

controlled by a spring (e) so that the retractor may be opened at any angle up to two right angles, when it is used at its maximum utility.

Gauze bags are made of two thicknesses of gauze and stitched over the vertical diaphragm so that the gauze is taut when the diaphragm is pulled out $5\frac{1}{2}$ inches or 6 inches.

This retractor has proved most useful when portions of fixed gut deep down in the abdomen have to be sutured or stitches put into the bladder. An area of at least 33 square inches can be kept free from intestine, and one can work at a depth of $5\frac{1}{2}$ inches to 6 inches without moving the patient.

The retractor may be introduced into the wound with the diaphragm approximating, and by bringing the handles (horizontal portion) together the required area, free from intestines, may be obtained.

This instrument was made for me by Maw, of London.

THE USE OF THE HAY COOKING-STOVE ON ACTIVE SERVICE, A MEANS OF SAVING FIFTY TO EIGHTY PER CENT OF FUEL.

BY MAJOR L. REYNOLDS.

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THE difficulty of providing sufficient fuel in the field for cooking purposes is often exceedingly great and consequently any method which will lead to economy of fuel is worth considering.

The hay cooking-stove has been talked about a good deal at home, but the possibilities of this form of cooking have not been taken advantage of on active service, so far as I know.

I will first describe the hay cooking-stove and then explain how it can be adapted for use on active service.

THE HAY COOKING-STOVE.

Take a cooking-pot and a box twelve inches higher and twelve inches deeper than the pot. Put a layer of dry hay six inches deep in the box, place the pot in the middle, surround it with hay and then remove the pot. A nest has been made for the pot.

Now put the food into the pot (vegetables must be sliced, meat should not be more than $\frac{1}{2}$ inch thick) and add sufficient water. As no water escapes, the usual quantity of water should be reduced to two-thirds, otherwise the gravy is very thin and the food loses in taste. Put the pot on the fire and bring it up to the boil. Rest the lid on the pot so that it gets heated up, but do not shut it down or it may boil over or be blown off. Directly it boils adjust the lid, remove the pot from the fire and place in the hay nest already prepared and then fill up the box with hay at once and shut the lid of the box or put something heavy on top to press down the hay fairly tight.

The hay-stove must be placed close to the fire and the pot must be transferred from the fire to the hay as rapidly as possible so that the loss of heat is at a minimum. The hay must be dry. Water is a good conductor of heat and so is wet hay. After the pot has been in the hay-stove for two and a half hours the

meal is cooked. The food cannot be overcooked, but as time goes on it gradually loses heat.

Advantages of the Hay-stove.

(1) As far as fuel is concerned, directly the pot boils no more fuel is required. Of course the time taken to bring the pot to boil depends on many factors. Let us suppose that it takes twenty minutes and that, cooking in the ordinary way, the food is cooked one hour after it has come to the boil. In this case the hay cooker will cook four meals with the fuel sufficient for one meal used in the ordinary way, i.e., the fuel has been cut down seventy-five per cent.

(2) As soon as the pot is in the hay-stove, it requires no further supervision at all. In fact, it must be left rigidly alone until the meal is cooked. This is a great saving of labour which may be used for other purposes.

(3) The resulting meal is very nicely cooked and yet a child could cook it after being shown the way.

Rationale of the Hay Cooking-stove.

The action of the hay cooking-stove depends on two facts.

(1) To cook food it is not necessary to keep it at the boiling point. As a matter of fact it is better cooked if it is kept a few degrees below 100° C.; a cook knows that "galloping" means tough meat, and galloping is no more than 100° C.

(2) If the temperature of a good conductor of heat be raised and then surrounded on all sides by a bad conductor of heat, the former cools down very slowly. The thermos flask is a well-known example of this.

Bearing these facts in mind it is quite easy to make a hay cooking-box without any hay or box. I have made a few experiments to see what can be done.

Boosa can nearly always be got and is just as good as hay.

