

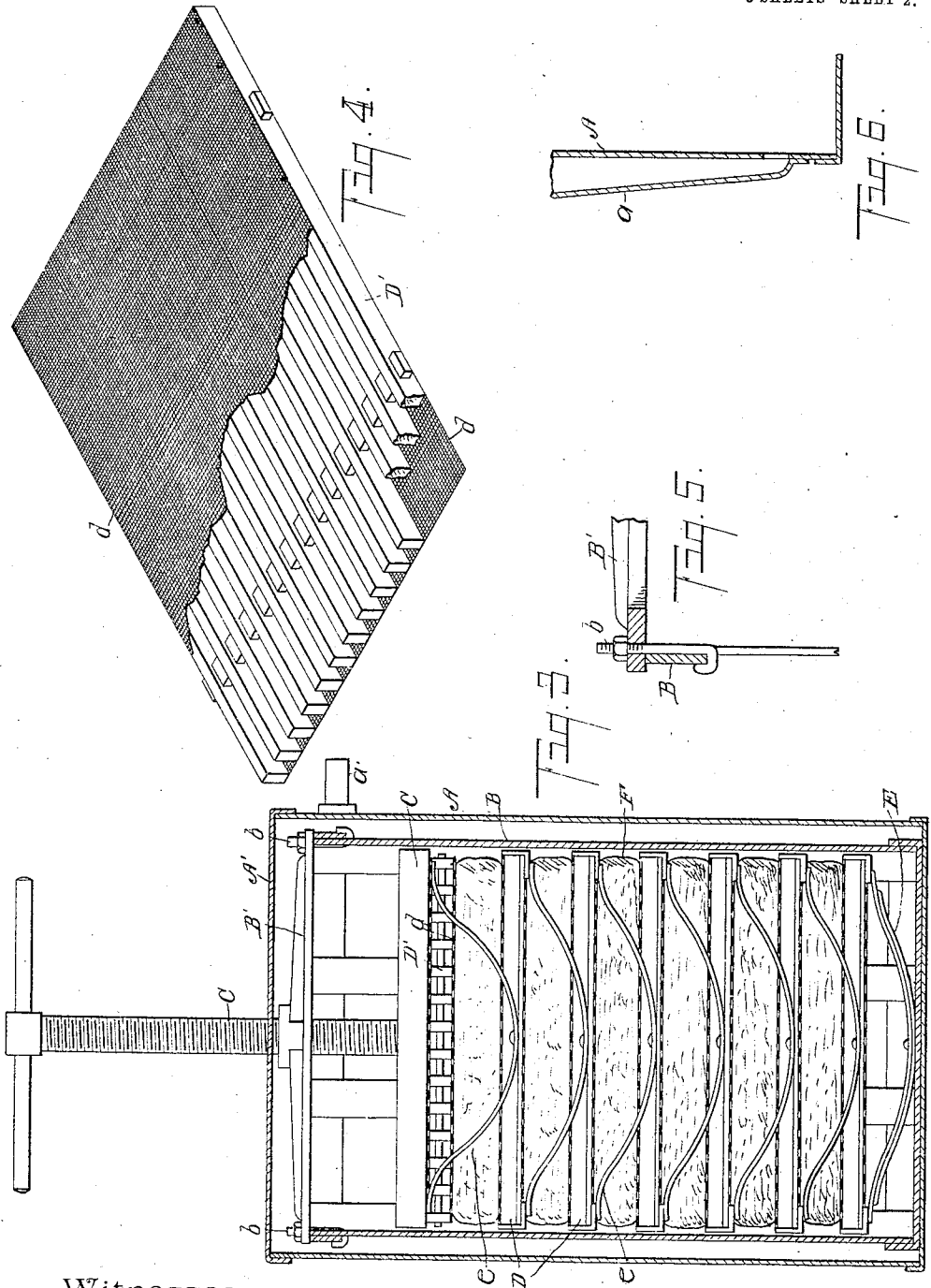
No. 870,512.

PATENTED NOV. 5, 1907.

