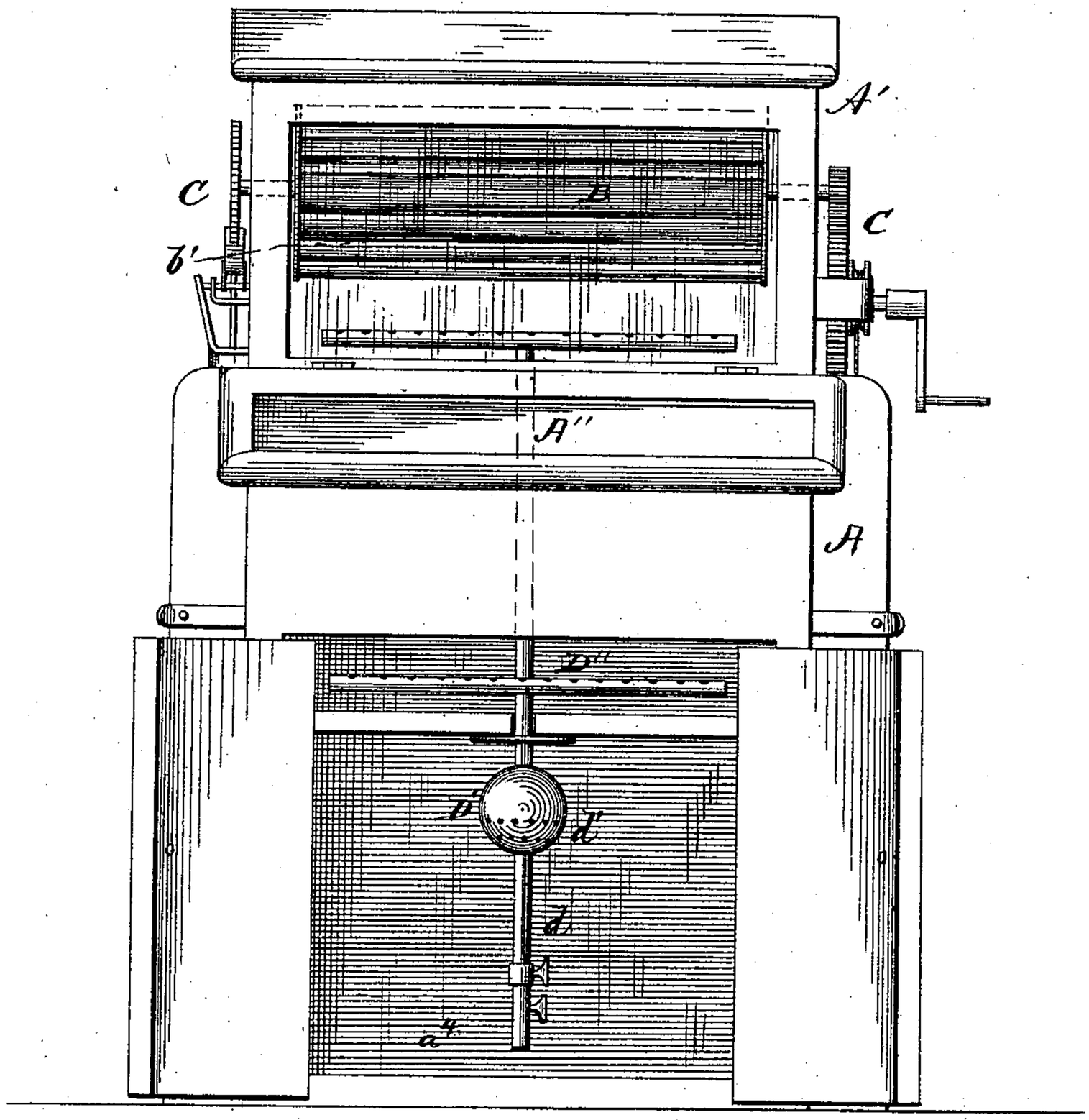
3 Sheets—Sheet 1.

