Nov. 12, 1929. K. R. SCHREIER 1,735,658

CRUDE OIL BURNER

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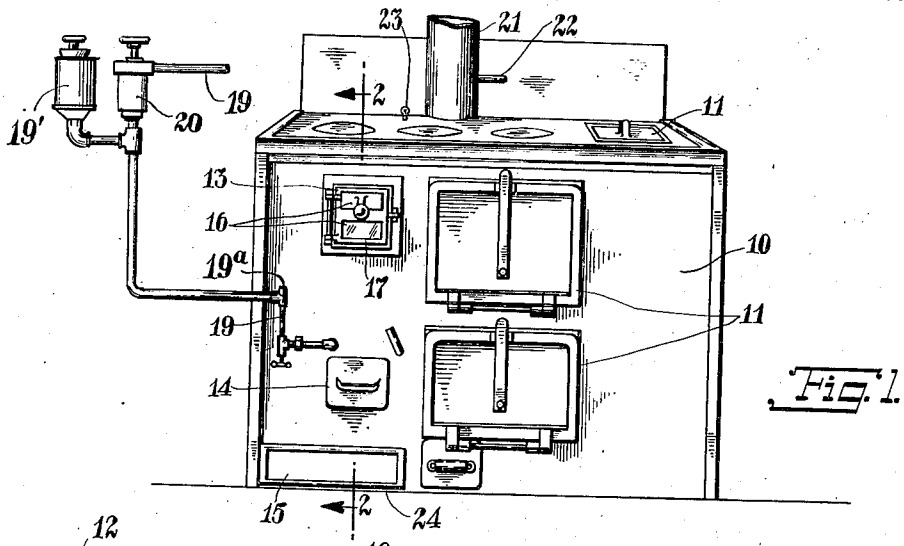


Fig. 1.

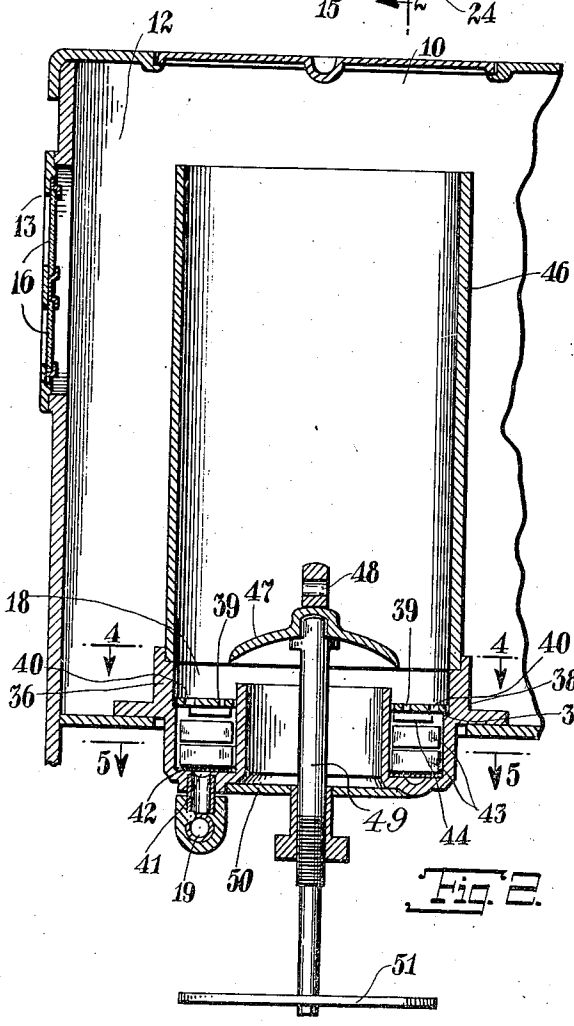


Fig. 2.

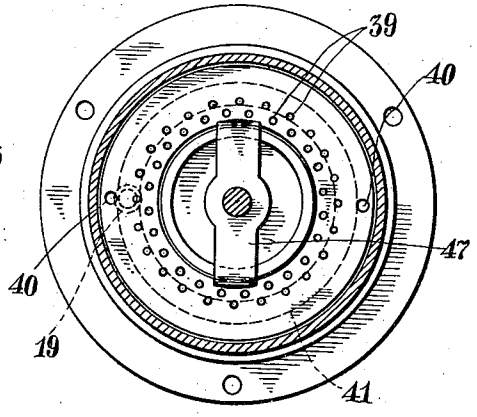


Fig. 4.

