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M. STROSK

2,248,728

OIL BURNER

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Fig. 1.

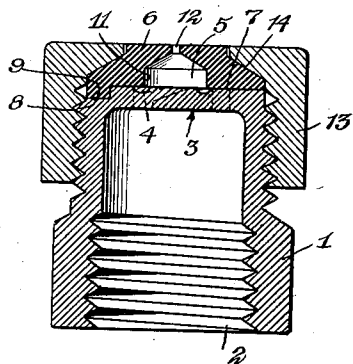


Fig. 2.

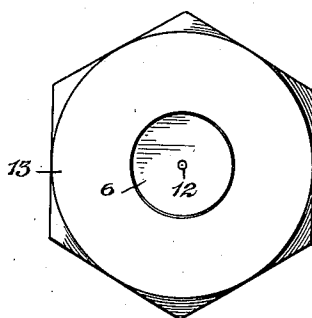


Fig. 5.

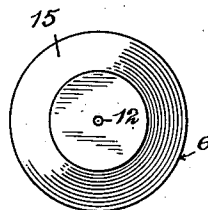


Fig. 3.

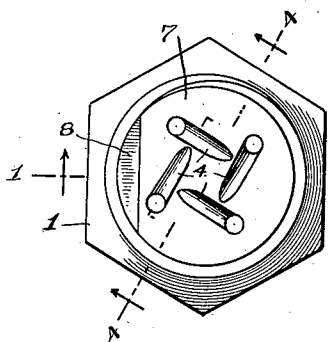


Fig. 8.

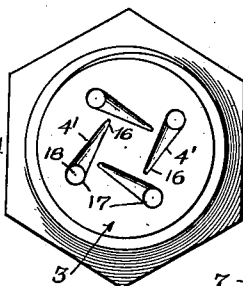


Fig. 6.

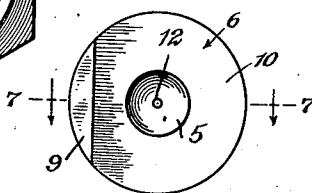


Fig. 4.

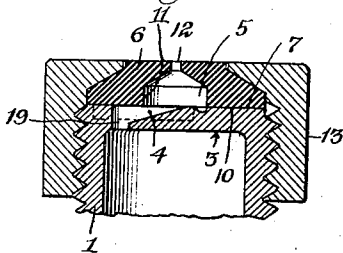
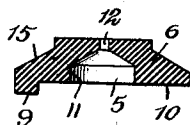


Fig. 7.



WITNESSES

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OIL BURNER

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Application November 10, 1939, Serial No. 303,758

4 Claims. (Cl. 299—120)

This invention relates to oil burners and has for an object to provide an improved construction in which the nozzle plate or block is held against movement when the parts of the burner are assembled.

Another object of the invention is to provide an oil burner having a plurality of jets arranged tangentially and positioned to discharge into a nozzle and formed to present passageways flaring from the discharge end to the inlet end.

A further object of the invention is to provide an oil burner provided with a body having an inlet end and an outlet end provided with a plurality of diagonally positioned and tangentially arranged passageways and a nozzle block coacting therewith formed with a chamber having a central outlet and also formed with an abutment or protuberance interlocking with a notch or recess in the burner body so that when the block is being clamped in position it cannot rotate.

In the accompanying drawing—

Fig. 1 is a longitudinal vertical section through a burner disclosing an embodiment of the invention, the section being taken on the line 1—1 of Fig. 3;

Fig. 2 is a top plan view of the structure shown in Fig. 1;

Fig. 3 is a top plan view of the structure shown in Fig. 1 with the nozzle block and clamping nut removed;

Fig. 4 is a sectional view through Fig. 3 approximately on the line 4—4, the nozzle block and clamping nut being shown in position;

Fig. 5 is a top plan view of the nozzle block shown in Fig. 1;

Fig. 6 is a bottom plan view of the nozzle block shown in Fig. 5;

Fig. 7 is a sectional view through Fig. 6 approximately on the line 7—7;

Fig. 8 is a view similar to Fig. 3 but showing a slightly modified construction.

Referring to the accompanying drawing by numerals, 1 indicates a burner body having an inlet end 2 and an outlet end 3. The outlet end 3 is provided with a plurality of passageways 4 which are arranged at an angle to the horizontal when the body 1 is upright. Also these passageways are arranged tangentially, as shown in Fig. 3, so as to discharge into a chamber 5 formed by the end 3 and a nozzle block 6. The upper surface 7 of the end 3 is flat and smooth except for a notch 8 which has been formed in the body 1 for receiving the lug or abutment 9 of the nozzle block 6. The nozzle block 6 is provided

with a flat smooth lower surface 10 fitting against the flat smooth upper surface 7.

As indicated in Fig. 1, the nozzle block 6 is provided with a portion 11 which may be termed an annular shoulder. This shoulder is adapted to overlap the inlet end of each passageway 4, as shown in Fig. 4. As the oil passes through opening 2 under some considerable pressure, it will move to the end 3 through aperture 19, and then through the passageways 4 to chamber 5, whereby it is given a whirling action for thoroughly mixing the oil so that when it merges into a single stream it will pass through the discharge opening 12 in block 6. The discharge opening 12 may be of any desired size in respect to the passageways 4 but is preferably smaller than these combined openings though it may be larger than any one opening or passageway 4. After the nozzle block 6 has been positioned as shown in Fig. 1, the clamping nut 13 is screwed into position and the inclined surface 14 will engage the inclined surface 15 of the block and firmly clamp the block against the surface 7.