G. H. DOWNIE.

Coffee-Roaster.

No. 200,520. Patented Feb. 19, 1878.

Fig. 1.



WITNESSES

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3 Sheets—Sheet 2.

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Fig. 2.

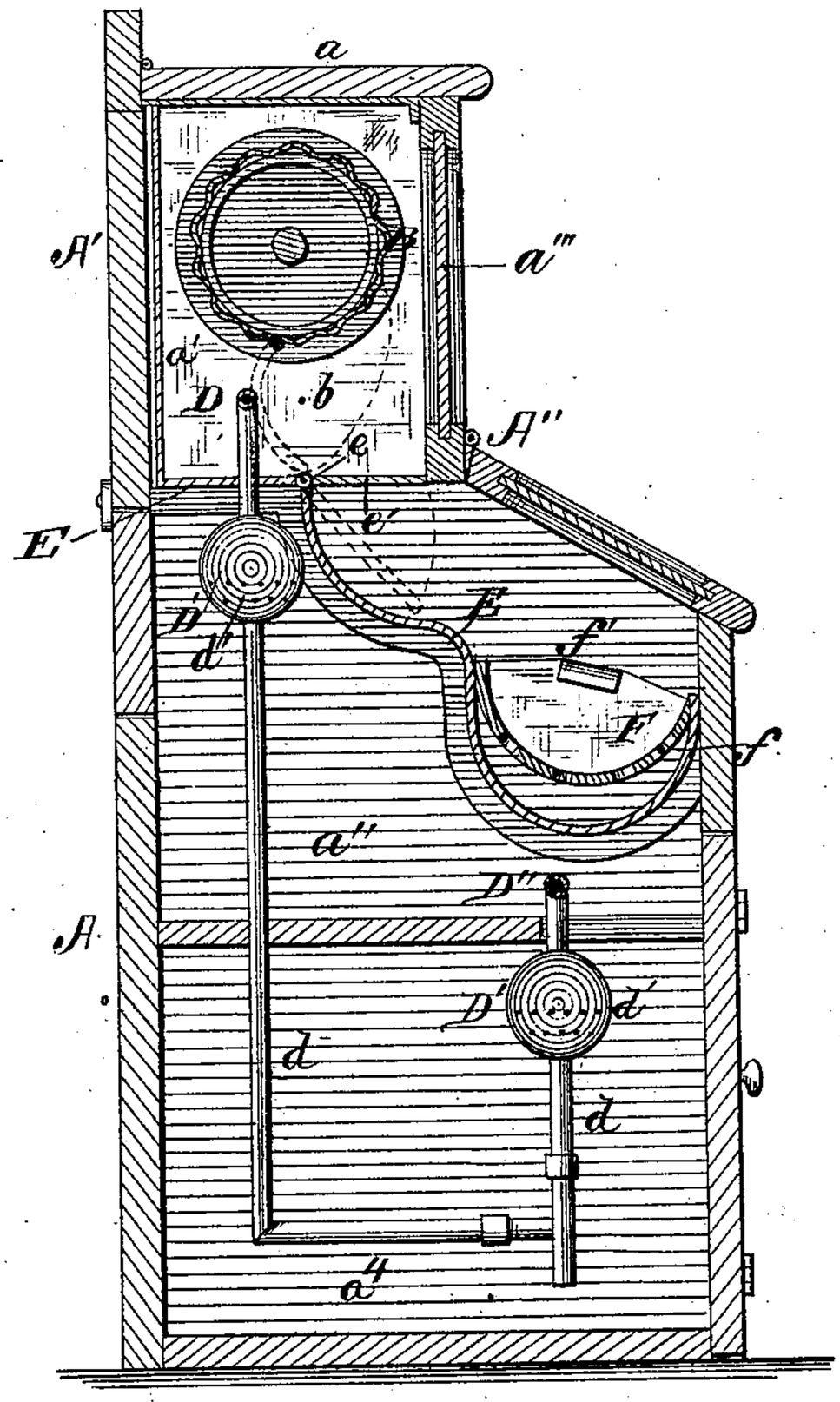


Fig. 4.