O. L. HERSHISER.
WAX EXTRACTOR.

APPLICATION FILED SEPT. 28, 1904.

3 SHEETS—SHEET 2.



Witnesses:
Elizabeth Ourns
Edith A. Keller

Inventor,
Orel L. Hershiser
 By *Chappell Earl*
 Att'y.

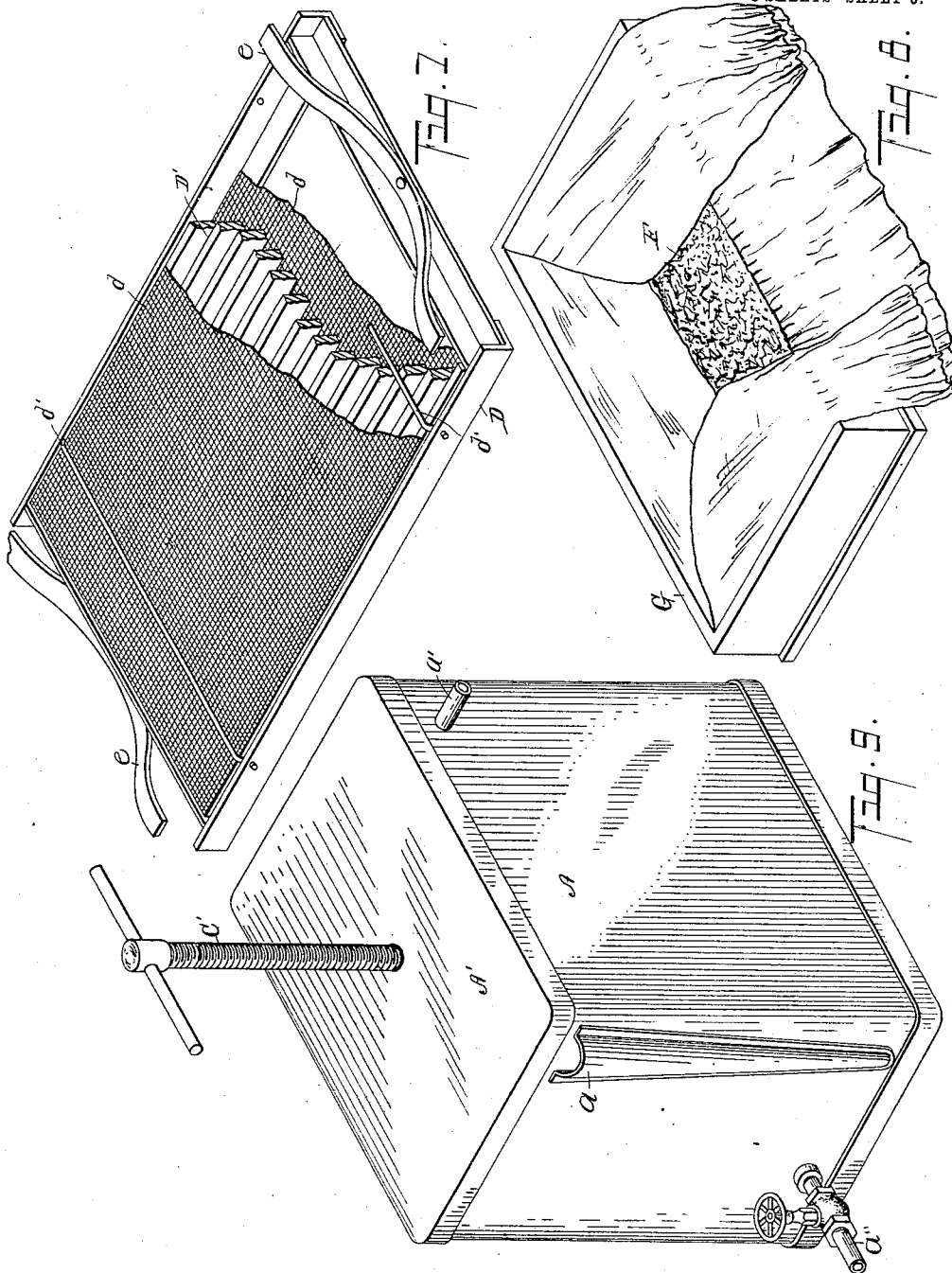
No. 870,512.

