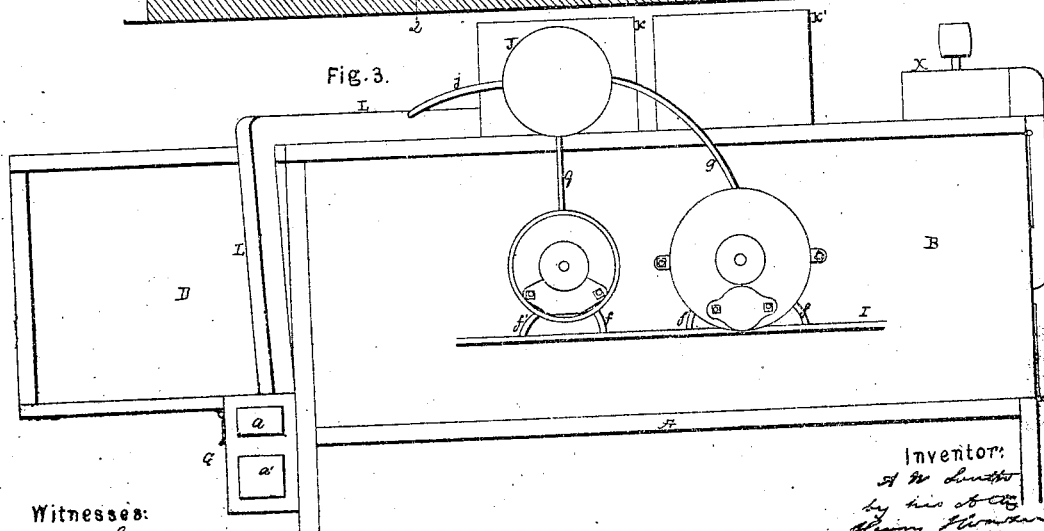
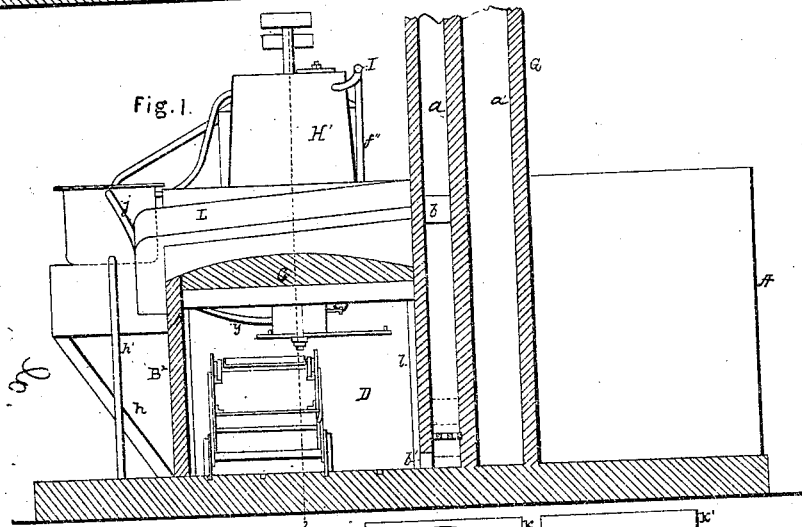
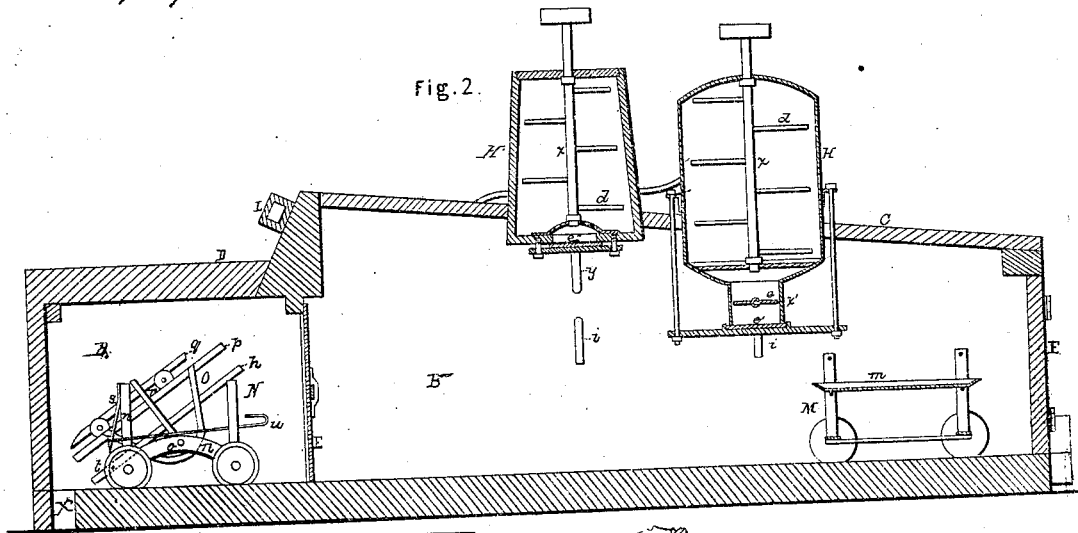


