

A.S.H. "MINOR" FÆCES DESTRUCTOR.
SMALL STANDARD PERMANENT TYPE.

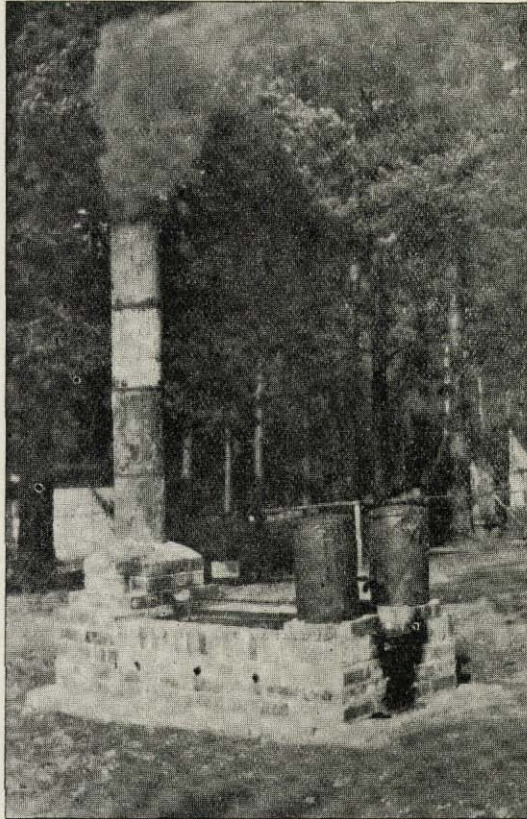
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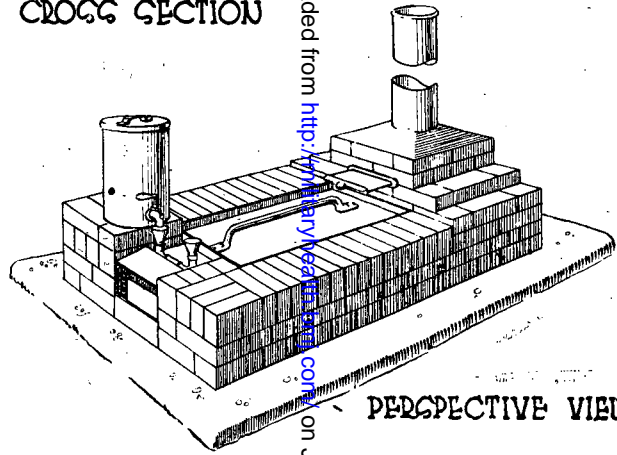
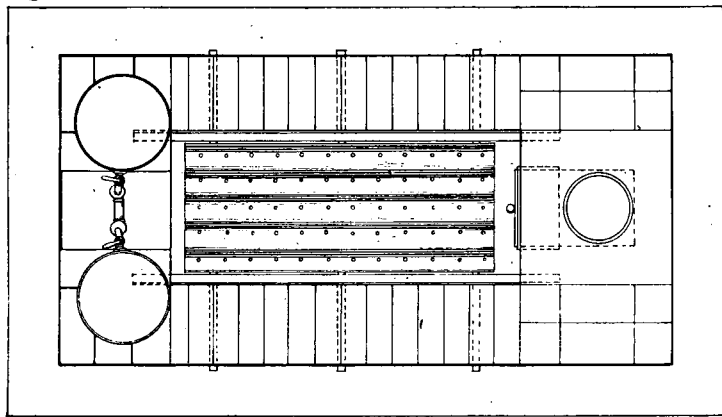
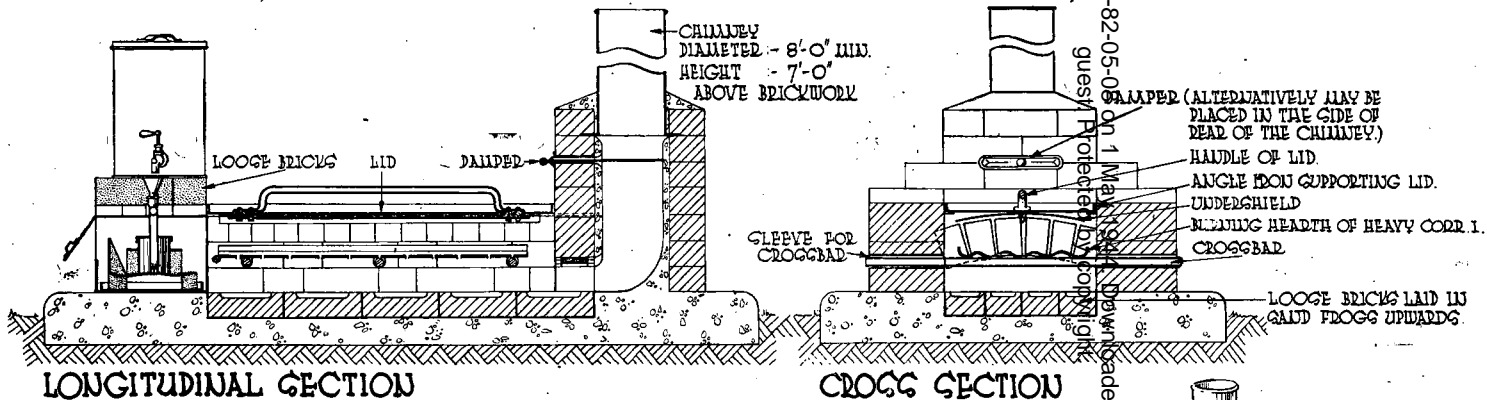
FOLLOWING the production of the A.S.H. Standard Type Fæces Destructor [1], work was undertaken with the object of producing a smaller type of destructor capable of dealing with the contents of bucket latrines for personnel up to 250 per day, and which could be improvised in the field. The result was the A.S.H. Improvised All-Metal Destructor [2].