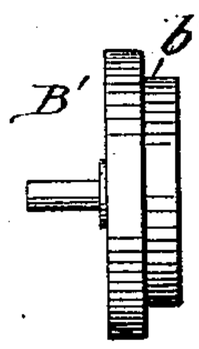
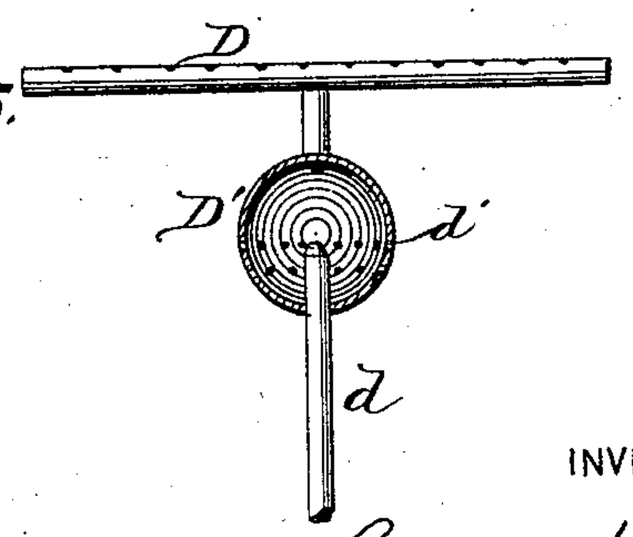


Fig. 5.



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3 Sheets—Sheet 3.

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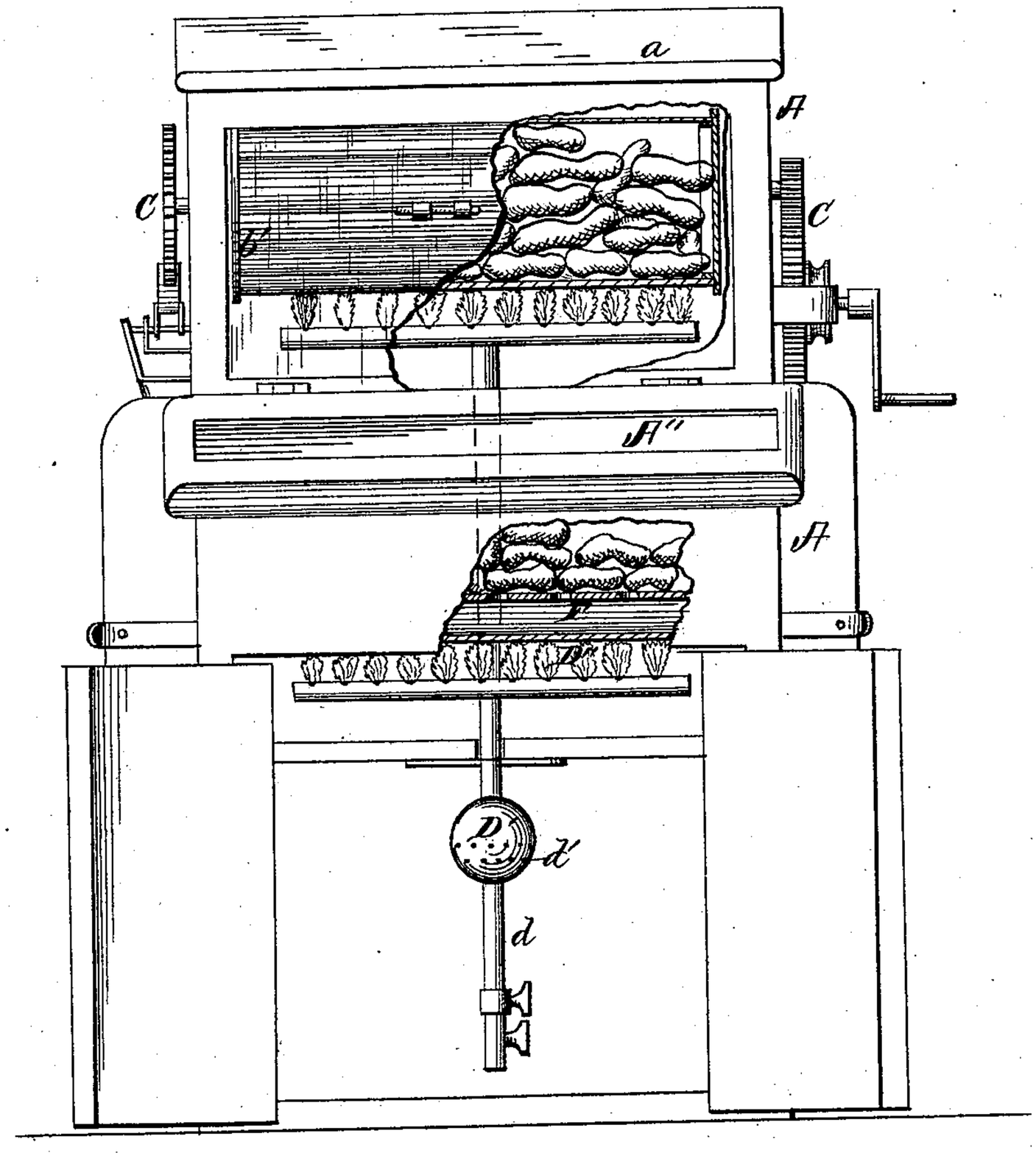
Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE H. DOWNIE, OF WINONA, MINNESOTA.