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CRUDE OIL BURNER

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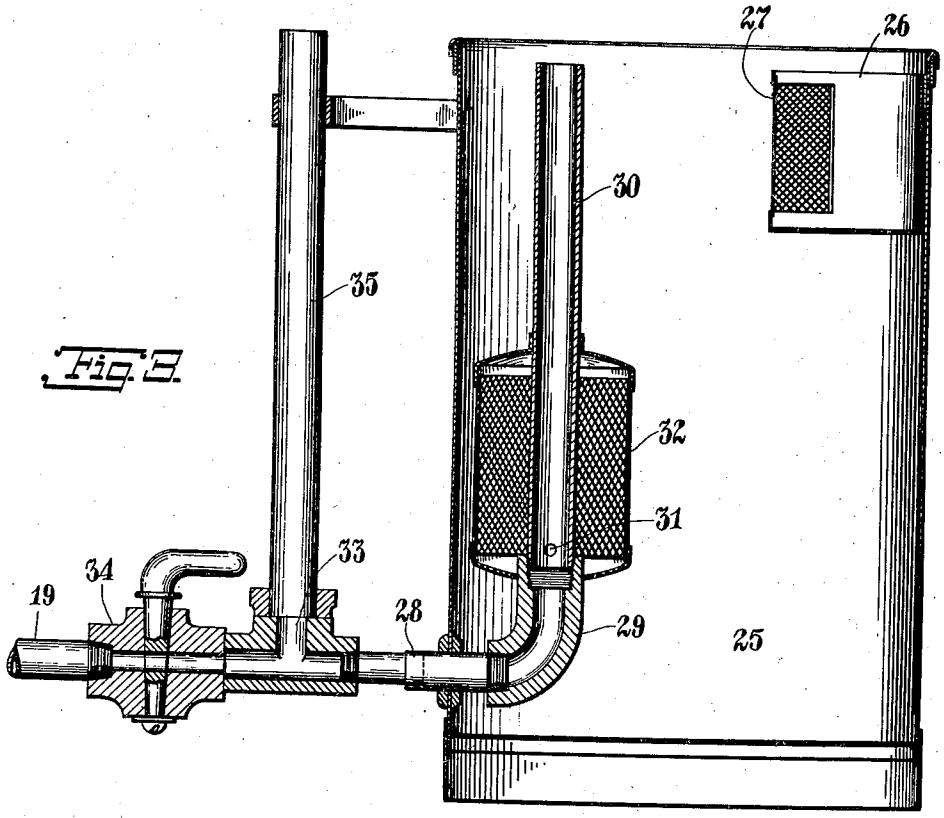


Fig. 3.

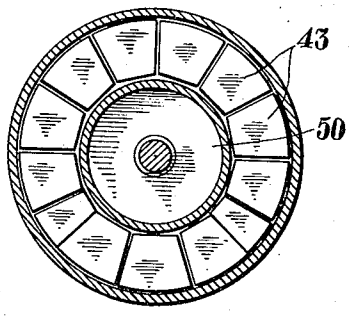


Fig. 5.

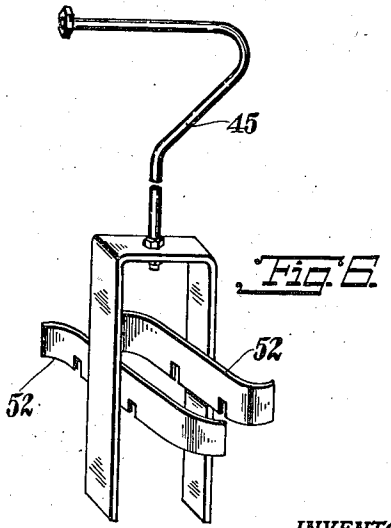


Fig. 6.

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UNITED STATES PATENT OFFICE

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CRUDE-OIL BURNER

Application filed January 27, 1928. Serial No. 249,848.

This invention relates generally to stoves, and has more particular reference to a crude oil and kerosene burner.

