No. 777,467. PATENTED DEC. 13, 1904.

J. J. YUNCKER.

SMOKE HOUSE.

APPLICATION FILED SEPT. 21, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

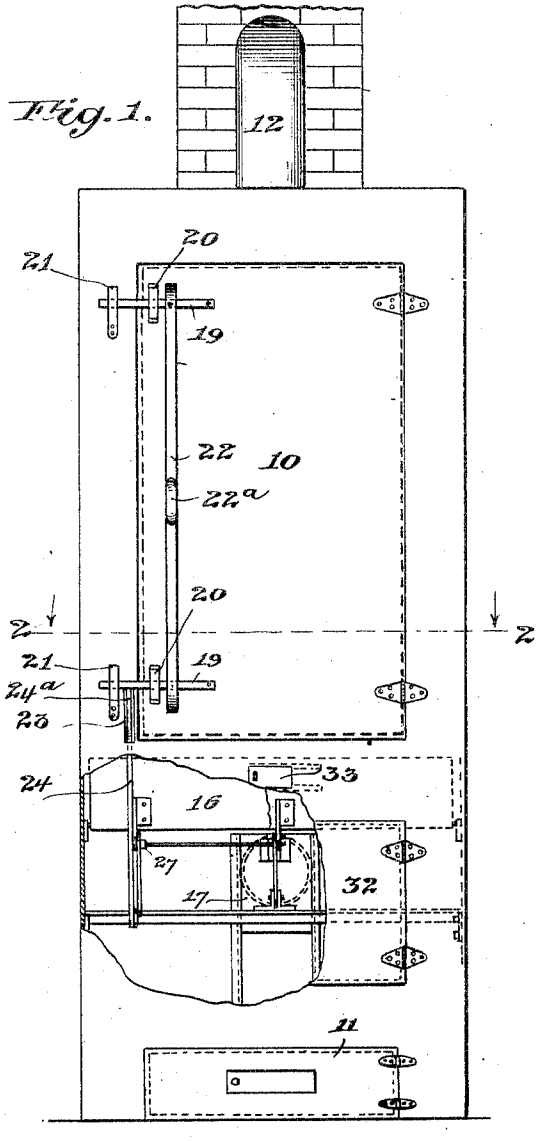
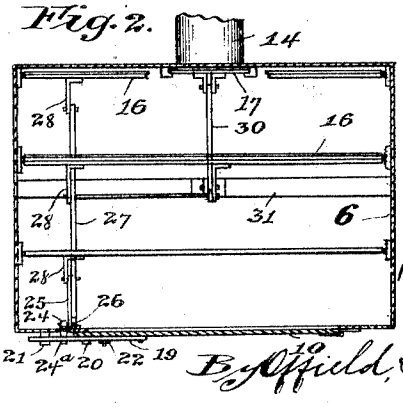


Fig. 2.



