

(No Model.)

2 Sheets—Sheet 1.

C. W. METCALF.
CENTRIFUGAL HONEY EXTRACTOR.

No. 486,728.

Patented Nov. 22, 1892.

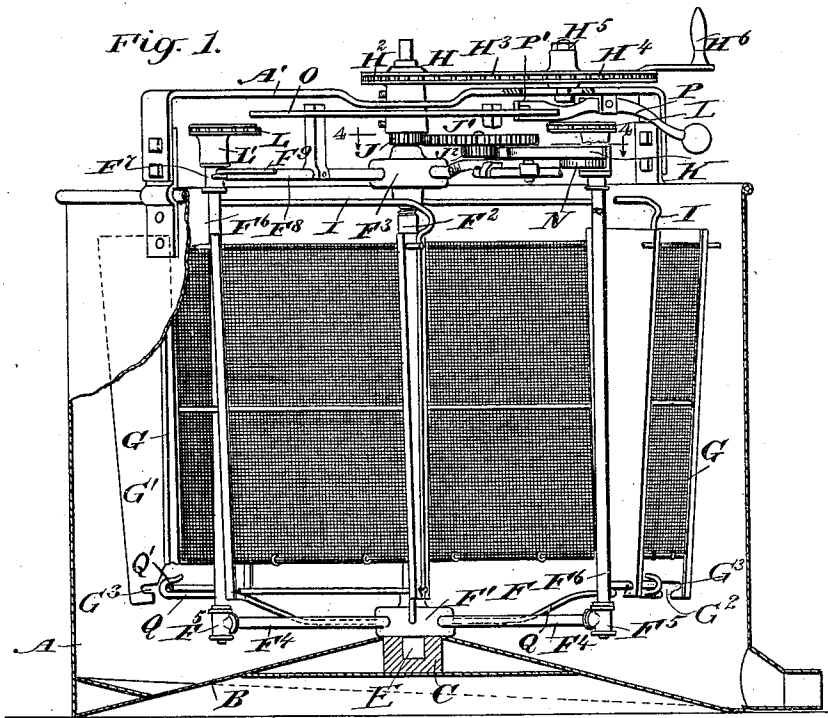
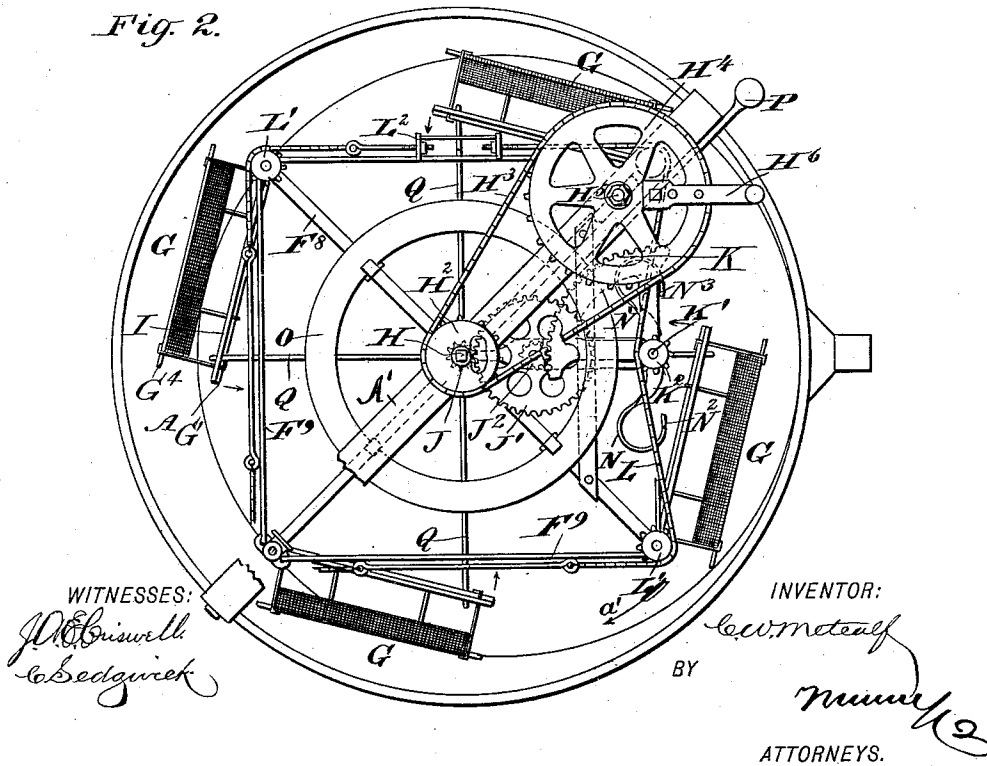


Fig. 2.



