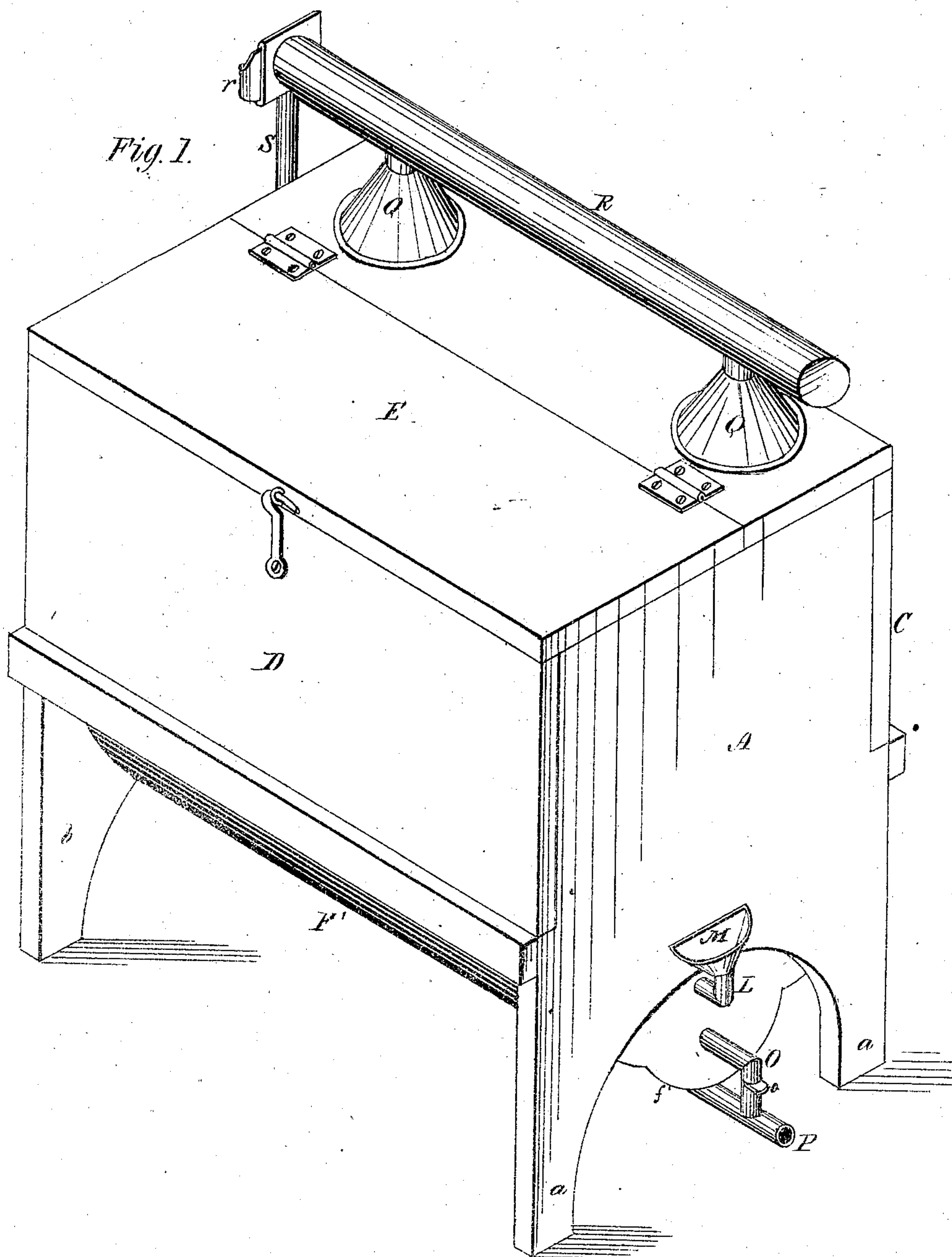


JOHN WELFARE & FRED. CHAMPAGNE.

Improvement in Feather Renovators.

No. 120,174.

Patented-Oct. 24, 1871.



