

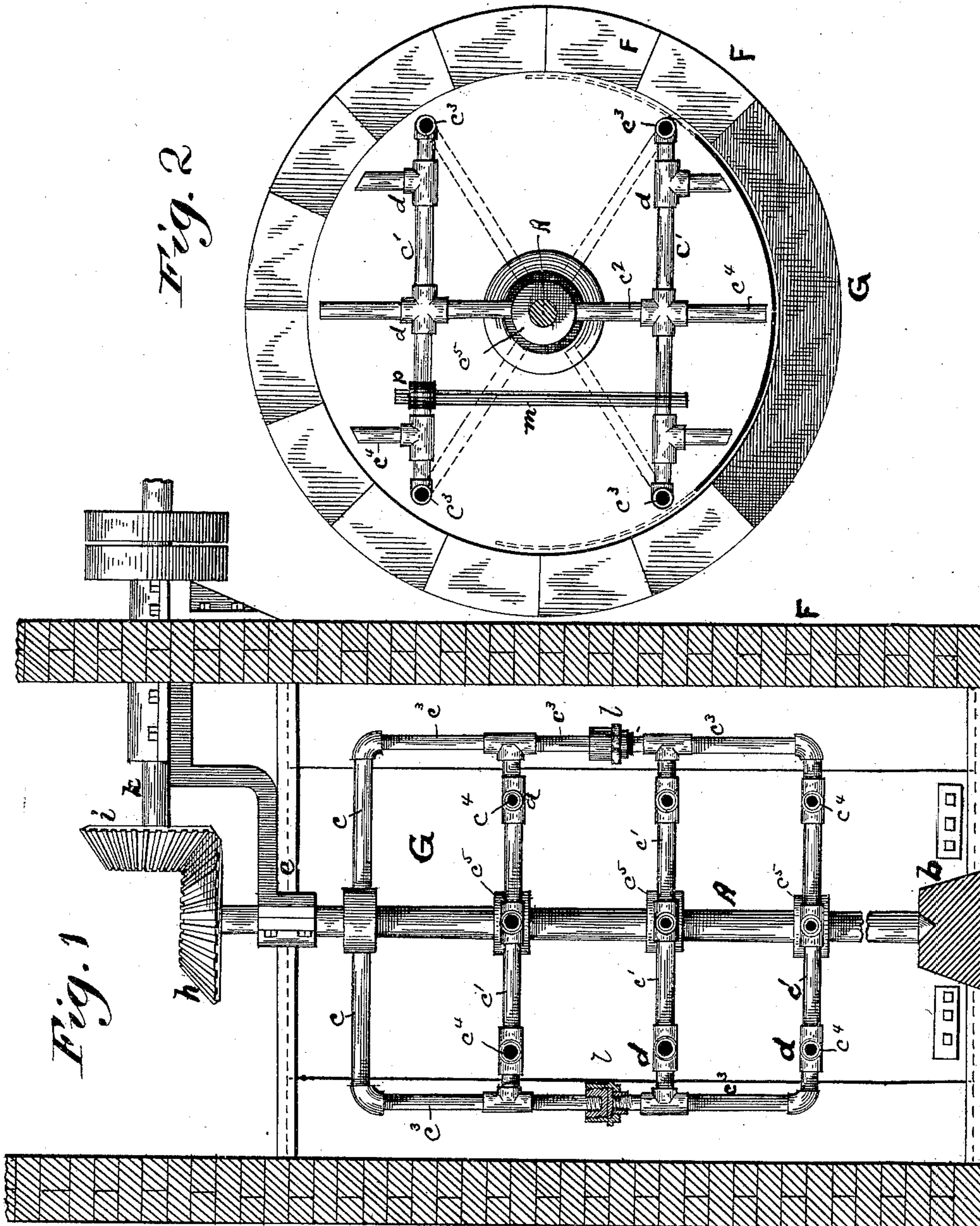
(No Model.)

2 Sheets—Sheet 1.

E. C. FORD.  
SMOKE HOUSE.

No. 409,319.

Patented Aug. 20, 1889.



Witnesses:  
J. B. McGirr.  
E. K. Sturtevant.

