

July 6, 1948.

W. E. SWENSON

2,444,543

LATCHING DOOR FOR ENCLOSURES

Filed April 6, 1946

2 Sheets-Sheet 1

FIG 1

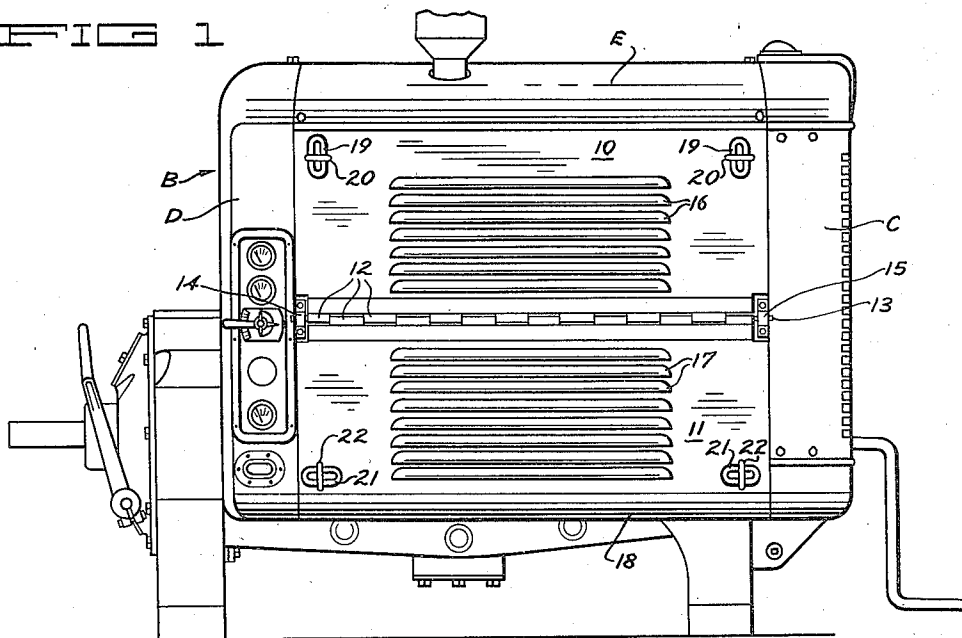
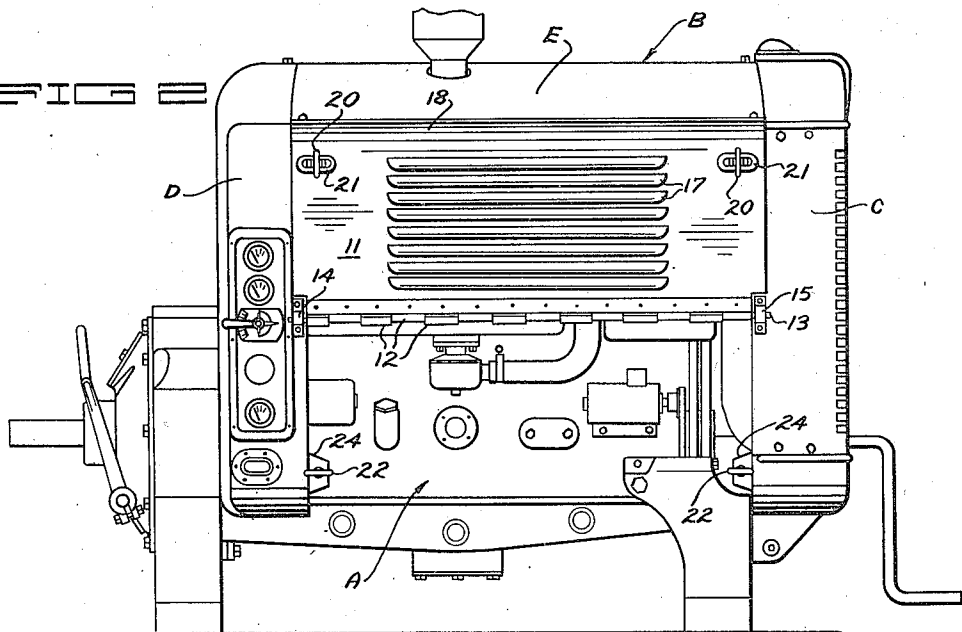