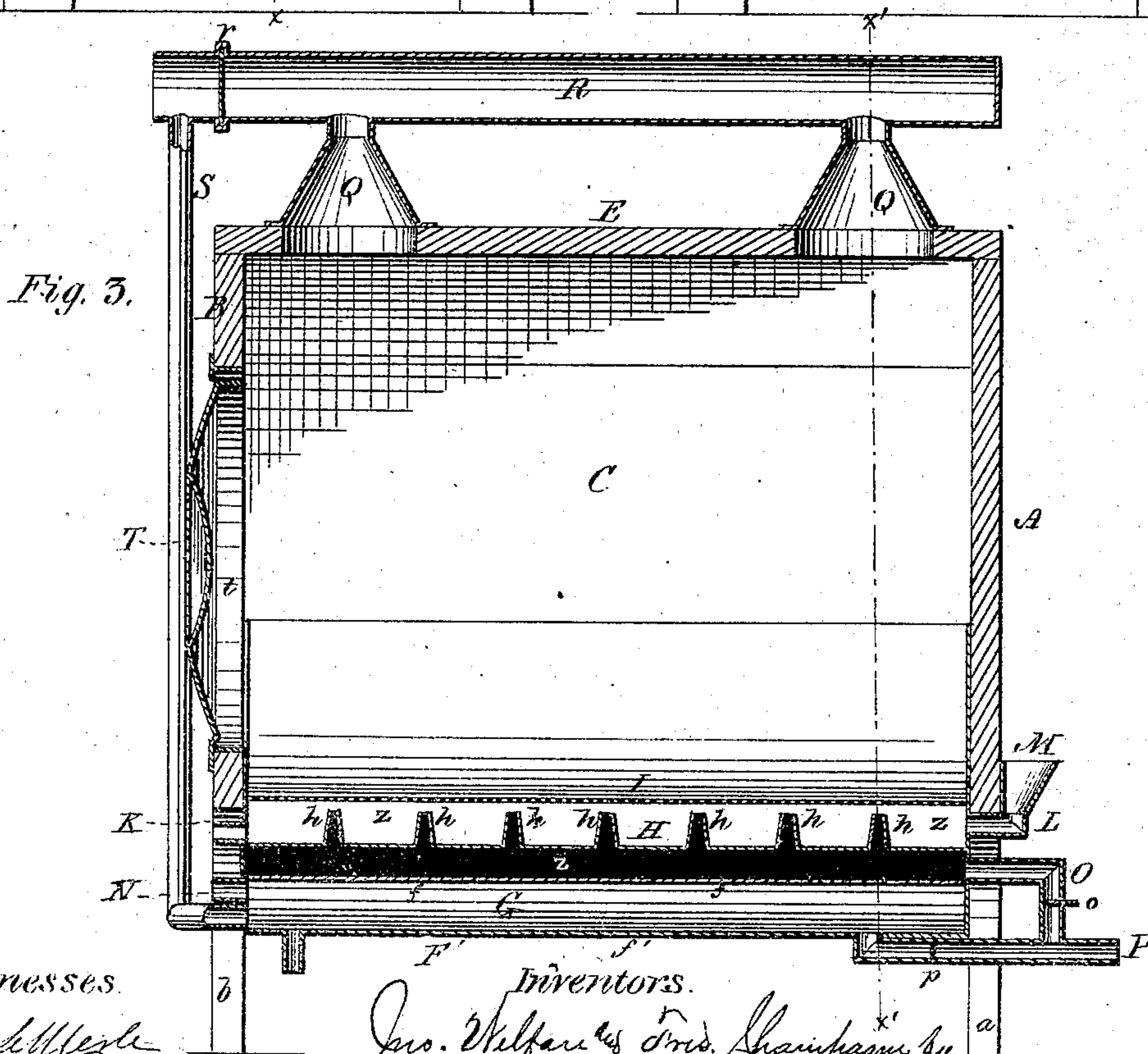
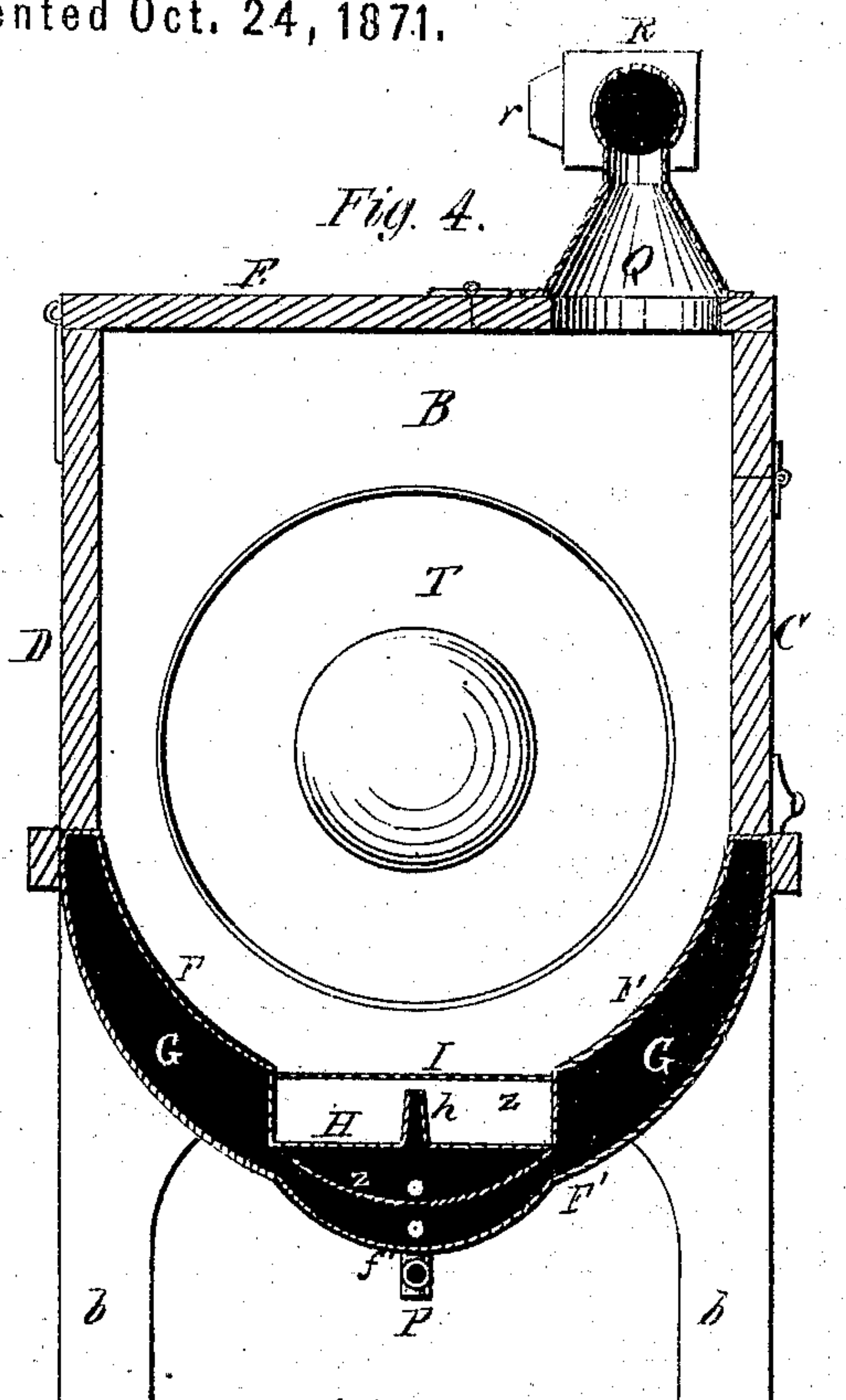