IMPROVEMENT IN COFFEE-ROASTERS.

Specification forming part of Letters Patent No. **200,520,** dated February 19, 1878; application filed October 23, 1877.

To all whom it may concern:

Be it known that I, GEORGE H. DOWNIE, of Winona, in the county of Winona and State of Minnesota, have invented certain new and useful Improvements in Devices for Roasting and Warming Nuts, Coffee, and like Articles, of which the following is a specification:

Figure 1 is a front elevation. Fig. 2 is a vertical central section from front to rear. Fig. 3 is an elevation, with parts broken away to show the internal construction. Figs. 4 and 5 are details to show the construction of several of the parts of this device.

The design of the present invention is to produce such improvements in devices used for roasting coffee, nuts, and the like as will cause perfect uniformity in the operations of those parts which are moved by mechanism, thus insuring perfect and thorough roasting, and in those portions of the device afterward used for keeping the roasted nuts, &c., warm as will afford certain but mild and continuous heat.

To this end the said invention consists more particularly in the construction of the roasting or heating cylinder or chamber and its operative mechanism, as combined and connected therewith; and in the construction and arrangement of it and its adjuncts relative to and in combination with the warming-tray; and in the combination, with the roaster or warmer, or both, of a suitable heating apparatus, whereby said process of roasting or warming is carried out; and in the grouping together of all these parts, as well as of the mechanism used to drive said roaster; and in such construction of the device that the working of the parts and the operation of the roasting and warming may be readily discerned or observed from the outside without any disturbance of the doors or other parts of the casing; and in the general construction and combination of all the parts in cabinet-case roasting and warming apparatus, as will now be more fully and in detail set out and explained.

In the accompanying drawings, A denotes the cabinet-case of the roaster and warmer. In the upper part A′ of this is properly mounted the roasting-cylinder B, so that it will have free motion on its bearings or journals when it is desired, in the process of roasting or otherwise, to set in motion the mechanism now shown as clock-work C, which, by means of suitable arms, pinions, ratchet, and the like, is adapted in any usual way to carry this out. The body of said roasting-cylinder is made preferably of corrugated or bent metal; but if made of plain metal and provided with internal ribs or projections, the operation will be similar; and on one side it has a hinged door or lid, *b*, extending from end to end of the cylinder, and so adapted as to be held by a pin, *b′*, in place, and through the lifted top lid *a* of the case, or by any convenient rod from the outside, this lid may be easily opened or closed. If desired, this pin may be held by a spring.