FIG 2



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FIG 4

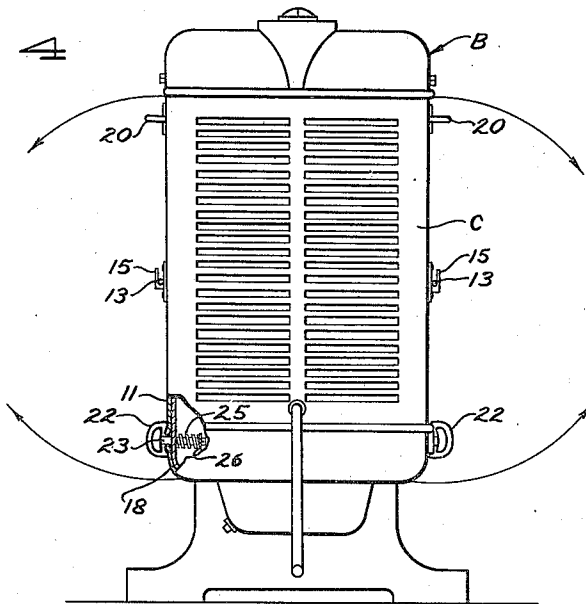
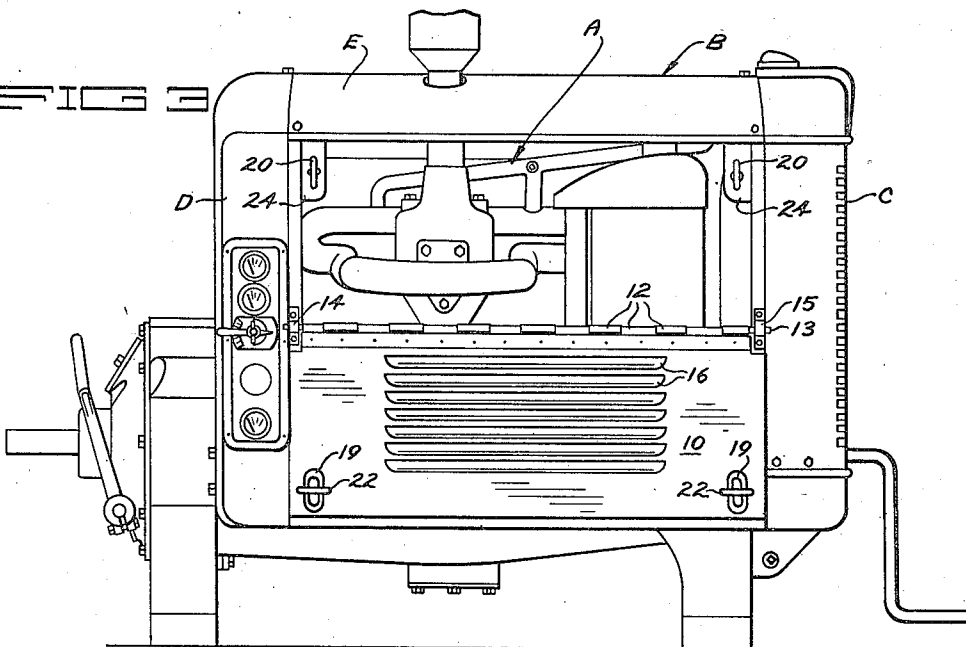


FIG 3



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UNITED STATES PATENT OFFICE

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LATCHING DOOR FOR ENCLOSURES

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5 Claims. (Cl. 220—32)

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This invention relates to improvements in enclosures for power plants.

The usual stationary or portable power plant includes an internal combustion engine and all accessory apparatus, and an enclosure or hood assembly for the engine to protect it from the elements. Such enclosure generally has single doors or sliding panels at its sides which may be opened, in the case of the doors, or slid aside and removed in the case of the sliding panels, for inspection of the engine, servicing and like operations. However, particularly in the case of very large power plants, the single doors are cumbersome and even when swung up or down, or moved aside, as the case may be, do not permit free access to all parts of the engine. It is frequently found, as a result, that the operator of the engine will entirely remove the doors and lay them aside and they then are often misplaced, run over or stepped upon and bent out of shape so that they cannot be replaced.