WITNESSES:

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INVENTOR:

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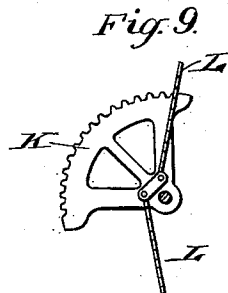
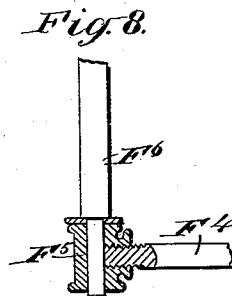
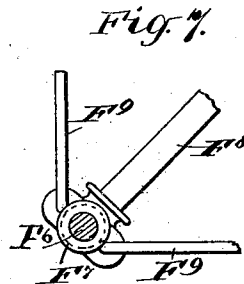
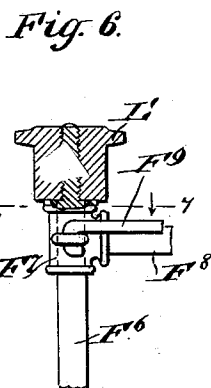
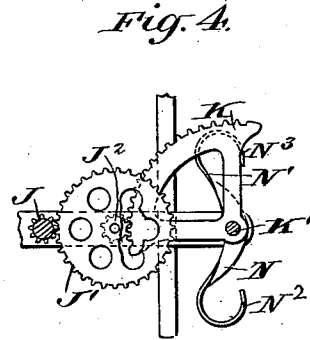
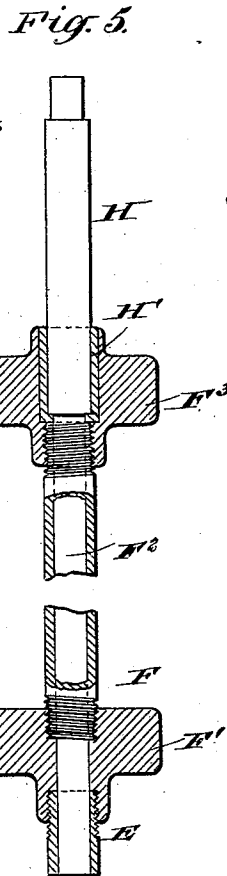
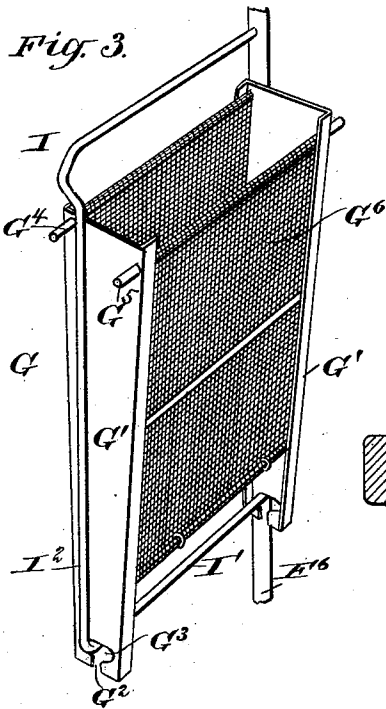
BY

Munn & Co.
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

CHARLES W. METCALF, OF SANTA PAULA, CALIFORNIA.

CENTRIFUGAL HONEY-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 486,728, dated November 22, 1892.

Application filed April 7, 1892. Serial No. 428,111. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. METCALF, of Santa Paula, in the county of Ventura and State of California, have invented a new and Improved Centrifugal Honey-Extractor, of which the following is a full, clear, and exact description.

The invention relates to centrifugal honey-extractors, such as shown and described in the application for Letters Patent of the United States, Serial No. 390,423, filed by me April 25, 1891, and allowed October 16, 1891.

The object of the present invention is to provide a new and improved centrifugal honey-extractor which is very simple and durable in construction, very effective in operation, and arranged to give a rapid motion to the baskets without creating much noise; also, permitting of convenient and quick removal of the baskets for refilling the same with the combs and removing the empty ones. The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged perspective view of one of the baskets. Fig. 4 is a plan view of the mechanism for imparting motion to the basket-frame with parts in section. Fig. 5 is an enlarged sectional side elevation of part of the basket-frame and the main shaft. Fig. 6 is a side elevation with parts in section of one of the upper corners of the basket-frame. Fig. 7 is a sectional plan view of the same on the line 7 7 of Fig. 6. Fig. 8 is a sectional side elevation of one of the lower corners of the basket-frame; and Fig. 9 is a plan view of the segmental gear-wheel, showing a modified form of chain connection.