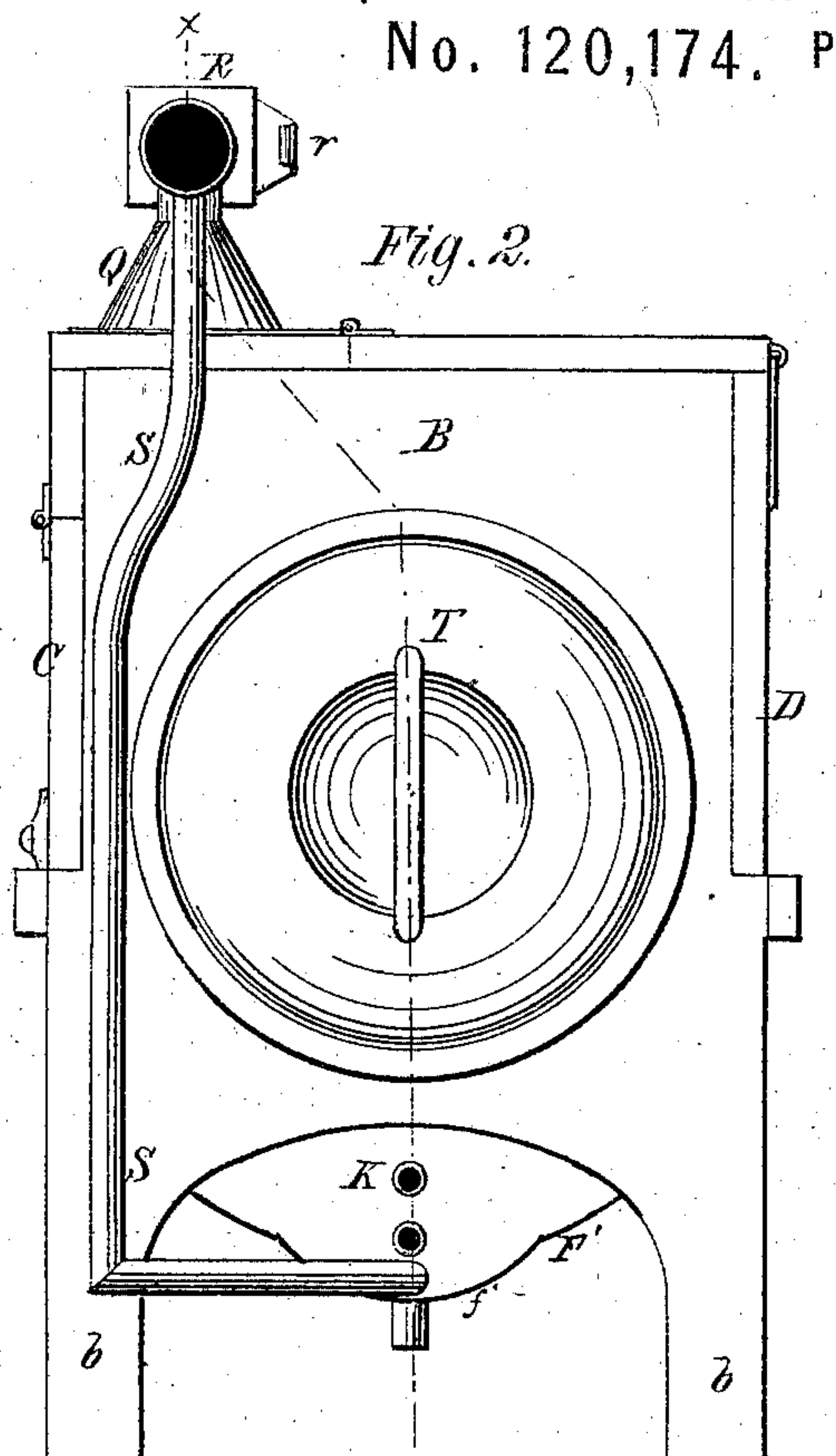
Witnesses.