It is the primary object of my invention to so improve enclosures of this type that access may be readily obtained to all parts of the engine and the utmost in convenience provided in this operation so that there will ordinarily be no reason for the operator to remove the enclosures. Another object is to provide a power plant enclosure in which each side of the engine is protected by a pair of swinging doors or door panels, either of which may be swung about a common horizontal hinge axis to permit access to either the upper or lower parts of the engine, or both, when inspection or servicing is needed or to provide for best ventilation and weather protection under all conditions. Still another object is to provide a multi-panel, or door, side enclosure of this character with a novel arrangement for locking the doors in various positions, and with the supports for the doors so arranged that they may be readily removed entirely from the power plant whenever required.

These and other more detailed and specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which—

Fig. 1 is a side elevation of a power plant having an enclosure in accordance with my invention, both the upper and lower doors or panels being here shown in closed positions.

Fig. 2 is a similar view but with the lower door opened.

Fig. 3 is a similar view, with the upper door opened.

Fig. 4 is a front end view, showing the arcs through which the doors may swing and with a section broken away to better illustrate one of the latches.

Referring to the drawing now more particularly and by reference characters, A designates generally the engine of a conventional power plant and B the enclosure which as here shown conventionally includes at its forward end a radiator C, at its rear end a similarly shaped rear housing D, and a top hood E which connects the radiator and housing and forms a permanent top cover for the engine. The open spaces at the sides between the radiator C and housing D and below the downwardly turned lateral edges of the hood E are usually closed either by a single hinged door at each side, or by sliding door panels, and it will be readily apparent that, particularly in the case of the very large power plants, such doors or panels are quite large and heavy. Further it will be evident that the single doors will be awkward and much in the way when opened for receiving the engine and, as stated heretofore, this is largely the reason why they are often removed and laid aside by the operator. The engine is then left exposed to the elements, when it is operated out of doors, and the doors frequently become so damaged by cars and trucks running over them, or from being stepped upon, that they cannot again be used.

In accordance with my invention I provide for each side opening a pair of swingable doors or door panels as will now be described. At each side I provide an upper door or panel 10 and similar lower door or door panel 11 and join the respective lower and upper edges of these by forming interfitting hinge loops 12 through which is positioned a hinge rod 13. The shape and size of the doors 10 and 11 are such that they will cover respectively the upper and lower halves of the side opening when they are closed, as seen in Fig. 1, and to support the doors I provide a bracket forming a hinge eye 14 secured to the rear edge of the opening upon the side of the housing D and at the proper level and in line therewith at the front another bracket having an upwardly pointing hook 15 is provided and secured to the radiator C. The length of the hinge rod 13 is such that it projects a short distance both forwardly and rearwardly from the doors and its rear end may thus be inserted into the eye 14 and its forward end dropped into the notch inside the hook 15 to support the doors as will be understood. Also as will be readily apparent, the doors may be removed by lifting the hinge rod from the hook and pulling it out of the eye.

Both doors 10 and 11 have ventilating louvers 16 and 17 and the lower door 11 is curved at its lower edge 18 to follow the contour of the radiator C and housing D.

The upper door 10 is provided, adjacent its upper corners, with vertically elongated and

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upright slots 19 which cooperate with conventional latches 20. In similar fashion the lower door 11 has slots 21 but these are elongated or extended horizontally and cooperate with latches 22. All of the latches 20 and 22 are of the well known form having an outer wing or yoke portion and stems 23 (Fig. 4) extending slidably and rotatably inward through suitable brackets 24 secured to the rear of the radiator C and forward edge of the enclosure D. Each stem 23 is provided, inwardly of the associated bracket 24, with an expansion coil spring 25 braced between the bracket and a collar 26 secured to the stem and the arrangement is obviously such that, when the latches are turned crosswise to their slots, they will engage the margins thereof and the springs will hold the doors tightly closed. On the other hand, the latches may be pulled out against the tension of the springs and turned parallel or into alignment with the slots and when released the slots will clear the latches as the doors are opened.