Inventor:  
E. C. Ford,  
by Smith & Low  
attorneys.

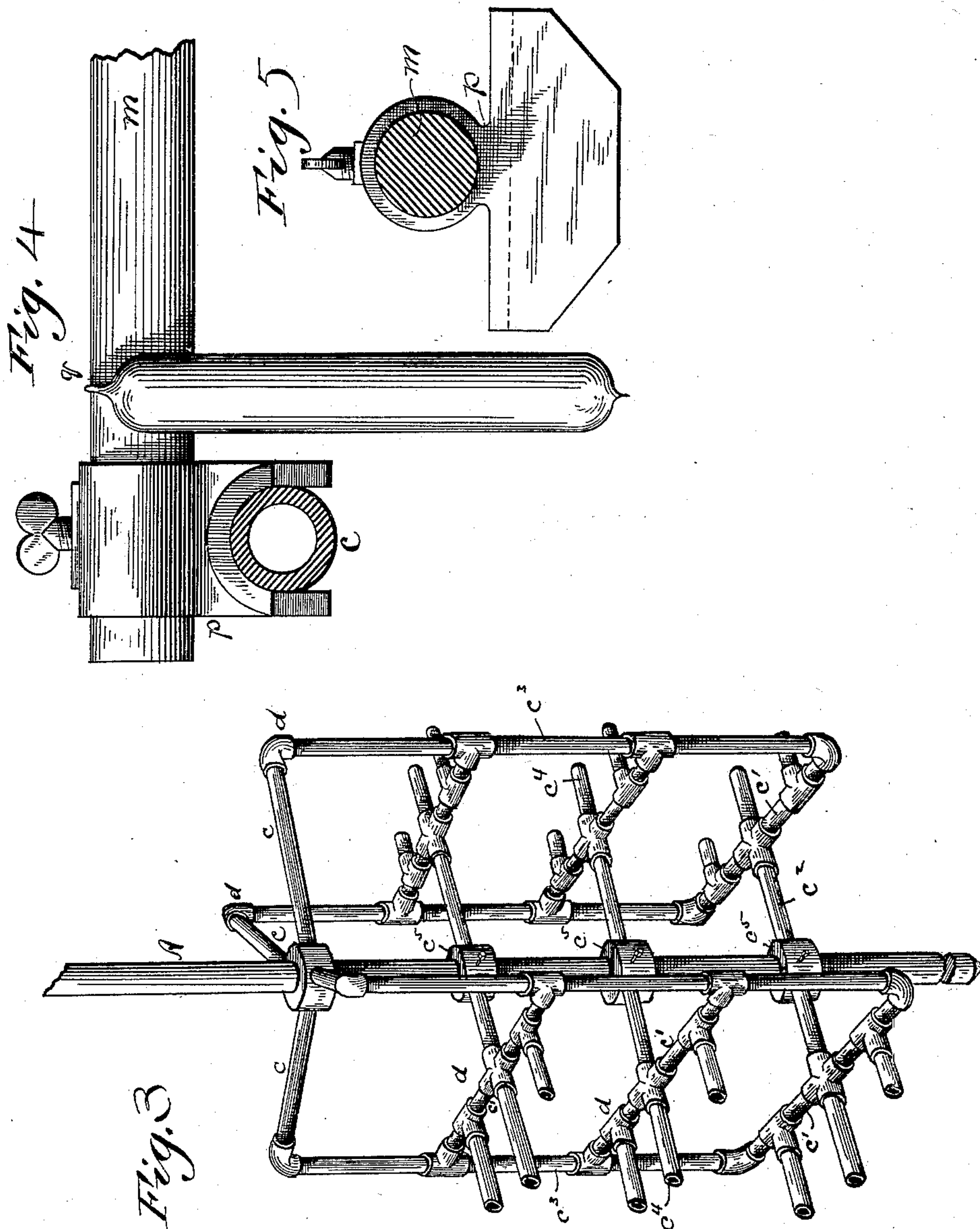
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# UNITED STATES PATENT OFFICE.

EDWARD C. FORD, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF  
ONE-HALF TO ANDREW LÖFFLER, OF SAME PLACE.

