sleeve 16 and burner 10. This nozzle acts as injector to draw atmospheric air through the orifice 17 of the sleeve 16 and the in and out adjustment of the sleeve 16 on the end 19 provides means for properly adjusting the fuel mixture of gas and air before it reaches the lighter holes 12 in the burner.

At the inner end 22 of the gas pipe 18 is attached a gas cock fitting 23 for regulating the intake and flow of gas from a flexible gas hose 24 secured on the fitting 23.

At times it might be desirable to supply two or more burners for lighting a fire and in that case a construction like the one shown in Figure 2 is provided which has all the main parts the same as the construction just described. This large fire kindler has two burners 10 like the one described in the previous construction each inserted in a sleeve 16, each sleeve being threaded to a short piece of pipe 25 secured in the elbow 26 connected to a T 27 threaded on the end of the gas pipe 28 which, as before, carries a cock fitting 23 adapted to engage with the

flexible hose 24. A nozzle 20 is here inserted in each of the short pipes 25 and the free end of each burner has a plug 11 as already described. The use of the burner
5 is as follows. The gas pipe 18 serves as a handle and has sufficient length to prevent the burning of the operator's hand and by means of this handle the burner is inserted
10 beneath the fire box or in the ashes therein after the gas cock has been opened and the fuel mixture has been ignited in the burner 10. The pressure of the fuel mixture, when emanating from the holes 12 is sufficient to prevent any clogging of the holes even if the
15 ashes are tightly packed.

By removing the burner 10 with the sleeve 16 the nozzle 21 will be exposed and the device may then be used as a blow torch, when a flame about five inches long will be
20 produced at the nozzle.

Instead of adjusting the position of the air inlet orifices 17 with relation to the aperture 21 by turning the sleeve 16 on the end 19 of the gas pipe 18, the adjustment
25 may be made by pushing the nozzle 20 further into the pipe.

Having thus described the invention what is claimed as new is:

1. A fire kindler comprising a gas supply
30 pipe constituting a handle, a nozzle in the end of said pipe having a discharge orifice axially alined with the pipe, and a burner tube carried by the gas supply pipe and detachably secured to the end of the pipe
35 about the nozzle and having lateral air inlet openings through its wall adjacent the end of the nozzle.

2. A fire kindler comprising a gas supply
40 pipe constituting a handle, a nozzle in the end of the pipe having a discharge orifice

alined axially with the pipe, and a burner tube carried by and adjustably longitudinally on the end of the pipe about the nozzle and having lateral air inlet openings through its wall adjacent the end of the
45 nozzle.

3. A fire kindler comprising a gas supply pipe constituting a handle, a nozzle in the end of said pipe having a discharge orifice in its end, a burner tube, a cylindrical coupling sleeve having one end secured directly
50 to and encircling the end of the burner tube and its opposite end secured directly upon and longitudinally adjustable of the gas supply pipe and provided with lateral air inlet
55 openings through its wall adjacent the end of the nozzle, and a cut-off valve in the gas supply pipe at a point remote from the nozzle and the coupling sleeve.

4. A portable fire kindler comprising a
60 gas supply pipe constituting a handle, an injector nozzle having adjustable sliding engagement in the forward end of said pipe and provided with a central discharge orifice, a burner tube in axial alinement with
65 said supply pipe and said discharge orifice, a cylindrical coupling sleeve having one end secured directly to and encircling the end of the burner and its opposite end threaded upon said gas supply pipe and provided
70 with radial air inlet apertures through its wall, the turning of said coupling sleeve thus permitting adjustment of the position of said air inlet apertures in relation to said discharge orifice, and the sliding of said
75 injector nozzle providing additional adjustment of said orifice and apertures.

In testimony whereof I affix my signature.

ALFRED G. COUTU. [L. s.]