*A. W. Louth.*  
*Treating Offal.*

*No. 47027.*

*Patented Mar. 28. 1865.*



Witnesses:  
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Inventor:  
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*Henry Brown*

# UNITED STATES PATENT OFFICE.

ADAM W. LOUTH, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN APPARATUS FOR TREATING OFFAL, &c.

Specification forming part of Letters Patent No. 47,027, dated March 28, 1865.

*To all whom it may concern:*

Be it known that I, ADAM W. LOUTH, of Philadelphia, Pennsylvania, have invented a certain Apparatus for Treating Animal Offal; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention consists of apparatus, fully described hereinafter, whereby the carcasses of animals, bones, &c., can be economically treated prior to being converted into fertilizers or employed for other purposes, without infecting the neighborhood in which the apparatus is situated with noxious vapors.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation of my improved apparatus for treating animal offal; Fig. 2, a section on the line 1 2, Fig. 1, looking in the direction of the arrow; and Fig. 3 a plan view.

Similar letters refer to similar parts throughout the several views.

A is an oblong building, the stone or brick walls of which support a flat roof, and from one end or side of the latter an inclined plane extends to the ground. At one side of the building A is a somewhat smaller building, B, the top C of which is inclined, as shown in Fig. 2. At one end of this building B is an oven, D, which is heated by means of a suitable fire-place, the communication between the oven and the building B being closed by doors E. The opposite end of the building B is also closed by means of folding doors F.

At the end of the building A, near the oven D, is a chimney, G, which has two flues, *a* and *a'*, the former having at its lower end a fire-place and communicating through an opening, *b*, with the interior of the building B and through an opening *b'*, with the interior of the oven D.

At one side of the building B, and communicating with the interior of the same, is a fan, X, for a purpose described hereinafter.

Through the top C of the building B project the lower ends of two boilers, H and H',

and in each of the same turns a spindle, *x*, to which are attached a number of blades or stirrers, *d*, and at the lower end of the boiler H is a tube, *x'*, in which is an ordinary throttle-valve, *e*, the lower end of the tube being closed by a movable door or gate, *e'*. In the bottom of the boiler H', which is of wood, is an opening to which is adapted a door or gate, *e''*.

A steam-pipe, I, Fig. 3, communicates with each of the boilers H and H' at the top of the same, through two branch pipes, *f* and *f'*, and with the bottom through a branch, *f''*, and from the opposite side of each boiler projects a pipe, *g*, which communicates with a closed reservoir, J. At the side of the building B are two oblong tanks, K and K', with each of which communicates a pipe, *y*, extending from the lower part of each boiler, and from each tank extends a pipe, *h*, which communicates with a culvert emptying into any adjacent stream or culvert. From the side of each tank a pipe, *i*, projects into the interior of the building B, and is furnished with a cock for a purpose described hereinafter.

A flue, L, communicates with the chimney G, and also with the tank K, and into this flue projects the end of a pipe, *j*, extending from the top of the reservoir J. From the bottom of this reservoir a pipe, *h'*, extends into the culvert with which the pipes *h* communicate. A pipe, *l*, also extends from the bottom of the boiler H' into the same culvert.

Within the building B are two tracks on which run the trucks M and N, the former being provided with one or more shallow trays, *m*. The truck N has side pieces, *n*, in which turn the ends of a shaft, *o*, and to the latter is hung a frame, O, on which are a series of parallel ledges, *p*. On these ledges bear the wheels attached to one or more trays, *q*, the said trays having projections *r* for a purpose described hereinafter.

To an upright, *n'*, at the front end of the truck N, is attached one end of a spring, *s*, which has an inclined lower end and an abrupt shoulder, the latter, when the frame O is in a horizontal position, catching a pin, *t*, on the frame. To the spring is secured a rod, *u*, by means of which the shoulder of the spring may be removed from contact with the pin *t*.