PATENTED NOV. 5, 1907.

O. L. HERSHISER.
WAX EXTRACTOR.

APPLICATION FILED SEPT. 28, 1904.

3 SHEETS—SHEET 3.



Witnesses:

Elizabeth O'Connell
Ethel A. Siller

Inventor.

Orel L. Hershiser
By *Chappell & Earl*
Att'y.

UNITED STATES PATENT OFFICE.

OREL L. HERSHISER, OF BUFFALO, NEW YORK.

WAX-EXTRACTOR.

No. 870,512.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed September 28, 1904. Serial No. 226,386.

To all whom it may concern:

Be it known that I, OREL L. HERSHISER, a citizen of the United States, residing at the city of Buffalo, county of Erie, State of New York, have invented certain new and useful Improvements in Wax-Extractors, of which the following is a specification.

This invention relates to improvements in wax extractors for apiarists' use.

The objects of this invention are, First: to provide an effective extractor for wax. Second: to provide a construction in which the masses of slungum within the device should be comparatively small and in thin layers so that the wax has the shortest distance possible to travel to become freed therefrom. Third: to provide a device in which the mass of slungum can be pressed while immersed in boiling water so that when the wax is freed it will float to the surface. Fourth: to provide a wax extractor in which the pressure may be intermittent and so arranged that when the pressure is released the slungum or material may take up water like a sponge which can then be again readily expressed to carry out more wax until all the wax has been freed. Fifth: to provide a wax extractor in which the conditions shall be the best possible for the slungum or material operated upon to take up water for the displacement of the wax. Sixth: to provide in a wax extractor, a structure which readily and automatically separates the entire mass of material operated on into thin layers and relieves the pressure therein when the press is released.

Further objects, and objects relating to structural details will definitely appear from the detailed description to follow.

A structure embodying the features of my invention is clearly described in the following specification. The invention is clearly defined and pointed out in the claims.

The structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which,—

Figure 1 is a plan view of the extractor with the cover removed and the compression screw in section. Fig. 2 is a vertical longitudinal sectional elevation on a line corresponding to line 2—2 of Fig. 1, showing the relation of the various parts when pressure is applied. Fig. 3 is a transverse detail sectional elevation taken on a line corresponding to line 3—3 of Fig. 2, showing the arrangement of springs between the various sections and the general arrangement of the parts. Fig. 4 shows one of the slatted frames or forms covered with wire screen for interposing between the layers of slungum or wax material. Fig. 5 is an enlarged detail sectional view on line 5—5 of Fig. 1 showing the manner of fastening on the top of the press. Fig. 6 is a detail sectional view taken on a line corresponding to line 6—6 of Fig. 1, showing the spout or passage for introducing the water

into the tank. Fig. 7 is a detail perspective view with portions broken away from one of the forms with its angle iron frame and spring supports. Fig. 8 shows a cheese or cake box having no top or bottom with the cheese of slungum ready to be wrapped preparatory to placing in the extractor. Fig. 9 is a perspective view of the complete wax extractor.