*Ad. Smith
John B. Young*

Inventors.

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Attys.*

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UNITED STATES PATENT OFFICE.

JOHN WELFARE AND FRED CHAMPAGNE, OF AURORA, ILLINOIS.

IMPROVEMENT IN FEATHER-RENOVATORS.

Specification forming part of Letters Patent No. 120,174, dated October 24, 1871.

To all whom it may concern:

Be it known that we, JOHN WELFARE and FRED CHAMPAGNE, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Feather-Renovators; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of our device. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical longitudinal section of said device on the line *xx* of Fig. 2, and Fig. 4 is a vertical cross-section of the same on the line *x'x'* of Fig. 3.

Letters of like name and kind refer to like parts in each of the figures.

Our invention belongs to a class of devices having for their object the cleaning of feathers, hair, and other like substances used for forming beds, mattresses, cushions, &c.; and it consists, principally, in the peculiar construction of the reservoir for containing the material being operated upon, substantially as and for the purpose hereinafter specified. It consists, further, in the construction and relative arrangement within the reservoir of the apparatus for admitting steam to its interior, substantially as and for the purpose hereinafter shown. It consists, further, in the means employed for the removal from the reservoir of all volatile or gaseous impurities given off from the material being cleansed, substantially as and for the purpose hereinafter set forth. It consists, further, in the means employed for removing from the reservoir all solid impurities separated from the feathers, substantially as is hereinafter shown and described. It consists, further, in the means employed for removing moisture from the material being cleansed, substantially as and for the purpose hereinafter specified. It consists, finally, in the device as a whole, constructed and arranged substantially as and for the purpose hereinafter shown.

