W. H. RUDDICK.

Apparatus for Obtaining Tar from Sea-Weed.

No. 167,410. Patented Sept. 7, 1875.

Fig. 1

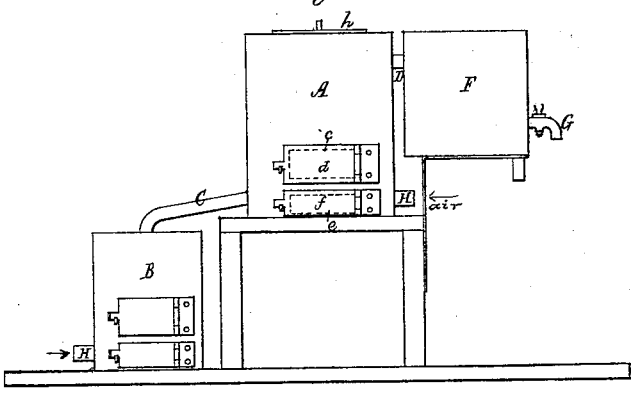


Fig. 2.

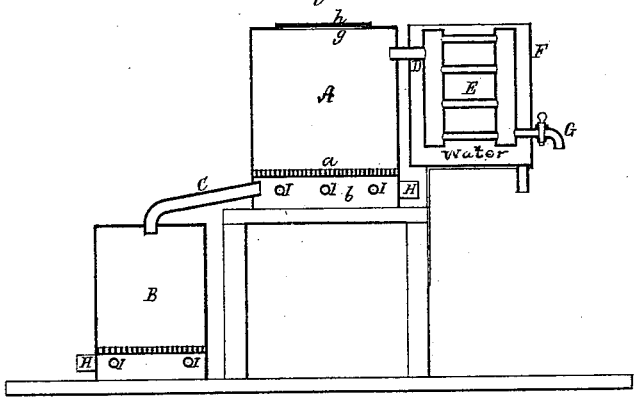
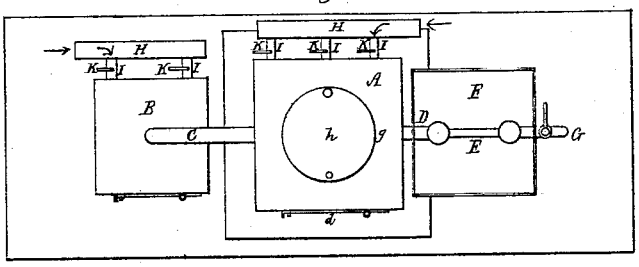


Fig. 3



Witnesses
L. M. Müller
S. W. Pipes

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UNITED STATES PATENT OFFICE.

WILLIAM H. RUDDICK, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR OBTAINING TAR FROM SEA-WEED.

Specification forming part of Letters Patent No. **167,410**, dated September 7, 1875; application filed July 20, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. RUDDICK, of Boston, of the county of Suffolk and State of Massachusetts, have made a new and useful Invention for the Distillation of Sea-Weed; and I do hereby declare the same to be fully described as follows, reference being had to the accompanying drawings illustrative of the apparatus I use for such distillation, and of which—

Figure 1 denotes a front elevation, Fig. 2 a longitudinal and vertical section, and Fig. 3 a top view, of the said apparatus.

I accomplish the carbonization and distillation of the sea-weed by means of the volatile products of combustion of fuel passed directly through a mass of the weed inclosed in a grated kiln, communicating directly with a condenser.

In the drawings, A denotes a kiln, provided with a grate, *a*, and an arch-chamber, *b*, there being to the kiln an opening, *c*, in its side, on a level with the grate, and also a door, *d*, to said opening. It also has an opening, *e*, to its ash-pit, with a door, *f*, thereto; and, furthermore, it has an opening, *g*, in its top, with a slide-door, *h*, thereto, this latter opening being used principally for filling or supplying the kiln with the sea-weed. On one side of the kiln, and below it, is a stove or furnace, B, made like the kiln, except that to its opening in its top there is a pipe, C, leading directly into the ash-chamber of the kiln. From the upper part of the kiln a pipe, D, leads into a condenser, E, placed within a cistern, F, (to contain water,) and provided with an educt, G, leading through one side of the cistern. The kiln, as well as the furnace, has one or more pipes, H H, for discharging air from an air-blast apparatus into the ash-pit of each, each of said pipes H being connected with its ash-chamber, if desirable, by several branches, I I, provided with dampers, whose handles are shown at K.

In operating with the said apparatus, the kiln is to be charged with dry sea-weed, and the furnace with fuel, and air is to be blown into the furnace after its charge of fuel may have been fired. The hot smoke and gaseous products of combustion of the fuel will pass or be driven into the air-chamber of the kiln, and will be disconnected therein, and from thence will be forced up through the charge of sea-weed, and from it into and through the condenser, the tar and liquid hydrocarbons distilled passing from the condenser at the same time.

If desirable, in order to facilitate the process, the sea-weed on the grate of the kiln may be set on fire, and more or less air, as occasion may require, may be thrown into the ash-pit of the kiln.

After the charge of sea-weed may have been deprived of its hydrocarbons and reduced to charcoal, it may be lixiviated, to obtain from it the iodine or other matters contained in it.

Sometimes the grated kiln may be used with the condenser, without at the same time using the furnace, to produce the volatile products of combustion, these being obtained by setting fire to the mass of sea-weed at its bottom; but, as this causes a costly waste of the sea-weed, it is better to make use of the furnace, with its separate charge of fuel.

I do not claim, for the distillation of peat or other matter, a retort with a furnace applied to heat it externally, in which case the volatile products of combustion of the fuel are supposed to escape through the chimney of the furnace, and are not carried through the material to be condensed and distilled.

I claim—

The combination of the furnace B, the grated kiln A, and the condenser E, connected by pipes C D, and furnished with one or more air-blast pipes to lead into the furnace or into the kiln, or both, as specified.

WILLIAM H. RUDDICK.

Witnesses:

FRANCIS JAMES,

RALPH W. DEAN.