It will now be apparent that either the upper or lower doors 10 or 11 may be readily opened to allow access to upper or lower parts of the engine A, and that each door, being only half the size of the usual single doors, will be light and easily operated. The relative angles of the slots 19 and 21 is important in that, as in Fig. 2, when the lower door 11 is swung up flat against the upper door 10 the slots 21 will slip over the upper latches 20, which are horizontal at the time (see Fig. 1) and then said upper door may be locked in this position by merely turning latches 20 to vertical positions crosswise to the slots 21 as clearly shown. Thus the doors may be latched to leave the lower halves of the side openings open for servicing the engine, or for ventilation when it is desirable to protect upper parts of the engine from rain or the like. Conversely, as seen in Fig. 3, the upper door 10 may be turned down flat against the lower door 11 and in this case the vertical slots 19 will clear the lower latches 22, which are vertical at the time, and the doors may be latched in such position by turning the lower latches horizontally and crosswise to the slots 19. This position of the doors provides the maximum of ventilation for the upper parts of the engine as will be apparent.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described my invention, what I claim to be new and desire to protect by Letters Patent is:

1. A door structure for closing the side opening of an enclosure comprising upper and lower doors adapted to separately close upper and lower parts of said opening, the upper and lower doors being connected along their respective lower and upper edges by a hinge supported on the enclosure and in such manner that the upper door may be opened and swung down against the lower door, while the latter remains closed, or the lower door opened and swung upwardly against the upper door while the upper door remains closed, latch means for the upper door and also operative to latch the lower door when swung upwardly against the upper door, and separate latch means for the lower door operative also to latch the upper door when it is lowered against the lower door.

2. A door structure for closing the side opening of an enclosure comprising, upper and lower

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doors adapted to close upper and lower parts of said opening, the said doors being hinged respectively at their lower and upper edges whereby the doors may be opened one at a time and the upper door may be swung down against the lower door to open the upper part of the opening or the lower door swung upward against the upper door to open the lower part of the opening, and latch means for holding the doors closed and operative to hold either door against the other when one of the doors is opened.

3. A device for closing a generally vertical side opening of an enclosure comprising, upper and lower doors adapted to close upper and lower parts of said opening, the said doors being hinged respectively at their lower and upper edges whereby the doors may be opened one at a time and the upper door may be swung down against the lower door to open the upper part of the opening or the lower door swung upward against the upper door to open the lower part of the opening, one door having slots extending in one direction and the other having slots extending in a different direction, and rotary latches for engaging the margins of the slots for holding the door in both opened and closed positions.

4. An enclosure having an opening closed by a pair of doors along adjacent edges to fold one against the other, one door having a slot, a latch member adapted to pass through said slot and be turned at right angles thereto to hold the door closed, and the second door having a slot and a similar latch member for holding it closed, and the last mentioned slot being positioned at right angles to the first slot whereby when either door is folded flat against the other its slot will be aligned with and will clear the latch member for the other door which may then be turned to latch the doors one against the other.

5. A door structure for closing the side opening of an enclosure, upper and lower doors hinged respectively at lower and upper edges whereby the upper door may be opened and folded down against the lower door or the lower door may be opened and folded up flat against the upper door, the upper door having at least one slot, a latch adapted to pass through said slot and be turned at right angles thereto to hold the door closed, the lower door also having a slot, a latch adapted to pass through the slot in the lower door and be turned at right angles thereto to hold the door closed, and the slots in the doors being extended at right angles to each other whereby as either door is opened its slot will be aligned with the latch of the other door and may pass thereover after which the latch may be turned to hold both doors flat against each other.

WILLIAM E. SWENSON.

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Certificate of Correction

Patent No. 2,444,543.

July 6, 1948.

WILLIAM E. SWENSON

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Column 4, line 28, claim 4, after the word "doors" insert *hinged*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of September, A. D. 1948.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.