This destructor has been well tried out in the field and has proved to be of great practical value. From the nature of its construction, however, it has no great lasting qualities, and the appliance is suitable for adoption mainly in camps of a transitory character.

The need has now arisen for a Fæces Destructor blending the more effective qualities

A.S.H. "MINOR" PAGES DESTROYER



DRAWN BY GGT E ROBINSON R.A.M.C
 AFTER SKETCHES BY
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ARMY SCHOOL OF ENGINEERING DRAWING OFFICE MARCH 1944

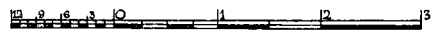


FIG. I.

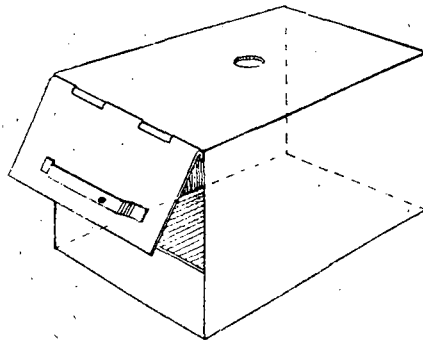
Patent No. 2,113,600 granted June 2, 1938 by the U.S. Patent Office on June 2, 2023 by
 name 82-05-00 on 1 May 1944
 guesy, P. (inventor)

of each of these two destructors, i.e. a capacity of 250 per day suitable for construction as a permanent unit.

The A.S.H. "Minor" Faeces Destructor, details of which are shown in fig. 1, is designed to meet this need. The principles which governed the design of the earlier models have proved to be sound in practice. The chief of these are as follows:—

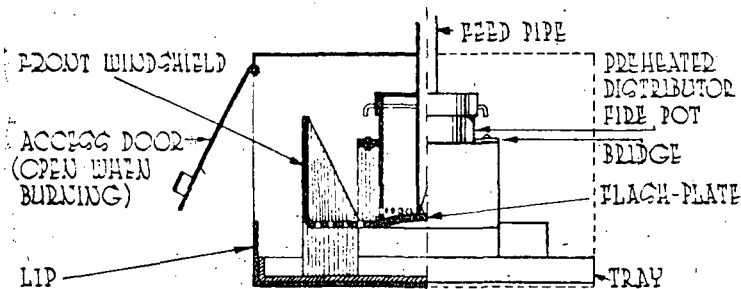
- (a) The design is low in elevation; buckets can be emptied into the destructor cleanly and with minimum effort.
- (b) The whole contents of a bucket, liquid and solid, are dealt with.
- (c) The semi-liquid contents are automatically spread out thinly over a burning hearth of large heating surface and are then subjected to direct heat, both below and over the surface.
- (d) The gases produced are not discharged in crude form into the chimney but are subjected to flame and are effectually combusted.

