Clinical and Other Notes.

PORTABLE ALL-METAL DESTRUCTOR.

By MAJOR FREDERIC EVANS,
Royal Army Medical Corps,
AND
MAJOR H. H. CLAY,
Royal Army Medical Corps.
Field Sanitation Department, School of Hygiene.

In field conditions there is often the need of a small, and portable destructor by means of which a unit can burn excreta produced during a short occupation of a site.

To meet this need, an all-metal fæces destructor similar in principle to the large A.S.H. Standard Fixed Destructor has been designed and tried at the Army School of Hygiene. Although the tests of this apparatus have not been lengthy, and no data as to its life have therefore been obtained, the results were such as to justify publication of these descriptions and drawings so that the appliance can be tested under field conditions.

The body of the destructor is made from an ordinary 40-gallon steel drum. This is laid lengthwise and an opening is cut in its top side to form a feeding door. A burning hearth for the fæces, made from a half sheet of stout, perforated, corrugated iron, is fitted horizontally through the long centre of the drum. A flue is fitted at one end of the drum and provision for entry of the flame from an oil-and-water flash fire of horizontal “unit” type is made at the other end.

The general arrangement and details of construction are shown in the accompanying diagrams—figs. 1, 2, 3 and 4.

Fig. 1.—This shows the destructor in longitudinal section.

(a) The burning hearth of corrugated iron is supported on two removable crossbars and is itself movable and easy to replace when burned out: the lower corrugations are liberally perforated downwards with ½ inch holes so that liquids drain through into the lower half of the drum where they are quickly evaporated. No separate urine tray is thus necessary.

(b) The long sides of the rectangular opening cut in the top of the drum are supported by removable bars passed longitudinally through the drum from end to end.

(c) The piece cut out is fitted with extensions (strips of sheet metal) all round so as to overlap the joint, thus forming a close fitting lid.
FIG. 1

LOOSE TOP SHIELD
WIND SHIELD TO FLASH PLATE
OIL RETAINING LIP
FLASH PLATE
FLAME REFLECTOR
LONGITUDINAL SECTION
HORIZONTAL BURNER UNIT
PRE-HEATER TIN
LID REMOVED
REMOVABLE BAR
LIQUIDS HERE
SAUCES BURNING HEARTH
FLUE
REMOVABLE CROSSBAR
40 GALLON STEEL DRUM
CHIMNEY UP TO BTM. HIGH
DAMPER

FIG. 2

CROSS SECTION
(TWO Centre)
STRENGTHENING IRON STRIPS (EACH FITTING INTO EXCISESSES IN DRUM)
FLUE
LIQUIDS HERE

FIG. 3

CROSS SUPPORTING BARS TO BURNING HEARTH
BRICK SUPPORT TO PLATE
FRONT ELEVATION
HIGH OIL
LOW OIL
HIGH WATER
LOW WATER
BIB-COCK (LARGE BORE) FOR OIL
PLATE SUPPORTING OIL & WATER DRUMS
TEE PIECE FITTED WITH BENDS & TUNNELS
LOOSE TOP SHIELD
WIND SHIELD TO FLASH PLATE
OIL RETAINING LIP

FIG. 4

PERSPECTIVE VIEW
EXTENSION OF STRIP METAL
LID
HIGH
LOW

PORTABLE ALL-METAL DESTROYER
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(d) Most of the parts of the destructor can be made so that they may be stored inside the drum for transport, e.g. the cross bars (removed), the burning-hearth, some sections of flue piping and the burner unit.

(e) The flue is so fitted that one-half of its inlet is below and one-half above the level of the burning hearth. Gases produced are thereby brought into contact with flame and are combusted.

(f) The horizontal burner unit shown is the latest A.S.H. type of burner (with pre-heater tin) fitted into a 5-gallon oil drum. The oil and water are run into the pre-heater tin, which is perforated with fine holes around and above the bottom, this tin resting on the shallow central dome of the flash plate. The cover to the pre-heater tin is kept on by a stout wire pin and the tin is held loosely in position by a metal "bridge" cut with a circular hole to accommodate the pre-heater. A loose top shield serves to support the higher end of the feed pipe and to assist in the protection of the flash plate from cold draughts. The flash plate unit can be made from one sheet of 1/12 inch gauge mild steel and is designed for easy removal from the drum into which it is placed hard against the forward end. A deflector or baffle plate to spread the flame is fitted to the narrow end of the burner unit.

Fig. 2.—This shows the cross section through the middle of the destructor. The cross supporting bars of the burning hearth should be noted as well as the two strengthening iron strips under the hearth which fit into the recesses in the sides of the drum thus preventing lateral movement of the burning hearth.

Fig. 3.—This shows a front elevation and illustrates also a simple feeding device for the oil and water which are run into funnels fitted respectively to two bends screwed into a "T" piece on the short feed pipe.

The oil and water containers stand on a hot plate over the horizontal burner unit. In this position, the oil and water are pre-heated and the oil conveniently thinned, thereby making for greater efficiency in combustion and economy in oil consumption.

The "High" and "Low" levels of oil and water in the containers should be noted and when either liquid reaches the "Low" level, it should be topped up to "High."

Fig. 4.—This gives a perspective view of the whole appliance as set up ready for use.

Tests.—A typical test gave the following result: the equivalent of 40 pounds faeces and 20 pounds urine was completely disposed of in forty-five minutes with the consumption of about one gallon of oil.

Note.—The destructor may be fixed on the surface of the ground supported by bricks or stones; or, to conserve heat, it may be sunk to half its depth into a trench, or banked up in a turf mound.

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