Earth can always be obtained and if really dry acts quite well. The disadvantages of earth are: (1) that it picks up moisture very rapidly; (2) if bone dry it is more difficult to keep out of the cooking-pot, although this is quite easily managed, as I will show later.

Instead of a box, a hole can be dug in the ground. The following method is quite satisfactory:—

Dig a hole in the ground the same size as the box of a hay-stove (see above). Fill up to six inches from the bottom with dry earth or sand, taken from the surface to ensure that it is dry. Throw away the earth dug out of the hole and have enough dry earth handy to fill up the hole when the pot is in place. When the pot boils, adjust the lid, throw a piece of cloth over the lid to prevent any earth getting into the pot. Then fill up the hole at once with dry earth and press it down. At the end of two and a half hours remove the pot, brush off the earth from the cloth, remove the cloth carefully so that no earth gets into the pot. The meal is now cooked.

In wet weather this method is of course impossible out in the open. Indoors, with a supply of boosa, or dry earth if boosa cannot be obtained, it can be carried out. The boosa or dry earth can be used time after time. This method of cooking is extremely easy to manage and only requires a little care.

The essential points are:—

(1) The material forming the nest for the cooking-pot must be a bad conductor of heat and, therefore, must be quite dry.

(2) The food must be put into the pot before this is put on the fire. If the food is put into boiling water, then it must be left on the fire a few minutes after the pot boils before placing in the hay-stove.

(3) The food must not be in too thick pieces, otherwise it will not be properly cooked (see above).

(4) The hay-stove must be quite close to the fire, and no time lost in transferring the pot and covering it up.

There should be no difficulty in using the hay-stove on active service and thus effect a very great economy in fuel and consequently in transport which can be used for other purposes.

In Mesopotamia, where the difficulties of transport have been so great, this method of cooking should be particularly useful.

A SIMPLE AND RAPID WAY OF MAKING AN OFFICE TABLE.

BY MAJOR L. REYNOLDS.

Indian Medical Service.

Materials required.—Eight "Ideal milk" boxes (48-tin size), six "Tanglefoot" wooden boxes, a few planks put together like a bed board, to form the table top (say 6 feet by 3 feet), and a few odd pieces of wood.

Construction.—Remove the lids from all the boxes. Place one milk box bottom upwards on the ground. Take three milk boxes and knock out one end, and then pile them on top of the box already placed on the ground, bottom

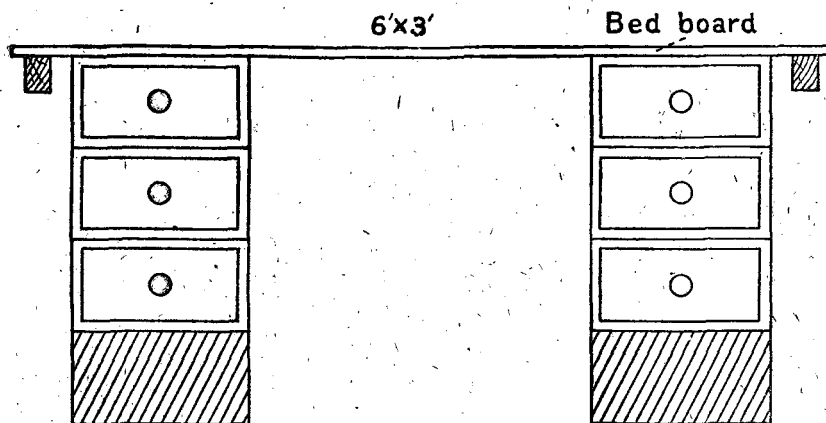


Table Complete.

downwards and the open ends all facing the same way. Now cover the top box with pieces of packing-case wood. This cover is flush with the edge of the pile of boxes towards the open ends, and at the two sides, but extend backwards for about six inches, to give a better support to the table top. Fasten the whole pile together with two strips of wood on either side. Slide a "Tanglefoot" box into each of the three upper milk boxes. Fix in some small pieces of wood to