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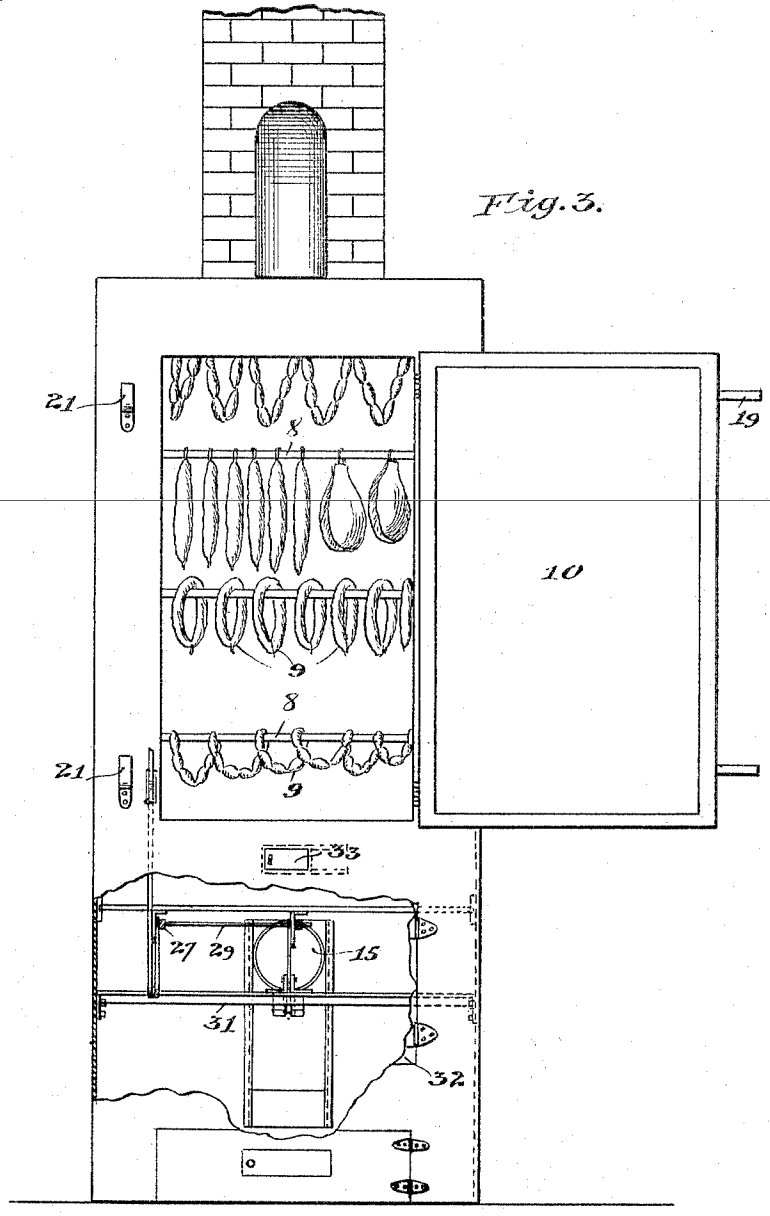
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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.



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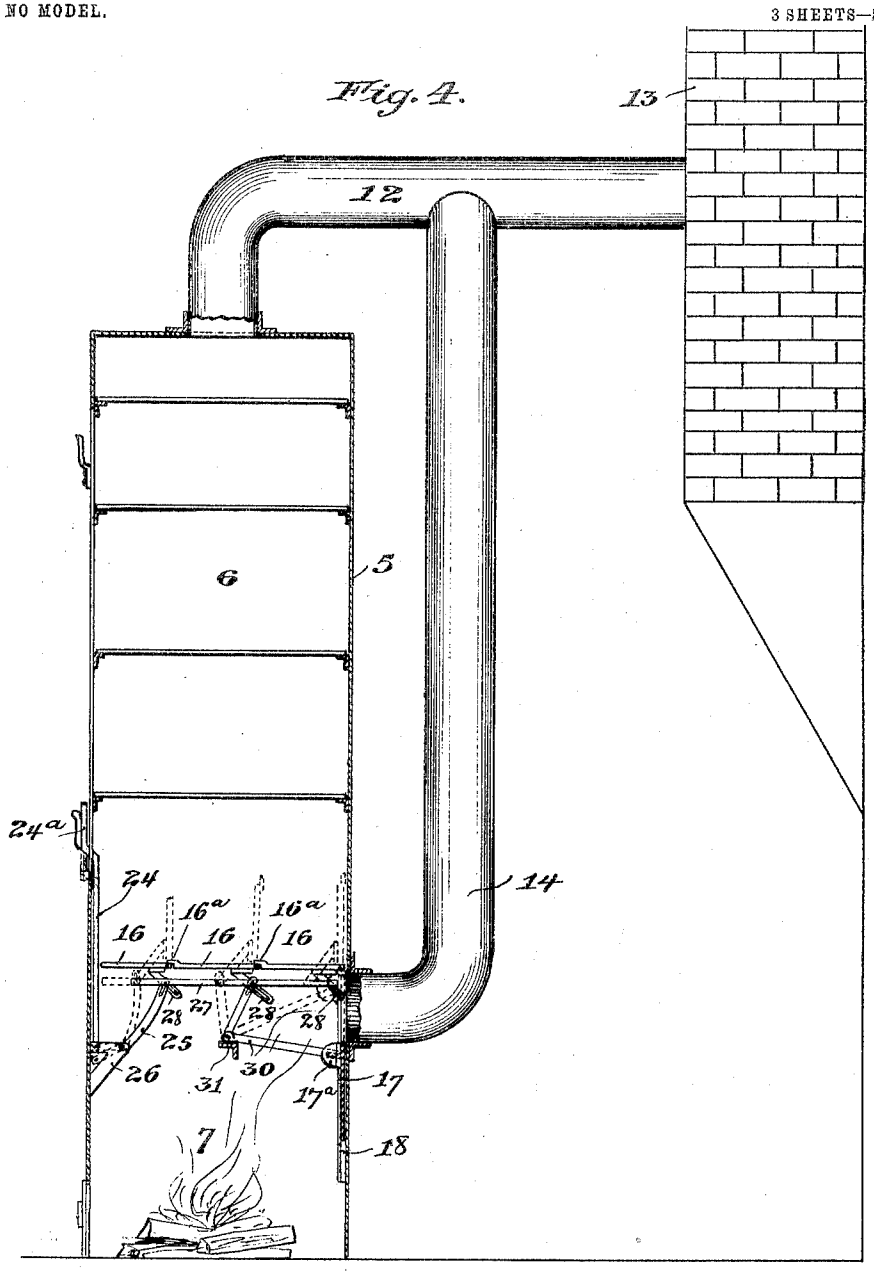
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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH J. YUNCKER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WOLF, SAYER AND HELLER, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