These principles are incorporated in the "Minor" Destructor but owing to its reduced



VIEW OF BURNER CASING

FIG. 2



LONGITUDINAL SECTION & ELEVATION

FIG. 3.

capacity considerable modification has been rendered possible in its construction. The urine tray is abolished. Liquids pass through perforations in the burning hearth on to loose bricks laid "frog" upwards in the concrete base. These are raised to a very high temperature and the liquids are rapidly and completely disposed of. The burner is a separate and self-contained unit and no front access doors are necessary.

The bars supporting the burning hearth which are subjected to great heat, and therefore are liable to bend, are housed in "sleeves" (short pieces of pipe of larger diameter) built

into the brickwork. The bars may thus be withdrawn and straightened as and when required.

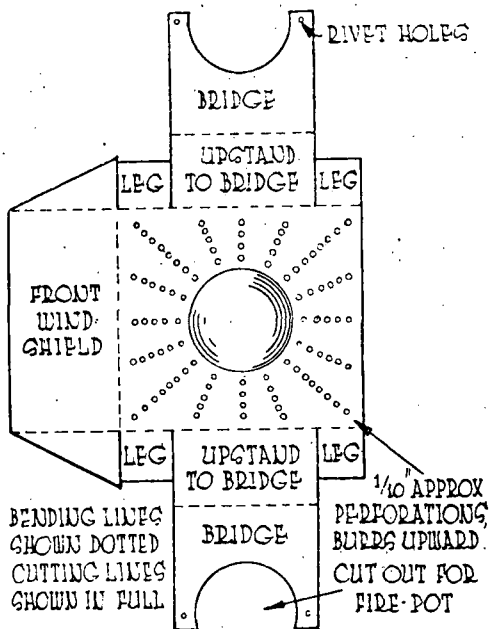
No reinforced concrete cover is required. The dimensions of the destructor permit of a metal lid large enough to close the furnace but not too large to be easily manipulated by hand.

The main body of the destructor is constructed in 9 inch brickwork set in lime mortar having a small admixture of Portland cement. The top course is a brick on edge. The baffle arch and flue are similar to those of the Standard Type Destructor.

Details of construction are clearly shown in the drawings.

(2) THE BURNER.

The burner assembly is similar in principle to that used previously in the A.S.H. Destructor as modified for the All-Metal type. It is however contained in a stout iron box of



DEVELOPMENT OF THE OIL & WATER FLASH BURNER.

FIG. 4.

square cross section (fig. 2) and the oil and water are fed through a pipe coming through the top of the burner unit, this pipe having two branches on a "T" piece; each fitted with a simple tin funnel. This conveys the oil and water into a preheater-distributor pot resting centrally upon the burning plate which has a wide fixed shield (fig. 3). The burner box is made to have a cover for closing the outer end when the lid of the destructor is lifted for filling, etc.

Details for the construction of this burner, as adapted for this type of destructor, are shown in figs. 2, 3 and 4. The arrangement allows the oil and water containers to be stood on the destructor itself (fig. 1) thus making for a "clean" design and the obviation of a separate stand for the oil and water containers.

The burner assembly is made as a unit which can be slid easily out of position for purposes of cleaning and repair.

(3) WORKING ROUTINE.

- (a) Clean the burner, remove and clean faeces-burning hearth, take out cross bars and straighten; if necessary, sweep out dust, etc., from bottom of destructor and flue. Reassemble parts taking care that the burning hearth is evenly spaced from the walls.
- (b) Light oil and water flash burner and warm up destructor.
- (c) First Filling.—50 pounds of faeces (i.e. one bucket filled without slopping) including contained urine which drains through holes provided in the burning hearth on to the hot bricks below. Spread faeces thinly over the burning hearth. Break up surface of faeces at intervals of fifteen minutes, to speed up drying, closing the burner cover door and opening the damper before doing this. When the faeces on the hearth begin to show signs of burning, extra air can be admitted to assist their combustion by pulling the burner assembly outwards about half an inch.

Note.—BEFORE THE DESTRUCTOR LID IS LIFTED FOR TIPPING IN OR BREAKING UP FÆCES, THE DAMPER IN THE CHIMNEY SHOULD BE OPENED FULLY AND THE COVER DOOR AT THE BACK OF THE BURNER MUST BE LOWERED TO THE VERTICAL POSITION. (This is to prevent "backflashing" of the flame.)

WHEN THE DESTRUCTOR LID IS REPLACED, THE COVER DOOR OF THE BURNER SHOULD AGAIN BE LIFTED AND THE DAMPER OPENED TO THE REQUIRED POSITION.

(4) PERSONNEL.

One man properly instructed in these duties should be sufficient to take charge of the destructor so long as the faeces are brought to him by others from the latrines.

