J. P. CHENOWETH & E. P. BAUGH.

APPARATUS FOR TREATING OFFAL.

No. 78,261. Patented May 26, 1868.

Fig. 2

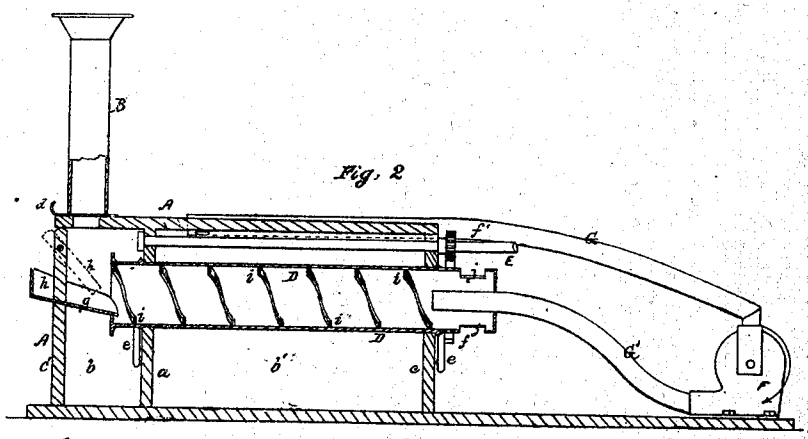


Fig. 1.

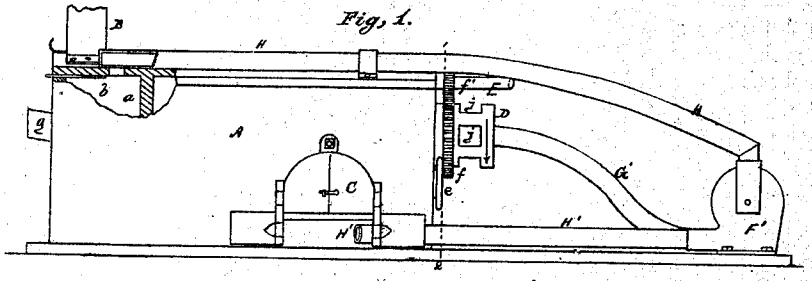


Fig. 3.

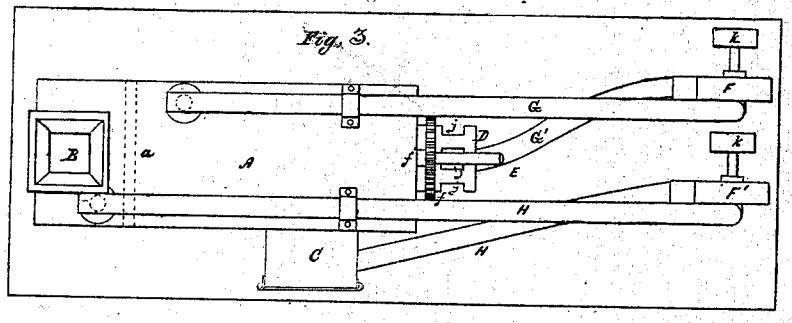
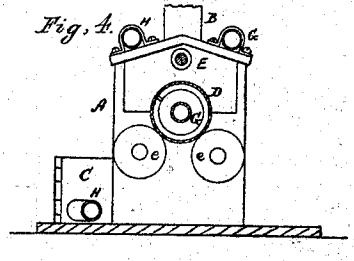


Fig. 4.



Witnesses { Wm. A. Steel. John Parker.

J. P. Chenoweth and E. P. Baugh. By their Att'y H. Howson

United States Patent Office.

JAMES P. CHENOWETH AND EDWIN P. BAUGH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO BAUGH & SONS, OF SAME PLACE.

Letters Patent No. 78,261, *dated May* 26, 1868.

IMPROVED APPARATUS FOR TREATING OFFAL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JAMES B. CHENOWETH and EDWIN P. BAUGH, of Philadelphia, Pennsylvania, have invented an Apparatus for Treating Offal, &c.; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention consists of certain apparatus, fully described hereafter, for drying offal, bones, manures, &c.

In order to enable others familiar with apparatus of this class to make and use our invention, we will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a side view, partly in section, of our improved apparatus for treating offal, &c.

Figure 2, a vertical section of the same.

Figure 3 a plan view, and

Figure 4 a transverse vertical section on the line 1–2, fig. 1.

Similar letters refer to similar parts throughout the several views.

A represents a chamber or oven of brickwork or of other suitable material, the interior of which is divided by a partition, *a*, into two compartments, *b* and *b'*, the latter compartment communicating at the top with a chimney, B, the entrance to which can be opened or closed by a damper, *d*, and the compartment *b* communicating at one side, and close to its rear end, with a fireplace or furnace, C.

A horizontal cylinder, D, passes through openings in the rear wall *c*, and through the partition *a* of the oven, and rests upon and is arranged to turn on anti-friction rollers *e e* secured to the said wall and partition, and motion is communicated to this cylinder by means of its cog-wheel *f*, which gears into a pinion, *f'*, of a driving-shaft, E, (see figs. 2 and 4.)