## SMOKE-HOUSE.

SPECIFICATION forming part of Letters Patent No. 409,319, dated August 20, 1889.

Application filed January 11, 1889. Serial No. 296,087. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. FORD, of Washington, in the District of Columbia, have invented new and useful Improvements in Smoke-Houses; and I do hereby declare that the following is a full and accurate account of the same.

This invention relates to smoke-houses adapted and used for the curing of meat and meat preparations on a commercial scale. It will be equally useful, but not equally necessary, in the smaller smoke-houses used for domestic purposes. Smoke-houses are usually built of wood, but sometimes of brick or other materials, and, if designed for use on a commercial scale, they require to be of considerable size, yet the nature of the case limits the size within limits which in other lines of manufacture would be considered narrow. The reasons for this will be clearly understood from a description of the art as at present practiced. The ordinary smoke-house is about four by six feet, and a fire is generally built near the middle of its floor. The meat to be smoked is hung upon slats or sticks extending from side to side and resting upon cleats or brackets nailed to the sides. The process of curing must be carefully watched, and therefore frequently inspected. This is the more necessary because usually the same smoke-house will contain hams, bacon, and sausages, and these, owing to their differences in size, &c., will require different periods of exposure. The condition of the external atmosphere also causes differences in effect, as under some conditions the fire will burn more freely than at others, and sometimes the heat will drift toward one side more than another. This, as is well known, occurs in windy weather.

The only mode of inspection is by entering the smoke-house and passing around close to the hanging meat. It is evident that this passage must be made close to the floor, beneath the hanging meat—in other words, practically on hands and knees in an atmosphere hot and stifling with smoke. It is also evident that the vertical height occupied by the hanging meat is limited, because the inspector cannot pass up among the pieces.

All of the objectionable features of the system in use, as described above, are obviated by my invention. The smoke-house

can be built indefinitely larger, and thus relatively cheapen construction and increase the quantity contained at one time. Inspection is made more thorough without entering the smoke-house at all, and the distribution of heat and smoke is made uniform throughout without regard to atmospheric conditions. To accomplish all this, I provide my smoke-house with one or more revolving reels or racks, which turning on their axes successively bring all sides to a door or window opening for loading or inspection, which therefore may be accomplished from the outside.

I do not wish to be understood, however, as claiming, broadly, the application of a rotatory reel to the smoking and curing of meats in smoke-houses.

In the accompanying drawings, Figure 1 is a sectional elevation of a single-reel smoke-house. Fig. 2 is a horizontal section of the same. Fig. 3 is a perspective view of the reel removed. Figs. 4 and 5 represent the saddle-rest used to keep the slats in position on the arms of the reel.

A is the central vertical shaft of the reel, and said shaft is provided with a step *b* at bottom and a suitable bearing at top.

In the drawings my reel is represented as being constructed from gas-pipes and fittings *d* and provided with an upper bearing in a metal bracket *e*. This is an excellent and economical method; but it is evident that the reel may be effectively constructed of wood or other materials, as may be preferred, for one reason or another.

The reel consists, essentially, of the radial arms *c*, secured to the shaft and carrying at their outer ends the uprights *c*<sup>3</sup>, to which latter are attached the horizontal supports *c*<sup>1</sup>, situated at a distance from the shaft of the reel and in a position tangential to a circle described from said shaft as a center. Said supports are thus adapted to receive transverse bars or sticks, upon which the sausage or other meat is previously strung. The radial arms are preferably secured to the shaft through the medium of collars *c*<sup>5</sup>, provided with suitable means for being clamped upon the shaft—such as set-screws. The reel is made in sections, whereby a structure of any desired height and number of stick-supports *c*<sup>1</sup> may be built up. Each section consists of one or more sets of radial arms, uprights, and



horizontal supports, and in building up the reel these sections are first applied to the shaft A by passing their collars loosely over the shaft and clamping them in the desired position. The uprights are provided with the screw coupling devices shown in Fig. 1, whereby the uprights of one section are united to those of the next. The horizontal supports are preferably provided upon their outer sides with outward extensions  $c^4$ , situated at substantially right angles to the supports and adapted to carry a set of sausage or meat supporting sticks at right angles to the sticks which are laid directly upon said supports, as hereinbefore described. The whole interior of the smoke-house is thus utilized for the reception of meat to be smoked or cured, while the latter is so arranged as to be easily put in place, inspected, and removed.