The improved centrifugal honey-extractor is provided with a vessel A similar in construction to the one shown and described in the application above mentioned. In the center of the conical bottom B of this vessel A is arranged a bearing or step C, in which is journaled a shaft E, fastened in the lower hub F' of the bas-

ket-frame F, supporting the baskets G, adapted to receive the combs. The basket-frame F is provided with a central shaft F², connecting the lower hub F' with the upper hub F³, containing in its top a vertically-arranged bearing H', in which is loosely journaled the lower end of the main shaft H, mounted to turn in suitable bearings arranged on the cross-piece A', attached to the upper end of the vessel A.

From the lower hub F' of the basket-frame F extends radially a series of spokes or arms F⁴, carrying at their outer ends bearings F⁵, supporting the vertical shafts F⁶, mounted to turn at their upper ends in bearings F⁷, supported on the spokes or arms F³, projecting radially from the hub F³. The several upper bearings F⁷ are connected with each other by braces or links F⁹, engaging suitable eyes formed on the said bearings F⁷. On each of the shafts F⁶ is supported a basket or comb-holder G, provided with the sides G', each being formed at its lower edge with a groove G², terminating in an enlarged groove G³, adapted to engage the horizontally-extending rod I' of the support I, projecting from the corresponding shaft F⁶. The support I is preferably U-shaped, the upright or middle part I² serving to limit the swinging motion of the basket or holder G by engaging alternately the projecting ends of the rods G⁴ and G⁵, connecting the upper ends of the sides G' with each other. The front and rear of each basket or holder is formed of wire-netting and the baskets or holders are slightly tapering from the bottom upward and outward, as illustrated in the drawings, with especial reference to Fig. 3. By constructing the sides G' with the grooves G² and G³ the baskets can be conveniently removed and replaced after inserting new combs and taking out the empty ones.

In order to impart a forward and backward turning motion to the basket-frame F and its baskets or holders, the following device is provided: On the shaft H is secured a sprocket-wheel H², over which passes a sprocket-chain H³, also passing over a sprocket-wheel H⁴, journaled on a stud H⁵, projecting from the cross-piece A', above mentioned. On the upper face of this sprocket-wheel H⁴ is secured a handle H⁶ for conveniently turning the said sprocket-wheel, so as to impart, by means of the sprocket-chain H³ and the sprocket-wheel

H², a rotary motion to the shaft H. On the shaft H, directly above the bearings H', is secured a pinion J, in mesh with a gear-wheel J', carrying on its shaft a pinion J², in mesh with a segmental gear-wheel K, fastened to a shaft K', supported in suitable brackets projecting from the basket-frame. The end teeth of the gear-wheel K are blank to lock pinion J², as hereinafter more fully described. On this shaft K' is secured a small sprocket-wheel K², over which passes a sprocket-chain L, also passing over sprocket-wheels L', secured on the upper ends of the shafts F⁶ of the basket frame F, as previously mentioned. The wheel K² can be dispensed with; but in this case the chain is attached to the pins held on the top of the segmental gear-wheel K, as shown in Fig. 9. Now when the segmental gear-wheel K locks with one of its blank end teeth the pinion J² to prevent the latter from rotating in a forward direction and the shaft H is then turned in this direction, then the basket-frame F revolves and the honey is thrown out of one side of the combs. When the operator desires to reverse the baskets to extract the honey from the other side of the combs, then the operator holds on to the handle H⁶, whereby the frame F still continues in its forward movement; but the now-stationary pinion J causes the gear-wheel J' to rotate, and the pinion J² of the latter imparts a rotary motion to the segmental gear-wheel K, so that its shaft K' is rotated in a backward direction. The rotary motion of the shaft K' is transmitted by the sprocket-wheel K² to the chain L, and the latter, by engaging the sprocket-wheels L', turns the shafts F⁶, which reverses the position of the baskets G. When the segmental gear-wheel K is about to run in with the other blank tooth on wheel K, then the outermost end of its rim strikes a lug N² or N³, projecting upward from the springs N or N', respectively fastened to the brackets supporting the shaft K'. The segmental gear-wheel thus striking the springs eases the motion of the frame F, takes up all jar and permits the operator to now again turn the frame in an opposite direction to extract the honey from the other side of the combs. It is understood that the end blank cog or tooth on the segmental gear-wheel K locks the pinion J², and consequently the frame F, to the shaft H, so that on turning the latter by actuating the handle H⁶ the frame is turned. When the operator stops turning the handle H⁶ and holds the same still, then the above-described operation is repeated—that is, motion is given to the segmental gear-wheel K² by the pinion J², and the baskets G are again reversed by the action of chain L on sprocket-wheels L', secured to the shafts F⁶ of the basket-frame. It is understood that whenever the segmental gear-wheel on its return motion strikes one of the lugs N² or N³ the motion of the basket-frame F is interrupted and the action of the spring prevents jar of the frame.