SMOKE-HOUSE.

SPECIFICATION forming part of Letters Patent No. 777,467, dated December 13, 1904.

Application filed September 21, 1904. Serial No. 225,332. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. YUNCKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Smoke-Houses, of which the following is a specification.

My invention relates to improvements in apparatus for curing meats and other articles by smoking the same, and has for its principal object to provide an apparatus of this character wherein when it is desired to inspect the interior of the smoke-chamber, the current of smoke passing therethrough may be temporarily deflected through a by-pass, so as to prevent the flow of the smoke into the room in which the apparatus is located.

In the preferred form of the invention herein shown the apparatus is so constructed that the manipulation of the door fastening and releasing mechanism preliminary to the opening of the door automatically switches the smoke-current from the main chamber of the apparatus through the by-pass, while conversely the reverse manipulation of such mechanism after the closing of the door closes the by-pass and restores the smoke-current to its normal path through the chamber of the apparatus.

My invention in the best mechanical form which I have as yet devised is illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevational view, partly broken out, of the apparatus, with the door of the chamber shown as closed. Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1, but showing the door of the smoking-chamber open; and Fig. 4 is a view, partly in side elevation and partly in vertical section, in a plane at right angles to the planes of Figs. 1 and 3.

Referring to the drawings, 5 designates a box or casing, preferably of sheet metal and of the generally upright rectangular form shown, the upper portion of the interior of which constitutes the smoke-chamber 6, while its lower portion 7 constitutes the fire-chamber. The smoke-chamber 6 contains, as usual, a series of racks or bars 8, on which the meats 9 to be cured may be hung. The smoke-chamber contains in its front wall a hinged door 10, and the fire-chamber contains a similar hinged door 11, through which access may be had for the introduction of fuel and the removal of ashes. From the top of the smoke-chamber a pipe or flue 12 leads directly into a chimney 13, while a by-pass pipe or flue 14 communicates at its lower end through an aperture 15 with the upper portion of the fire-chamber and at its upper end enters the main flue 12, as shown in Fig. 4.