(5) CAPACITY.

With four to five fillings a working day of six to seven hours is implied. One bucket full of faeces plus the urine normally contained in *LATRINE* buckets weighs about 50 pounds (the faeces of from 60 to 70 men). Four or five fillings would thus represent the matter to be destroyed from 200 to 300 men.

SCHEDULE OF MATERIALS.

Bricks	200
Cement	1 cwt.
Lime	$\frac{1}{2}$ cwt.
Sand	1 cub. yd.
Aggregate (ballast or broken brick)	1 cub. yd.
Angle irons, 4 ft. 6 in. by $1\frac{1}{2}$ in.	2 pieces
Lid, with undershield and handle, Approximately 3 ft. 5 in. by 1 ft. 6 in. in heavy sheet iron (to fit)	1
Burning hearth (for faeces) in heavy gauge corrugated iron (turned up $1\frac{1}{2}$ in. at two long sides only). Approximately 3 ft 0 in. by 1 ft. 5 in. nett	1
Cross bars 1 in. solid iron or iron barrel $\frac{3}{4}$ in. internal dia.	3
Damper 1 ft. 0 in. by 9 in.	1
Sleeves (to house the cross bars) 9 in. by $1\frac{1}{4}$ in. int. dia.	6
Chimney bar (arched) 2 ft. 0 in.	1
Chimney not less than 8 in. dia. Height above brickwork 7 ft. 0 in.	1
Oil drums (oil and water) with taps ($\frac{1}{2}$ inch) and covers (5 gallon)	2
Rake or Hoe (all iron) length 5 ft. 0 in.	1
Fire Box and Burner in heavy gauge sheet iron (oil and water flash fire)	1

SPARES SHOULD BE HELD AS FOLLOWS :—

- Cross Bars.
- Burning Hearth for faeces.
- Burner for oil and water fire.

The authors are indebted to Colonel E. B. Allnutt, *M.C.*, Commandant of the Army School of Hygiene, for permission to send these notes for publication.

REFERENCES.

- [1] A.S.H. FÆCES DESTRUCTOR, *Jnl. Roy. Army Med. Corps*, **78**, No. 5, May, 1942, 209-219.
- [2] PORTABLE ALL-METAL DESTRUCTOR, *Ibid.*, **81**, No. 2, August, 1943, 86-88.

NOTES ON A CAPTURED ITALIAN MOBILE BATH UNIT.

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THE Bath Unit is entirely mobile and self-contained, the whole of the apparatus being carried on a three-ton lorry.

The heating apparatus is housed at the rear. The method of heating the water is on the geyser principle, water being fed into the boiler by either current pressure or pumped by means of a semi-rotary hand pump and heated by six burners (kerosene or diesel) of the primus type. Fuel is fed to these burners under pressure which is maintained by a hand pump fitted on the floor of the lorry. Two tanks of approximately five gallons each are fitted for the fuel supply. The change over from one tank to the other is by the simple process of turning a tap.

The remainder of the lorry is fitted with various compartments to house the rest of the equipment during transportation. This equipment is composed of canvas side curtains, semi-rotary pump for water supply, hoses, forms, step ladders and tools, etc.

The body of the lorry is so constructed that the top and sides are doubled so that, when in operation, the outer portion slides back and so forms a shelter extension. The sides are then lifted and supported on specially constructed poles and brackets. Eight sprays each side (sixteen in all) are fitted to the roof of this extension. There are sufficient duckboards to fill the area covered by the sides and roof. Canvas screens are attached to the sides, thereby enclosing the whole unit.

Provided there is a constant flow of cold water to the boiler hot water will be available in a continuous supply. The temperature can be varied by a special mixer valve.

There is also an additional system whereby disinfectants or deodorants may be mixed and fed into the hot water supply.

The whole of the apparatus is one which shows compactness and mobility. It is very simple to operate although complicated at first sight owing to the profusion of different coloured pipes which seem to lead in all directions. This appears to be typical of the Italian engineering technique.

This Mobile Unit compares very favourably with our own type of Mobile Bath Unit which is certainly heavier, more cumbersome and deals, for the equivalent subsection, with only five showers.

I wish to acknowledge the assistance of the Workshop Staff of this Fd. Hyg. Sec. in experimenting with different designs and Privates T. W. Weldon and F. Baxter, *R.A.M.C.*, for the excellent illustrations. My thanks are due to Colonel R. F. Palmer, *A.D.M.S.*, for permission to forward this article for consideration.