In the annexed drawing, A and B represent the ends; C and D the sides; and E the top of the reservoir, having, preferably, a rectangular shape horizontally. The ends A and B are extended downward to a sufficient distance and are each bifurcated so as to form suitable legs,

a and *b*, upon which the reservoir is supported. The lower side of the reservoir thus formed is inclosed by means of two sheet-metal bottoms, F and F', which extend downward and across in a curve, and have their ends inclosed so as to form between their contiguous surfaces a space or air-tight chamber, G. Extending lengthwise along the center of each metal plate F and F' is a semicircular depression, *f* and *f'*, respectively, the upper of which, *f*, forms a trough, which is divided horizontally and midway between its upper edge and bottom by means of a solid metal diaphragm, H, and inclosed at its upper side by means of a perforated metal diaphragm, I. A series of short pipes or nipples, *h*, extending upward from the transverse center of the diaphragm H furnish a communication between the chambers *z* and *z'*. Passing horizontally outward from each end of the upper chamber *z* is a pipe, K and L, to the latter of which is attached a funnel, M, while from the ends of the lower chamber *z'* project similar pipes N and O, the latter of which turns vertically downward and connects with a pipe, P, that passes horizontally inward beneath the lower bottom-plate F and then upward into the chamber G. A valve, *o*, placed within the vertical portion of the pipe O midway between its upper and lower ends, and a similar valve, *p*, placed within the pipe P midway between its inner end and said pipe O enables communication between either of the chambers *z'* and G and the open air to be opened or closed at will. Extending vertically upward from the upper side E of the reservoir, and at one side of its transverse center, are two short pipes, which, from a large base, are drawn rapidly inward and upward, and are connected with and support a horizontal pipe, R, that is inclosed at one end and, having a length somewhat greater than the length of said reservoir, has its open end extended over and beyond one end of the latter. The open end of the pipe R is closed, when desired, by means of a valve, *r*, immediately outside of which is connected a small pipe, S, that, extending vertically downward and then horizontally inward, has its lower end connected with the space G between the bottoms F and F'. One side, C, and the top E of the reservoir are hinged and provided with suitable locking devices so as to enable said parts to be opened or closed at pleasure and furnish ready access to the top and

side of said reservoir, while a circular opening, *t*, provided in and through the end B, and closed by means of a sheet-metal cover, T, affords a like access to the end of the same.

The device is now complete and the pipe R, being connected with a chimney or other flue having a strong draught, and the pipe P, connected with a steam-boiler, is operated as follows: The feathers or other material to be cleansed are placed within the reservoir and the hinged top E, side C, cover T, and the pipes K and L tightly closed, after which steam is admitted through the pipe O into the chamber *z'*, from whence it escapes through the nipples *h* and perforated diaphragm H into the material to be cleansed. The feathers being occasionally stirred so as to present each portion of the mass to the action of the steam, the volatile impurities are driven off into and through the pipe R, while the solid impurities are dissolved and washed downward by the condensed steam and pass through the perforated diaphragm into the trough beneath. When the contents of the reservoir have been sufficiently cleansed the inward flow of steam is arrested and the dirt, which has fallen through the perforated diaphragm into the trough beneath, is removed therefrom by pouring water into the funnel M and permitting the same to escape from the discharge-pipe K, after which all moisture contained within the cleansed mass of feathers is thoroughly and speedily removed by admitting hot steam to the chamber G between the metal bottoms F and F', and when thus dried said feathers are ready for removal and use.

The office of the pipe S is to afford a communication between the chamber G and pipe R, through which a sufficient quantity of steam may pass to insure a high temperature for the contents of said steam-chamber.

Although no especial means are shown for stirring up the contents of the reservoir it is intend-

ed to employ a reel provided with suitable radial arms, pivoted within the heads of said reservoir and revolved by means of a crank secured to one of the projecting ends of the reel-shaft.

Having thus fully set forth the nature and merits of our invention, what we claim as new, is—

1. The reservoir for containing feathers, consisting of the ends A and B, the hinged side C, the fixed side D, the hinged cover E, the metal cover T, and the metal bottoms F and F', when the several parts are constructed and combined substantially as and for the purpose specified.
2. The means employed for admitting steam to the interior of the reservoir, consisting of the chamber *z*, the nipples *h*, the perforated diaphragm I, and the pipe O, substantially as and for the purpose shown.
3. The means employed for removing the volatile or gaseous impurities from the feathers, consisting of the pipe R communicating with the reservoir and with a smoke-flue, in combination with the steam-admitting devices above named, substantially as and for the purpose set forth.
4. The means employed for removing from the reservoir the solid impurities separated from the feathers, consisting of the chamber *z*, the perforated diaphragm I, the pipes K and L, and the funnel M, substantially as shown and described.
5. The means employed for removing moisture from the cleansed feathers, consisting of the metal bottoms F F', the chamber G, and the steam-pipe P, in combination with the pipe R, substantially as specified.
6. The device as a whole when each of its parts are constructed and combined substantially as and for the purpose shown.

JOHN WELLFARE.
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Witnesses:

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(62)