Between the smoke-chimney 6 and the fire-chamber 7 and preferably directly above the by-pass opening 15 is located a series of smoke-valves, herein shown as having the form of hinged shutters 16, disposed horizontally and transversely of the casing. These shutters when in their horizontal or closed position constitute a substantially smoke-tight partition, for which purpose the forward edges of the rear and intermediate shutters are provided with lips 16^a, which overlap the rear hinged margins of the intermediate and forward shutters, as clearly shown in Fig. 4. 17 designates a valve in the form of a plate slidably mounted in vertical guideways 18 on the inner side of the rear wall of the casing directly beneath the by-pass opening 15, said valve being designed to control said by-pass opening in the operation of the device.

The invention contemplates such a control of the valves 16 and 17 by the operation of the main door 10 as shall serve to automatically open the valves 16 and close the valve 17 when the door 10 has been closed and, conversely, close the valves 16 and open the valve 17 when the door 10 is to be opened. The mechanism herein shown and which I prefer to employ for carrying out this object consists of the following: Pivoted to the outer side of the door 10 are a pair of upper and lower latch-bars 19, guided in keepers 20 and coöperating at their free ends with catches 21, secured to the front wall of the casing adjacent to the margin of the door-opening. The latch-bars 19 are pivotally connected by a comparatively heavy operating-bar 22, having a central handle 22^a. Through a vertical slot 23

of the front wall of the casing just inside the lower catch 21 projects the forwardly-offset upper end 24ª of a vertically-disposed push-bar 24, located within and adjacent to the front wall of the casing. The upper end 24ª of the bar 24 lies directly beneath and in the path of movement of the lower latch-bar 19, so that when the latter is in its locking position the bar 24 is depressed by the combined weight of the two latches 19 and their operating-bar 22. The lower end of the push-bar 24 is pivotally connected to one arm of a bell-crank lever 25, this latter being pivotally mounted at its elbow on a suitable bracket 26, secured to the wall of the casing. The other upwardly-extending arm of the bell-crank has a pin-and-slot connection with a horizontal bar 27, disposed directly beneath the shutter-valves 16, as best shown in Fig. 4. Rigidly secured to the under sides of the valves 16 slightly forwardly of their hinges are a series of obliquely-disposed depending arms 28, which have pin-and-slot connections, respectively, with the said transverse bar 27. From this construction it follows that when the bar 24 is depressed the bell-crank lever 25 is rocked, carrying forward the horizontal bar 27, thereby through the rigid arms 28 throwing all of the valve-shutters 16 upwardly into the open vertical positions indicated by dotted lines in Fig. 4, and, conversely, when the bar 24 is free the weight of the valve-shutters and their operating connections automatically restores the valves to the closed horizontal position, at the same time resetting the push-bar 24 to its elevated position.

Projecting laterally from the bar 27 is a rod 29, Fig. 3, the free end of which has a pin-and-slot connection with the upwardly-extending arm of a bell-crank lever 30, that is pivotally mounted at its elbow on a transverse supporting-bar 31 beneath and at right angles to the bar 27. The other arm of said bell-crank lever 30 has a pin-and-slot connection with a lug 17ª on the inner face of the slide-valve 17. The operation of this mechanism is such that when the bar 27 is carried forwardly by the depression of the bar 24 to open the valves 16, as already described, the bell-crank lever 30 is rocked from the full line to the dotted-line position shown in Fig. 4, thereby elevating the slide-valve 17 and closing the by-pass opening 15, and, conversely, when the bar 27 is returned by the gravity-closure of the valves 16 the bell-crank 30 is rocked in the opposite direction, thereby lowering the slide-valve 17 and exposing the by-pass opening 15.