The ends or heads B′ of the cylinder are preferably of cast metal, and are secured to the body by means of the flanges *b″* on this head, and by rivets, or in any workmanlike way in such matters. The inside of the case about this cylinder, excepting at the front and over the feed-chute, where is applied the hinged part *e′*, is suitably protected by metal plating or lining *a′*. Beneath said cylinder, and in the chamber A′, is a heater, D, now shown as a gas-burner; but I do not confine myself to gas, for there are many heating agents that can, with but small difficulty, be adapted to use in connection with my said roaster, so that, though I have now shown a gas-burner, I may use coal-oil or alcohol.

In the present instance the atmospheric-gas burner is constructed in the following way: Gas is admitted into the hollow globe D′ by pipes *d*, which connect with the gas-main. Into the lower part of this globe air enters through the perforations *d′*, and thus the gas and air are here combined, and fed by the pipe in the top of the globe to the burner D.

The detail of applying, instead of gas, an asbestus or other alcohol lamp or other suitable heater will be easily understood, and therefore need not now be set out and explained.

The metallic lining of the bottom of this upper or roasting chamber is formed by the plate E, which extends from the rear wall of the cabinet horizontally part way across the bottom of the chamber to *e*, and here, bending down, is carried in curving lines to the front of the case. At the point *e* is thus formed the beginning of the feed-chute, (made in part by said plate,) and which conveys the roasted contents of cylinder B to the warming tray or

reservoir F in the front part of the case. At this portion of the case it is preferably so constructed that it is advanced considerably forward from that part which contains the roasting-cylinder, and thus is afforded a convenient place for the warming-tray F and its heating apparatus D″, which is provided with an air and gas mixing globe and pipes, all as above described in relation to the heater D. This heating apparatus does not operate directly on the tray-bottom, but indirectly on it through the metal plate E. It is preferably connected with that which heats the roaster. It may be regulated by a cock, or in any suitable way, so as to afford a requisite amount of heat for the purposes desired; but this heater or burner may be independent of D, and in some instances, while the gas is used, any other burner, as aforesaid, may be used here.

The bottom of tray F is perforated at *f*, and by handles *f′* the tray can be readily moved in or out of the case when desired. The construction of the case and the metal diaphragm and lining E is such that the tray will readily sit down in its place.

In order to insure more perfect retention of heat, the under side of the tray may be painted or otherwise colored black. The front of the roasting-chamber A′ is made of glass, *a′*, and through it the movements of the cylinder can be discerned, and also the passing of the nuts thence down to the warming-tray. If desired, this front may be hinged. The sloping top A″ of the warming-chamber is also of glass, and hinged, giving easy access to the contents of the tray, and allowing it to be lifted in or out, and through it the condition of the contents of the said tray can be observed, and by raising it a little the heat in the tray can be regulated. It will also serve to keep out the dust, &c., from the tray.

The case may have in its rear and in its lower part chambers *a″* and *a*⁴, which will serve as repositories for storing nuts and the like, and these chambers may have suitable doors; but these parts are not absolutely essential, and the case may sit on legs, and open spaces may be left at the rear.

The mechanism for operating the roasting-cylinder may be inclosed in a suitable jacket or chamber at each side, and access can be had to these parts through hinged doors. Preferably I have shown clock mechanism with the weight on one side of the case and the pendulum on the other; but springs or weights, or any like power to produce automatic action according to any of the adaptations for such uses now well known, may be used. In the mechanism the pinion on the roasting-cylinder journal is much smaller than the ratchet-wheel, with which it meshes, so that the power is multiplied as it is transmitted.