Nozzle blocks somewhat similar to blocks 6 have been used heretofore but the complete lower surfaces of the blocks were uniform throughout. In the present structure, however, the abutment or protuberance 9 is provided which approximately fills the notch 8 so that when the nut 13 is tightened the block 6 cannot rotate but can move only downwardly against the surface 7. This will prevent any scratching or distortion of either the surface 10 of the block or the surface 7 of the end 3.

In Fig. 8 a slightly modified structure is provided wherein the various passageways 4' are flared from the discharge outlet end 16 to the inlet end 17. The inlet end 17 merges into an aperture 18 which is a passageway extending parallel with the axis of the body 1 entirely through the end 3. The shoulder 11 is adapted to fit over the aperture or passageway 18 and thereby deflect the oil so that it will move through the various passageways 4' into the chamber 5.

The burner is adapted particularly for use in connection with steam boilers on steamships or elsewhere. The oil used on steamships, for instance, is usually a rather low grade oil and is generally heated until it is in a liquid state. This oil is then forced under some desired pressure through the inlet end 2 and passes through the various passageways 4 to the chamber 5 and then out through the outlet or discharge opening 12. The oil rapidly moves in the path just mentioned and by reason of the whirling action auto-

matically maintains the chamber 5 clean of any foreign substance or any deposit.

By reason of the abutment 9 and notch 8, the surfaces 7 and 10 are maintained in their original substantially perfect condition so that they will fit tightly together and no deposits from the oil can be made therebetween. When an aperture 12 of the size shown in the drawing is used, a certain amount of oil is utilized or burned, but if it should be desired to use more oil the clamping nut 13 is removed and also the block 6. A new block 6 with a larger opening 12 is then supplied and clamped in place by the nut 13. This will allow a larger amount of oil to be used and new blocks may be supplied from time to time, if desired, with larger and larger discharge openings up to a size of orifice which will be slightly less than the combined areas of the passageways 4. As the blocks are removed and new ones provided, there will always be a clean surface on the blocks 6 and also on the surface 7 as none of the blocks can rotate during the tightening of the nut 3. This is very desirable as under some circumstances, as for instance where a change in speed of a ship is desired, the blocks 6 are removed and replaced several times in one day. As the burner is substantially self-cleaning the parts need not be disassembled for cleaning except at long intervals.

I claim:

1. An oil burner of the character described including a burner body having an oil inlet at one end, a flat top plate integral with the opposite end of said body and provided with a plurality of oil outlets and a notch at the periphery depending from the upper surface, a nozzle block having a flat bottom fitting flatwise against the upper surface of said flat top plate, said block having a central oil outlet in free communication with said oil outlets and an abutment at the periphery depending from the flat bottom positioned to fit into said notch for preventing independent rotary movement of the block, and means for clamping said nozzle block in functioning position.

2. An oil burner including a burner body having an inlet at one end for the admission of oil, an outlet end having a notch in one side thereof and a plurality of tangentially arranged passageways at an angle to a plane perpendicular with the discharge ends arranged in a circle on the discharge face of said outlet end, said discharge face being flat, a nozzle block having a flat bottom arranged to press flatwise against said discharge face, said nozzle block having a centrally positioned discharge opening and an abutment at the periphery substantially filling said notch

for preventing independent rotary movement of said nozzle block, said nozzle block and said outlet end forming an uninterrupted open chamber for receiving oil passing through said passageways, said chamber and said passageways being arranged so that the oil from the passageways will first move tangentially across said chamber and then merge into a whirling central mass which in turn merges into a single stream passing through said discharge opening, and means for clamping said nozzle block in position against the end of said body having said notch.

3. An oil burner including a burner body having an oil inlet at one end and a plurality of oil outlets at the opposite end, said opposite end being formed as a flat closure plate provided with a notch and a plurality of diagonal tangentially arranged passageways extending through said plate and flaring from their discharge ends to their entrance ends with their discharge ends arranged in a circle spaced from a central point, a nozzle block formed with a flat bottom surface arranged flatwise against said flat plate, said nozzle block having an abutment extending from its flat bottom and filling said notch for preventing independent rotary movement of the block, said block being also formed with a central outlet and an uninterrupted whirling chamber in communication with said passageways, said chamber discharging through said central outlet and means for clamping said nozzle block in functioning position.

4. An oil burner including a burner body having an inlet at one end, a flat top plate integral with the opposite end of said body and provided with a plurality of outlets and a notch at the periphery depending from the upper surface thereof, each of said outlets including an aperture extending longitudinally of said body entirely through said plate and a passageway for each aperture extending tangentially so that the outlet ends of the passageways will be in a circle, a nozzle block adapted to be mounted on said opposite end, said nozzle block having a flat bottom fitting flatwise against said flat top plate, said block having a central discharge aperture, a chamber merging into said discharge aperture and in free communication with the outlet ends of said passageways, an annular shoulder positioned to cover all of the apertures extending entirely through said flat top plate of the burner body and an abutment extending from said block positioned to substantially fill said notch so that the block cannot rotate independently of said body, and means for clamping said nozzle block in functioning position.

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