In order to take up the slack in the sprocket-chain L, the latter is provided with adjustable links L² of the usual construction. In order to brake the basket-frame F, a brake-wheel O is provided, supported on suitable brackets attached to the arms F⁸. The rim of this brake-wheel O is adapted to be engaged by the forked end P' of a lever P, fulcrumed to the under side of the cross-piece A' and under the control of the operator, so that when it is desired to check the speed of the basket-frame F a slight pressure on the lever P will brake the wheel O, and consequently retard the movement of the basket-frame. The rod I' of each basket-support I is adapted to be engaged by a hook Q' on the end of a rod Q, supported on and projecting from the hub F' of the basket-frame F. The several hooks Q' limit the return or reversing movement of the baskets, and are of the same construction as the ones shown and described in the Letters Patent above referred to.

The operation is as follows: When the several comb-holders G are in the position illustrated in Figs. 1 and 2 and are filled with combs and rotary motion is given to the frame F in the manner above described, then the centrifugal force of the frame causes the honey in the outer half of the combs to be ejected through the outer face of the holder, the honey thus ejected passing against the inner wall of the vessel A to flow down the same and be discharged through the usual outlet. This takes place during the forward turning of the frame F, and when the baskets are quickly reversed, as above described, then the baskets or holders G swing inward, turning on the rod I' as their fulcrum. By this reversing movement the comb-holders change their position, so that the former inner face is now the outer face, and consequently the remainder of the honey in the combs is now ejected on the movement of the frame F in an opposite direction. When the honey has been extracted, the holders or baskets G can be readily removed from the support I by disengaging the sides G' from the lower bar I' in the grooves G³ and G². When the holders have been refilled, they can be readily inserted on the supports I and the above-described operation is then repeated.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a centrifugal honey-extractor, the combination, with a segmental gear-wheel for imparting movement to the frame, of springs formed at their free ends with lugs adapted to engage the said segmental wheel, substantially as shown and described.

2. In a centrifugal honey-extractor, the combination, with a basket-support made approximately U shape, of a basket or comb holder having its front and rear made of wire-netting and its sides provided with grooves near their lower ends, the said grooves engag-

ing a bar of the said support and forming the fulcrum for the holder and facilitating the removal of the comb-holder from the support, substantially as shown and described.

5 3. In a centrifugal honey - extractor, the combination, with a vertically-arranged shaft and a U-shaped support held thereon, of a basket or holder having its front and rear formed of wire-netting and arranged tapering
10 from the bottom upward and outward, sides formed at their base with grooves adapted to engage the bottom bar of the said support, and projecting bars adapted to engage alternately the vertical bar of the said support to
15 limit the swinging motion of the holders or baskets, substantially as shown and described.

4. In a centrifugal honey - extractor, the combination, with a frame mounted to turn and holders or baskets supported on shafts of
20 the said frame and mounted to swing, of a main driving-shaft mounted to rotate, a series of gear-wheels connected with the said shaft, and a segmental gear-wheel in mesh with a pinion of the said series of gear-wheels and
25 connected by a sprocket-chain with sprocket-wheels on the shafts of the said frame, substantially as shown and described.

5. In a centrifugal honey - extractor, the combination, with a frame and baskets or holders supported thereon, of a sprocket-chain en- 30 gaging sprocket-wheels held on shafts of the said frame, a segmental gear-wheel connected with the said sprocket-chain, and springs held on the frame and formed with lugs adapted to be engaged by the said segmental gear- 35 wheel to limit the motion of the latter in one direction to ease the stopping of the frame by the reaction of the said springs, substantially as shown and described.

6. In a centrifugal honey - extractor, the 40 combination, with a frame mounted to turn and holders or baskets supported on the said frame and mounted to swing, of a main driving-shaft mounted to rotate, a series of gear- 45 wheels connected with the said shaft, a segmental gear - wheel in mesh with a pinion of the said series of gear-wheels and connected by a sprocket-chain with the said frame, and a brake mechanism, substantially as described, and connected with the said frame, as set forth. 50

CHARLES W. METCALF.

Witnesses:

J. M. ERDMAN,
CASPER TAYLOR.