The invention has for an object the provision of a crude oil and kerosene burner which will deposit residuum within the stove and chimney to a very small degree, and which can be manufactured and sold at a reasonable cost.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Referring to the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of a stove constructed according to this invention.

Fig. 2 is a vertical sectional view, taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical sectional view of the fuel holder used in the invention device.

Fig. 4 is a horizontal sectional view, taken on the line 4—4 of Fig. 2.

Fig. 5 is a horizontal sectional view, taken on the line 5—5 of Fig. 2.

Fig. 6 is a perspective view of a rake used in the invention device.

The reference numeral 10 indicates generally a stove having certain baking chambers with doors 11 forming closures therefor, and a burner chamber 12, with a door 13, another door 14, and an opening 15 communicating therewith. The door 13 has some mica glass 16 slidably arranged to regulate the size of opening 17 through this door, serving to make a draft for kindling. The door 14 may be used for setting the burner 18 hereinafter more fully described, and also for air conduction. The opening 15 is an air entrance to the burner chamber 12, and when the burner is not in operation, may be covered to keep the warmth in the stove.

The pipe 19 connects with an oil supply not shown in the drawing and is provided with an admission valve 20. A fuel container 19′ connects with pipe 19 below said valve 20. The pipe 19 is provided with an air aperture 19^a. The stove has a chimney 21 provided with a chimney slide 22 to throttle the air during a strong draft, and when not in use to keep the warmth in. The stove is provided with an auxiliary slider 23 so that when there is little draft to send the gases directly up to the chimney this slider may be used until the fire is going. A mirror may be placed through opening 15 and the burner thus watched, just in the beginning until one is familiar with its functioning.

The fuel holder used in conjunction with the stove is illustrated in Fig. 3 and numeral 25 indicates its casing, which is preferably a cylindrically shaped receptacle. A smaller tin receptacle 26 is suspended from the upper edge of receptacle 25, and has one side formed with fine wire gauze 27. A pipe 28 connects through the receptacle 25 near the bottom thereof, while an L 29 connects to the inner side of the pipe. Another pipe 30 extends from L 29, and this pipe has an aperture 31. A fine wire-gauze container 32 is supported around the pipe 30 and housing the aperture 31. The outer end of pipe 28 connects with T 33 which in turn connects with valve 34 connected to pipe 19. The upper end of T 33 connects with liquid stand glass 35. It is of importance that equally sized drops be inducted into the burner 18, since all liquid fuels deposit matter when left standing. This sieve arrangement prevents the entrance of slime into the conduction pipe as much as possible, and tends to equalize the size of the drops. The fuel oil is poured into the receptacle 26, passes through sieve 27, which withholds the first impurities, the fuel oil next passes through the second sieve 32, then through aperture 31 into pipe 30, L 29, pipe 28, T 33, valve 34, and pipe 19. The sieve 32 also keeps slime from entering the conduction pipes. After a short time the sieve 32 is removed and cleaned with kerosene. Cleaning is necessary only after several months. Well timed cleaning is imperative, and the cleaner the oil is, the better.

The burner 18 has a main body 36 provided with shoulder 37 supporting a hole plate 38

having perforations 39, and two threaded apertures 40 for accommodating lifting hooks to lift the plate off for cleaning purposes. The apertures 40 are loosely plugged when not in use. The bottom of the main body 36 is provided with a groove 41 extending around in a circle and a flat semi-circular ring 42 covers half of the circumference of this groove. Pipe 19 enters this groove and the half ring 42 effects an oil division both ways around the groove. Two layers of a plurality of porous stones 43 are positioned above the groove 41. These stones are made of muddy clay and medium thick sawdust, which in a mixing process two parts clay and three parts sawdust are put together and slightly burned. During the fitting in, the stones are a bit ground off so that they may fill out the burner body with small grooves therebetween. A ring 44 is positioned above the stones, which serve to catch the fine residuum which falls through the hole-plate 38 during the cleaning of the burner with raker 45, shown in Fig. 6, which takes place each time the burner is lit, which residuum when in motion is for the most part impelled upwardly and burned. A cylinder 46, preferably of cast iron, rests on top of the body 36. A cast iron hat 47 has a perforation 48 in order to be able to lift it with the rake, and a rod 49 adjustably supports this hat at various heights to obtain proper air conduction, the rod 49 being supported by the body 36, by plate 50. A pin 51 passes through the bottom of the rod.