In the drawing, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawing, A is the outer casing, which can be of sheet metal or any suitable construction. The cover A', which is removable is perforated at the center for the passage of the compression screw C'. a is a passage for the introduction of water, without the removal of the cover. a' is the passage from which the wax is withdrawn. a'' is the passage controlled by a suitable valve from which the water is withdrawn. This outer casing A, being made of metal, can be placed on a stove, or can be heated in any suitable way. This whole exterior device is a boiler, for the purpose of boiling the bee comb or slungum in water to effect the melting and extraction of the wax contained therein. Within this boiler is placed a suitable frame B which is made of angle-iron, having a detachable spider B' at the top, which is secured to the top-rail of this frame, by suitable hook screws b, see Fig. 5. A press screw C' is threaded through the center of this top frame or spider B', and presses down on a suitable follower C, which presses down into the interior of the frame B. Within the frame B, I place a series of angle iron frames D, which are provided with curved blade springs e at each end, and within these frames D are arranged forms D' made of iron or wood slat work, covered over with wire screen, d, both top and bottom, these being retained within the frame D by suitable cross wires d', or other suitable device. I provide a box G, without top or bottom slightly smaller than the size of the interior of the frame B, into which I place a suitable cloth, fill the same with slungum, fold the cloth about the same, forming it into what might properly be termed a cheese, which is comparatively thin. The box G is made of such dimensions as will form, when the pressing is completed, a cheese of substantially the size of the screen-covered form. These cheeses are placed between the frames D in the frame B within the boiler. In the bottom of the frame B are heavy springs E for supporting and raising the whole mass upward. I put in cheeses of slungum in between the various frames in a series, as appears distinctly in Figs. 2 and 3.

The heavy springs E at the bottom will exert an upward pressure of about 1,000 pounds, and they serve to give a continuous pressure to the various masses of slungum within the extractor, when the same is in

use; and the object is to continue the squeezing at a high pressure as the wax and water are being expelled.

The flat springs at the ends of the frames D exert a pressure of from 50 to 100 pounds, and serve to separate the forms when the pressure is withdrawn. The cheeses of slumgum rest on the slatted wire screen-covered surfaces which may be made of wood or iron. On the top of the uppermost cheese, is placed one of the slatted devices and above this comes the iron frame follower or plunger C, against which the screw C' works in its socket. The iron frame plunger or follower may be so constructed as to also perform the function of the slatted device provided to be placed on top of the uppermost cheese.

In operation, after the cheeses of slumgum have been placed in the forms the extractor is placed over a hot fire, the boiler filled with water, which is boiled, which will melt all the particles of wax in the slumgum. Pressure is then applied by means of the screw C' and allowed to remain three or four minutes and is then released. As the slumgum is porous like a sponge, it will expand and absorb the hot water in large amounts, the springs *e* on the forms relieving all the pressure, and permitting the water to freely enter. Again, pressure is applied and again released for several successive times, and each time the pressure is applied, the hot water forces more wax out of the slumgum till only a trace is left. Wax being lighter than water, floats as soon as it is released in its melted condition. The level of the wax is now raised by pouring boiling water in the boiler through the passage way *a*, and the wax runs out through the pipe *a'*. When nearly all of the wax has run off through the pipe *a'*, the remaining portion may be skimmed off.

My improved apparatus is very effective in use and secures all but a trace of the wax from the slumgum, so that the wax is extracted as easily, thoroughly, cleanly, and economically, from old comb as from new comb; and the yield of wax is from 10% to 35% of the weight of the slumgum or residue, more than has been obtained by any other wax extractors or processes heretofore used.

Having thus described my improved wax extractor and the manner and process of operating it, I desire to state that I have described it in the form which seems to me to be most practical. I am aware, however, that it can be greatly varied in its details without departing from my invention. I desire to claim the features broadly and I also desire to claim the specific form in which I have illustrated the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:—

1. In a wax extractor, the combination of a boiler A; a filling passage *a* at the side, leading to the bottom, and a discharge passage *a'* towards the top, and a draw off pipe *a''* at the bottom; a metal frame work B within the boiler; a cover over the boiler, perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; heavy springs E in the bottom of the frame work; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; comparatively light springs *e* on said frames D for normally separating them; retaining

cloths for holding the slumgum in cheese form between the said frames; all coating substantially as described and for the purpose specified.

2. In a wax extractor, the combination of a boiler A; a metal frame work B within the boiler; a cover over the boiler perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; heavy springs E in the bottom of the frame work; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; comparatively light springs *e* on said frames D for normally separating them; retaining cloths for holding the slumgum in cheese form between the said frames; all coating substantially as described and for the purpose specified.