In casting the cylinder head or end, the shaft or journal may be cast with it, if such construction shall be desired.

In order more completely to shut up the chamber A′, as when the process of roasting is going on, or to prevent flaring of the burner, or for any purpose, a suitable lid, *e′*, may be adapted to the throat. This can be readily raised or lowered by opening the top lid of A′, or through the warming-chamber, or by means of a rod leading to the outside of the case, or in any suitable way.

The lining of the case in which the roasting-cylinder is placed is usually so fitted as to have a space between it and the outside wall or casing, and thus the outside will not be affected by the heat. This construction also affords a heat-retaining space about the roaster, which, when the fire is extinguished beneath, will be of great advantage in keeping the contents of the roasting-cylinder warm.

During the operation of roasting the top lid of the case or dampered opening in it is to be closed as much as possible and allow combustion. When the roasting is completed, if it is desired to let the contents remain in the cylinder, put out the heater, close the lid tightly, and a perfect hot-air chamber is formed, which will retain the heat not only in the chamber, but also in the cylinder, by which means the contents of the cylinder can be kept warm for a long time. The advantages gained by this are, that in busy times we often have a cylinder full roasted, while the supply in the tray is enough for an hour or two, and by the above we are enabled to keep them warm without any extra heat until wanted.

It is usually common in roasters for the contents to be more or less pulled out or moved by hand or like means, and often lifted from one place to another. In the present device, when the cylinder is ready to be emptied, by simply removing the pin *b′* and letting the cylinder be in proper position, the contents will automatically pass down over the lid, which now forms a guide to the chute, into the feed-chute, and then into the tray, without any handling or pulling whatever. When the lid of the cylinder is thus opened and in position to let its contents into the tray, it forms, in fact, part of the chute between the roaster and the tray.

These points, which are gained by the construction and combination of the cylinder, its lid, the feed-chute, and warming-tray, are of very especial consequence in devices of this sort.

The operation of my said apparatus will now be clearly and sufficiently understood without any extended explanation. My device affords a most compact and effective apparatus for the uses intended. The construction, combination, and arrangement of the several parts are such that all the operations of feeding the nuts or article to be roasted and withdrawing same for use are carried on in the easiest and most convenient manner, while by the present combination I can compact all the parts and the mechanism and heaters into a neat and most tasteful appearing device. Nor is the device bulky or costly.

Having thus described my invention, what I consider new, and desire to secure by Letters Patent, is—

1. In a cabinet roasting and warming device for nuts and the like, the metal plate E, serving in part as a lining for chamber A′, and forming, with hinged lid *e′*, a chute to tray F, substantially as and for the purposes set forth.

2. In combination with a roaster, as described, the metal plate E and perforated warming-tray F, substantially as and for the purposes set forth.

3. The cabinet-case A, having roasting-cylinder B, plate E, and warming-tray F, with suitable heaters D and D″, and provided with upright glass front *a‴* and sloping glass lid A″, substantially as and for the purposes set forth.

4. A roasting-cylinder, B, having corrugated body and hinged lid, and cast-metal ends, substantially as and for the purposes set forth.

5. In a nut roasting and warming cabinet-case, A, the combination of the roasting-cylinder B with the metal plate E, hinged lid *e*, and the warming-receptacle F, whereby the contents of the roaster may be fed down into the said receptacle, and without exposure to the air, substantially as and for the purposes set forth.

6. A nut roaster and warmer having cabinet-case A, provided with glass front *a‴* and store closets or chambers *a″* and *a*⁴, and a roasting-cylinder, B, operated automatically, as described, and having a warming-chamber, F, fed from the roaster above it, and covered with a glass lid, said case being suitably furnished with heaters D and D″, said parts constructed and operating as set forth.

In testimony that I do claim the foregoing as my own I do affix my signature in presence of two witnesses.

GEORGE HENRY DOWNIE.

Witnesses:
VINCENT VOTRUBA,
J. H. BARNES.