The raker 45 may be manipulated to loosen the residuum from the burner plate 38 and has arms 52 for this purpose.

The operation of the device consists in opening valve 20 and letting fuel into the burner until the hole-plate 38 is just moist. This filling must be done several times until the stones 43 have absorbed every bit of oil, and the oil level will not sink any more and the plate 38 is moist. Then some fuel should be poured on the hat 47. A burning match should be thrown in, whereupon the mixture flames up. At first supply a small quantity of oil. Should the fire burn jerkily, open door 13 slightly until the flames burn quietly then close the door and regulate the oil supply. The cylinder 46 becomes faintly glowing and the burning takes place under normal conditions without soot or smoke.

Before each re-kindling of the fire the hat is lifted off with a hook inserted in hole 48, and the raker 45 used to clean the hole-plate 38. Should the hole-plate be dry, some of the fuel must be spilled thereon with a dropper so that the residuum may be removed therefrom.

The use of this burner is harmless as neither air nor steam pressure is necessary and only a natural draft has effect. Once one is familiar with the burner it necessitates very little attention. The use of it is clean and ordorless, the plate and pots remain clean. The hands need not be soiled when kindling a fire.

After two or three weeks of use it is necessary to lift the cylinder 46 and hole plate off in order to clean the ring 44. It is better to lift them when the burner is still a bit warm. When the cylinder is lifted off, the plate is cleaned of residuum and lifted out. Should the plate hold fast, it must be wetted with kerosene and forced with a three-quarter quadratic wood wedge and with a light hammer lightly knock the wedge around and around the plate, so that through the shaking, the plate may be loosened. Then with the screws inserted in holes 40 turn the plate, eventually lightly knocking the screws on the bottom. Then through pushing the plate right and left, the plate is turned until it is loose.

The plate and ring are cleaned and put together again.

Should the stones 43 be found dirty after a long time, they too should be cleaned. Take them out, put in kerosene, clean them by rubbing them against each other and rinse in kerosene. Then the burner must be cleaned with kerosene rags and put together right.

When using it again kindle the same as the first time.

While I have illustrated and described the preferred form, construction and arrangement of the several elements employed, it will be understood that the device is nevertheless susceptible of considerable modification therein, and I therefore reserve the right and privilege of resorting to all such changes as may be fairly embodied within the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, two layers of porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, said plate being supported by and within the main body and arranged to be lifted and removed therefrom, a hollow cylinder resting on the top of said main body, a rod adjustably supported by the main body, and a deflecting cap on the upper end of said rod.

2. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, two layers of porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, a hollow cylinder resting on the top of said main

body, a rod adjustably supported by the main body, a deflecting cap on the upper end of said rod, and means for supplying filtered crude oil to said groove.

3. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, two layers of porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, said plate being supported by and within the main body and arranged to be lifted and removed therefrom, a hollow cylinder resting on the top of said main body, a rod supported by the main body, a deflecting cap on the upper end of said rod, and means for supplying filtered crude oil to said groove.

4. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, two layers of porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, said plate being supported by and within the main body and arranged to be lifted and removed therefrom, a hollow cylinder resting on the top of said main body, a rod adjustably supported by the main body, a deflecting cap on the upper end of said rod, and means for supplying filtered crude oil to said groove, said burner being encased in a stove provided with air conduction means.

5. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, said plate being supported by and within the main body and arranged to be lifted and removed therefrom, a hollow cylinder resting on the top of said main body, a rod adjustably supported by the main body, a deflecting cap on the upper end of said rod, and means for supplying filtered crude oil to said groove.

6. A crude oil burner comprising an annular main body provided with a groove extending around the bottom thereof, a flat semi-circular ring covering half of the circumference of said groove, two layers of porous stones positioned above said groove, a ring positioned above said stones, a perforated annular plate above said ring, said plate being supported by and within the main body and arranged to be lifted and removed therefrom, a hollow cylinder resting on the top of said main body, a rod adjustably supported by the main body, a deflecting cap on the upper end of said rod, and means for supplying filtered crude oil to said groove.

In testimony whereof I have affixed my signature.

KARL REINHOLD SCHREIER.