F is the wall of the smoke-house, which in the case represented is circular. This, however, as well as the material employed, is entirely to be governed by existing circumstances. If more than one reel is employed, the exterior wall F may be of such ground plan as will best accommodate the number of reels employed.

The door G opposite the reel affords complete and convenient access and enables the attendant to load, inspect, or unload the same without going inside at all, and, if deemed desirable, said door may be constructed in parts, so that the whole opening need not be uncovered at once.

At the top of the shaft A, I have placed a bevel-gear  $h$ , meshing with a similar gear  $i$  on a counter-shaft  $k$ , which extends through the wall and is adapted to receive power to maintain a rotation of the reel. This of course is not essential, but is useful to counteract atmospheric influences which disturb the uniform distribution of the smoke.

The slats  $m$  may be straight sticks of wood or any suitable material of proper length to lie upon the arms of the reel as close together as the nature of the meat to be suspended will allow; and to keep them from moving endwise so as to collide with the wall F, and space the sausage-sticks properly, so that the sausages or meats may not touch each other and be imperfectly smoked and treated, I have provided saddle-pieces  $p$  to fit over the reel-arm and a socket or other mode of attachment to the slat. A socket with clamping-screw is useful, as it permits ready adjustment on said slat. Sausages are hung over the slats, as at  $q$ , while hams, bacon, &c., may be attached with hooks or bits of cord.

By means of this improvement one attendant can superintend a considerably larger number of houses, and thus one man's labor will secure a considerably larger output and the cost will be proportionately reduced. The laborer himself is considerably benefited, as the duty inside the smoke-house is very destructive to clothing, especially shoes. It is

also detrimental to the health, especially the health of the eyes.

Sausages suffer a considerable loss in weight from the sweating which they undergo. This is to a very large extent obviated by the motion of my reel, which has an effect to keep down the temperature without impairing the antiseptic effect of the smoke. They are also more or less liable to variations in color, because of excess of smoke or heat in one part of the house more than in another. This is entirely obviated by the rotations, which secure a uniform exposure to the heat and smoke. By means of the reel the meat may be hung in tiers to any desired height, and thus the amount which may be treated within one inclosure and on one reel is very largely increased without any material increase in cost or maintenance of the plant.

In every way the appearance and salability of the product is improved by the greater facility for inspection and handling, and the labor cost is reduced, while the laborer himself is benefited in health and personal economy.

Having described my invention, I claim as new—

1. In a smoke-house, the combination, with the inclosing-walls, of the rotatable reel having the shaft A, provided with the radial arms  $c$ , the uprights  $c^3$ , carried at the extremities of said arms, and the horizontal parallel supporting-rods  $c'$ , carried by and between said uprights at a distance from the shaft of the reel, substantially as set forth.

2. In a smoke-house, the combination, with the inclosing-walls, of the rotatable reel having the shaft A, provided with the radial arms  $c$ , the uprights  $c^3$ , carried at the extremities of said arms, the horizontal supports  $c'$ , carried by and between said uprights at a distance from the shaft of the reel, and supplemental radial arms  $c^2$  at right angles with and connecting said supports  $c'$  with the shaft, substantially as set forth.

3. In a smoke-house, the combination, with the inclosing-walls, of the rotatable reel having the shaft A, provided with the radial arms  $c$ , the uprights  $c^3$ , carried at the extremities of said arms, and the horizontal supports  $c'$ , carried by and between said uprights at a distance from the shaft of the reel, and the outward extensions  $c^4$  at right angles to and carried by the supports  $c'$ , substantially as set forth.

4. In a smoke-house, the combination, with the inclosing walls or casings, of the reel having the vertical shaft A, diametrical arms  $c^2$  and parallel supports  $c'$ , situated upon opposite sides of the shaft and at right angles to and carried by said arms, and the removable sausage-sticks  $m$ , arranged parallel with said arms and supported by said parts  $c'$ , substantially as set forth.

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Witnesses:

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