3. In a wax extractor, the combination of a boiler A; a filling passage *a* at the side, leading to the bottom, and a discharge passage *a'* towards the top, and a draw-off pipe *a''* at the bottom; a metal frame work B within the boiler; a cover over the boiler perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; comparatively light springs *e* on said frames D for normally separating them; retaining cloths for holding the slumgum in cheese form between the said frames, all coating substantially as described and for the purpose specified.

4. In a wax extractor, the combination of a boiler A; a metal frame work B within the boiler; a cover over the boiler perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; comparatively light springs *e* on said frames D for normally separating them; retaining cloths for holding the slumgum in cheese form between the said frames, all coating substantially as described and for the purpose specified.

5. In a wax extractor, the combination of a boiler A; a filling passage *a* at the side, leading to the bottom, and a discharge passage *a'* towards the top, and a draw-off pipe *a''* at the bottom; a metal frame work B within the boiler; a cover over the boiler, perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; heavy springs E in the bottom of the frame work; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; retaining cloths for holding the slumgum in cheese form between the said frames; all coating substantially as described, and for the purpose specified.

6. In a wax extractor, the combination of a boiler A; a metal frame work B within the boiler; a cover over the boiler perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; heavy springs E in the bottom of the frame work; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; retaining cloths for holding the slumgum in cheese form between the said frames, all coating substantially as described and for the purpose specified.

7. In a wax extractor, the combination of a boiler A; a filling passage *a* at the side, leading to the bottom, and a discharge passage *a'* towards the top, and a draw-off pipe *a''* at the bottom; a metal frame work B within the boiler; a cover over the boiler perforated at the center; a detachable top for the frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted

70

75

80

85

90

95

100

105

110

115

120

125

130

135

140

145

- upon by the screw; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within the boiler; retaining cloths for holding the slumgum in cheese form between the said frames, all
 5 coacting substantially as described and for the purpose specified.
8. In a wax extractor, the combination of a boiler A; a metal frame work B within the boiler; a cover over the boiler, perforated at the center; a detachable top for the
 10 frame work within the boiler; a compression screw passing through a screw-threaded hole in the detachable top of the frame work; a follower acted upon by the screw; frames D bearing slatted forms covered with screen, adapted to be arranged within the main frame work within
 15 the boiler; retaining cloths for holding the slumgum in cheese form between the said frames, all coacting substantially as described and for the purpose specified.
9. In a wax extractor, the combination of a boiler; a frame work within the boiler with a detachable top and
 20 pressure screw; frames to go within the frame work within the boiler, of slatted construction, covered with screen; cloths for retaining the slumgum in cheese form, between the frames, coacting for the purpose specified.
10. In a wax extractor, the combination of a boiler; a
 25 press; frames to go within the press within the boiler, of slatted construction, covered with screen; cloths for retaining the slumgum in cheese form within the press, coacting for the purpose specified.
11. In a wax extractor, the combination of a boiler; a
 30 press within the boiler with a spring to exert spring pressure; slatted frames, screen covered, to go within the press; springs on the said frames, for holding them normally separated; means for retaining the slumgum in cheese form between the said frames, coacting for the purpose specified. 35
12. In a wax extractor, the combination of a boiler; a press within the boiler; slatted frames, screen covered, to go within the press; springs on the said frames, for holding them normally separated; means for retaining the slumgum in cheese form between the said frames, coacting
 40 for the purpose specified.
13. In a wax extractor, the combination of a boiler; a press within the boiler with a spring to exert spring pressure; slatted frames, screen covered, to go within the press; means for retaining the slumgum in cheese form
 45 between the said frames, coacting for the purpose specified.
14. In a wax extractor, the combination of a boiler; a press within the boiler; slatted frames, screen covered, to go within the press; and means for retaining the slumgum in cheese form between the said frames, coacting for the
 50 purpose specified.
15. In a wax extractor, the combination of a boiler; a press within the boiler; means for retaining the slumgum in layers; and means for separating the layers after compression, for the purpose specified. 55
- In witness whereof, I have hereunto set my hand and seal, in the presence of two witnesses.
- OREL L. HERSHISER. [L. s.]
- Witnesses:
 C. J. FORLONG,
 R. D. BURNS.