As already stated, the depression of the push-bar 24 is effected by the weight of the latch-bar mechanism when the door 10 is in its closed and latched position, as shown in Fig. 1, and this holds the shutter-valves 16 in open position and the by-pass valve 17 in elevated or closed position, so that the chimney-draft draws the smoke from the fire-chamber 7 directly upwardly through the smoke-chamber 6 and main pipe 12. When now it is desired to examine the condition of the meats or other articles undergoing the smoking operation or to remove them when cured, the operator first raises the latch-bars 19 by elevating their operating-bar 22, which allows the shutter-valves 16 to instantly drop to closed position at the same time that the slide-valve 17 drops and exposes the by-pass opening 15. Preferably the attendant or operator pauses a moment at this point before opening the door 10 in order to allow the suction through the chimney to draw off the smoke remaining in the chamber 6 and establish the draft or current through the by-pass 14, which operation may be facilitated by providing a slide 33 in the front wall of the casing, preferably located between the lower margin of the door-opening and the horizontal plane of the shutter-valves, after which he opens the door and inspects or removes the articles in the smoke-chamber without subjecting the room in which the apparatus is located to the annoying effect of escaping smoke. On the subsequent closure of the door 10 the push-bar 24 is depressed upon the engagement of the lower latch-bar 19 with the upper end of the push-bar 24, thereby opening the shutter-valves 16 and cutting out the by-pass 14 and restoring the apparatus to normal working condition.

The box or casing may be and preferably is provided with a hinged door 32 in its front wall directly opposite the interior valve mechanism, through which the latter can readily be inspected and gotten at when necessary for purposes of adjustment or repair.

It is evident that the apparatus as herein described is capable of variation and modification in respect to details without departing from the principle of the invention or sacrificing any of the advantages thereof and that the smoke-controlling mechanism might readily be applied to smoking-chambers already in use, as well as to the particular form and arrangement of smoking-chamber herein shown and described. Hence I do not limit the invention to the particular structure and mechanism herein shown and described, except to the extent indicated in specific claims.

I claim—

1. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening provided with door fastening and releasing mechanism, a suction-flue leading from said smoking-chamber, a by-pass suction-flue leading from said fire-chamber, valve mechanism serving in one position to direct the smoke through the smoke-chamber and in the other position to direct the smoke through said by-pass flue, and operating means for said valve mechanism actuated by said door fas-

tening and releasing mechanism, substantially as described.

2. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening provided with door fastening and releasing mechanism, a series of valves constituting, when closed, a partition between said smoking and fire chambers, and valve-operating mechanism actuated by said door fastening and releasing mechanism and serving to open said valves when the door has been closed, and permitting said valves to close when the door-fastening mechanism is released, substantially as described.

3. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening provided with door fastening and releasing mechanism, a series of hinged shutter-valves constituting, when closed, a partition between said smoking and fire chambers, and valve-operating mechanism actuated by said door fastening and releasing mechanism and serving to open said valves when the door has been closed, but permitting said valves to close when the door-fastening mechanism is released, substantially as described.

4. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening and provided with latch mechanism, a series of hinged shutter-valves constituting, when closed, a partition between said smoking and fire chambers, valve-actuating lever and link mechanism connected to and simultaneously operating all of said shutter-valves, and a push-bar adapted to be depressed by the latch mechanism of the door when the latter has been closed and, through said link and lever mechanism, opening said shutter-valves, substantially as described.

5. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening and provided with latch mechanism, a series of valves constituting, when closed, a partition between said smoking and fire chambers, a suction-flue leading from said smoking-chamber, a by-pass suction-flue leading from said fire-chamber, a valve adapted to control the opening of said by-pass flue, and valve-operating mechanism actuated by the latch mechanism of said smoke-chamber door and serving to simultaneously open said partition-valves and close said by-pass valve when the smoke-chamber door has been closed, substantially as described.

6. The combination with a casing containing a smoking-chamber having an opening and a fire-chamber, of a door controlling said opening and provided with latch mechanism, a series of hinged shutter-valves constituting, when closed, a partition between said smoking and fire chambers, a suction-flue leading from the top of said smoking-chamber, a by-pass suction-flue leading from the upper portion of said fire-chamber, a valve adapted to control the opening of said by-pass flue, and valve-operating mechanism actuated by the door-latch mechanism when said door has been closed serving to open said shutter-valves and close said by-pass valve, but permitting said valves to assume the reverse position by gravity when the door-latch is raised, substantially as described.

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