The front open end of the cylinder D enters the compartment *b* of the oven, and into this end projects an inclined spout or chute, *g*, which is secured to the front wall *c'* of the oven, and directly over this spout is hung a valve or door, *h*, opening inwards, as shown by dotted lines, fig. 2.

A rib, *i*, is secured to the inside of the cylinder, and extends through the same in a spiral course, as shown in fig. 2, and in the sides of the cylinder, close to its rear end, are openings, *j*, for a purpose described hereafter.

At a short distance from the rear end of the oven A, and placed, in the present instance, side by side, are two fans, F F', driven independently of each other by straps passing round pulleys *k* at the outer ends of their spindles.

Communicating with the fan F are two pipes, G and G', the former, which is an exhaust-pipe, serving as a communication between the fan and the interior of the compartment *b* of the oven, and the blast-pipe G' passing through an opening in the rear end of the cylinder D, and projecting into the said cylinder to a point beyond the openings *j*, (see fig. 2.)

H is the exhaust-pipe of the fan F', and communicates with the compartment *b*, and the blast-pipe H' of the same fan communicates with the ash-pit of the fireplace C.

The cylinder D being caused to revolve in the direction of its arrow, and the fans being set in operation, and a fire having been kindled in the furnace C, the heat, smoke, and other products of combustion pass into the compartment *b'* of the oven, and, after circulating through the same, and around and in contact with the surface of the revolving cylinder D, pass through the exhaust-pipe G to the fan F, and are driven by the latter, through the pipe G', into the cylinder D, thence through the latter and into the compartment *b'* of the oven, from which, if the damper *d* be open, they are discharged into the chimney B.

If, however, the damper be closed, the products of combustion will be caused to pass through the exhaust-pipe H to the fan F', by which they will be driven forcibly through the pipe H' into the ash-pit of the fireplace C.

The bones, offal, manure, or other material to be dried, are passed into the cylinder through the spout or

chute *g*, the door *h* opening inwards, as shown by dotted lines, fig. 2, to allow the material to pass, but closing again by the force of the blast from the fan F, when a sufficient quantity has been admitted into the cylinder.

Within the latter the material is exposed to the action of the hot blast from the fan F, and to the sides of the cylinder, which are highly heated, in order to prevent any of the material from adhering to them. The material, while thus exposed, is at the same time thoroughly agitated, and thrown from side to side of the revolving cylinder, and is carried towards the rear end of the same against the blast by the action of the spiral rib *i*, while the disengaged steam and offensive gases are carried back by the blast towards the front end of the cylinder. The material, therefore, as it moves towards the openings *j*, advances constantly into a drier atmosphere.

The material, having passed through the cylinder, drops from the openings *j* into a suitable receptacle placed beneath to receive it, and if it is not sufficiently dried, the force of the hot blast is increased, in order to retard the material in its passage through the cylinder, and so expose it for a longer time to the action of the heat within the same.

If, on the other hand, the material passes from the openings *j* in too dry a state, the force of the blast is diminished, the material then, owing to the unobstructed action of the spiral rib *i*, passing through the cylinder more quickly.

The steam and offensive gases which are liberated from the drying-material pass, together with the products of combustion composing the hot blast, into the compartment *b* of the oven, and, if the damper *d* be closed, they enter and pass through the pipe H to the fan F′, by which they are driven into the ash-pit of the furnace C, as before described.

The gases rise through the grate of the furnace into the fire, and are wholly or partially consumed before again passing into the compartment *b′* of the oven.

In some instances it may not be necessary to consume either the offensive gases or the products of combustion, in which case the pipes H and H′, and fan F′, may be dispensed with, and the gases permitted to escape through the chimney B.

It will be evident that, by a slight change in the construction of the apparatus, a blast of pure hot air may be forced through the cylinder, instead of the heated products of combustion, in cases where the latter might deteriorate the material to be dried.

The most important feature of our invention is the exposure of the exterior of the revolving cylinder to the heat at the same time that the products of combustion or heated air pass through the cylinder.

The external heat prevents the adhesion of the offal to the interior of the cylinder, the revolution of which agitates the loose particles of offal, and subjects every portion of the same to the action of the internal blast of heated air or products of combustion.

We claim as our invention, and desire to secure by Letters Patent—

1. Treating offal by subjecting it, in a revolving cylinder, or its equivalent, to the combined action of heat applied to the outside of the cylinder, and to a blast of heated air or products of combustion introduced into the cylinder, all substantially as and for the purpose herein set forth.

2. The revolving cylinder D, constructed substantially as described, in combination with a fireplace, C, oven A, and pipes, passages, and fans, or equivalent devices, whereby the surface of the said cylinder is heated, and a hot blast forced through the interior of the same, in the manner and for the purpose herein set forth.

3. The spiral rib *i*, having a tendency to force the material through the cylinder in a direction opposite to the course of the hot blast, as described.

4. The pipes H and H′ and the fan F′, arranged, in respect to the furnace C and compartment *b* of the oven, substantially as herein described for the purpose specified.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses.

JAMES B. CHENOWETH,
EDWIN P. BAUGH.

Witnesses:
JOHN WHITE,
C. B. PRICE.