In the bottom of the oven, at the end of

the track on which the truck N runs, is an opening, X', which is situated directly above the hopper of a bone-grinding mill.

A fire is kindled in the furnace of the oven D, and also in the fire-place at the bottom of the chimney-flue *a*, and the doors E and F are closed.

It should be understood that the boiler H, is of sufficient size to treat offal in bulk—as, for instance, the carcasses of horses or cows.

When offal or bones are to be treated, they are introduced into the iron boiler H, which is filled with water, and steam is admitted to the same through the pipe *f''*, the contents of the boiler being thereby quickly heated.

As the fatty fluid accumulates on the surface of the liquid in the boiler, a current of steam is admitted through the pipes *f* and *f'*, and, passing out through the pipe *g*, carries the fat with it into the latter pipe and into the reservoir J, the steam escaping from the latter through the pipe *j* into the flue L.

After the fat has been removed, steam, at about forty pounds pressure per square inch, is admitted into the boiler, and the bones, sinews, &c., thereby softened, and the gelatinous matter in the same extracted. The gelatinous solution is then discharged through the pipe *y* into the tank K'. The truck N is then brought beneath the boiler, the gate *e'* is opened, and the valve *e* is turned, so as to permit the bones to fall onto the lowest of the trays *q* on the truck, the upper trays having been removed. When this tray is filled, another is placed on the next highest pair of ledges, *p*, and filled in a similar manner. When all the bones are removed, the boiler is closed, the truck is run forward into the oven D, and the truck M is brought beneath the end of the pipe *i*, the cock of which is turned so that the gelatinous solution in the tank K' may run into the tray *m*. The truck M is then also run into the oven D, the doors E being subsequently closed, and the oven maintained at such a heat as will thoroughly dry both the glue and the bones. When the bones are perfectly dry, the frame O of the truck N is tilted to the position shown in Fig. 1, so as to discharge the contents of the trays through the opening X' into the hopper of a grinding-mill below.

When there is a large amount of animal matter adhering to the bones, or when the latter are not to be used as a fertilizing material, they may be introduced into and boiled in the wooden boiler H'. In this instance, however, the steam is not maintained at so high a pressure in the boiler, but in other respects the operation is similar to that carried on with the boiler H.

When it is not desired to preserve the glutinous matter extracted from the bones, it may be discharged from the tanks K, through the pipes *h*, directly into a culvert. The refuse water from the tank K', and that in the boiler H', may also be discharged into the culvert through suitable pipes.

When substances which do not require to be ground are treated in either of the boilers, they are discharged onto the truck M, and after being perfectly dried in the oven D are removed without being discharged through the opening X'.

It is well-known that in boiling bones, offal, &c., in the ordinary manner, the fumes which escape into the atmosphere are so noxious that an establishment for such a purpose is generally considered a nuisance.

My object has been to treat such material expeditiously and cheaply, and at the same time effectually prevent the escape into the air of any vapors generated during the operation.

It will be seen that in the above-described apparatus whatever vapors or gases may be generated, either in the building B, the oven D, or in the boilers or tanks, are either carried to the flue *a*, where they are effectually burned and deprived of their offensive properties, or they are discharged into the culvert.

By the use of the fan X, such a circulation of fresh air is maintained in the building B that the attendants within the same are not incommoded during the operation.

Although I have shown two boilers, H and H', but one boiler may be used, the wooden boiler H' being preferred as much the cheapest, when it is not necessary to subject the material to any considerable steam-pressure.

It will be apparent that, by means of the inclined plane leading to the roof of the building A, the dead horses and other animal offal, &c., collected from a city, may be hauled in scavengers' carts directly to the boilers.

I claim as my invention and desire to secure by Letters Patent—

1. One or more boilers, H and H', with their gates or doors, in combination with the building B, oven D, chimney G, and its fire-place, the whole being arranged substantially as described, so that the fumes generated by the treatment of the offal shall, before escaping to the air, be thoroughly burned and disinfected.

2. The closed building B, with its trucks M and N, in combination with one or more boilers, H and H', and the oven D.

3. The boilers H, combined with the reservoir J, and the steam pipes *f*, *f'*, and *g*, or their equivalents, arranged substantially as set forth, so that the fat rising to the surface of the water in the boiler shall be discharged into the reservoir.

4. The tanks K, with their discharge-pipe *i*, arranged in respect to the building B and boilers H, substantially as specified.

5. The truck N, with its tilting frame *o* and trays *q*, constructed and operating substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses: ADAM W. LOUTH.  
CHARLES E. FOSTER,  
JOHN WHITE.