

(No Model.)

C. W. METCALF.
CENTRIFUGAL HONEY EXTRACTOR.

No. 471,487.

Patented Mar. 22, 1892.

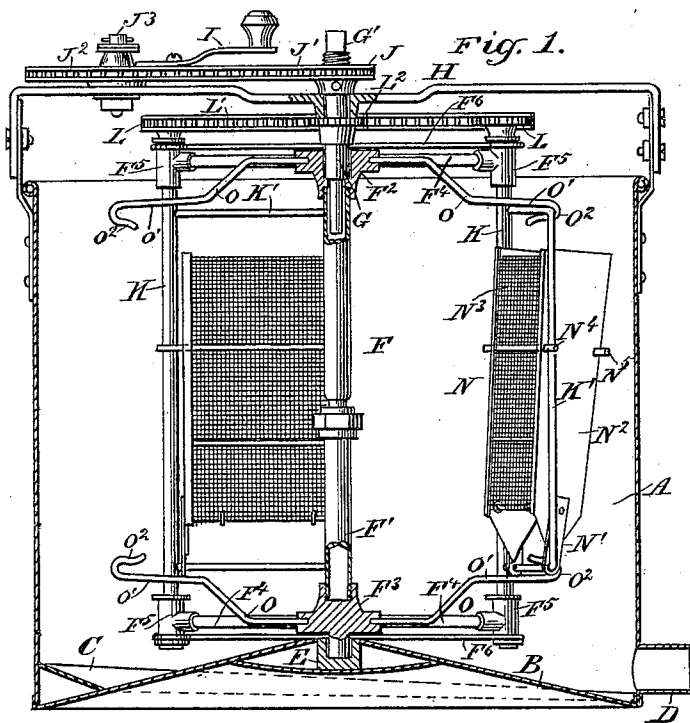


Fig. 3.

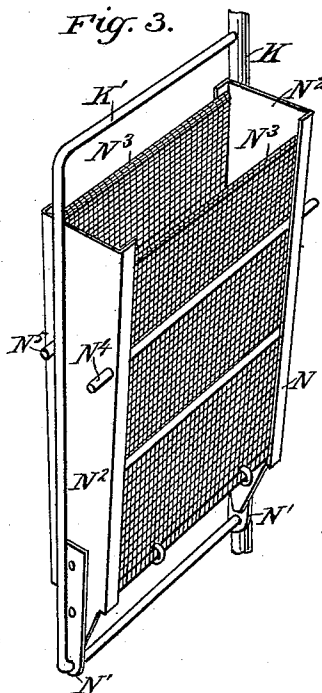


Fig. 2.

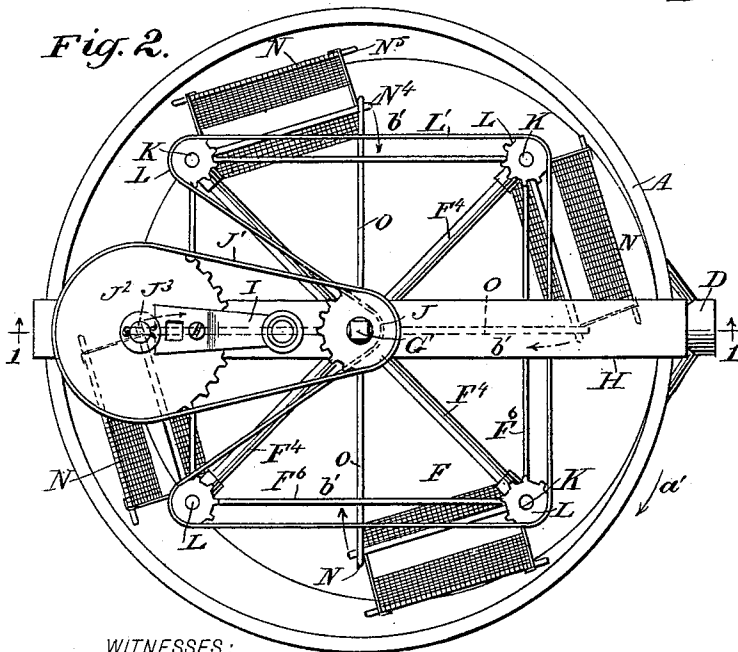
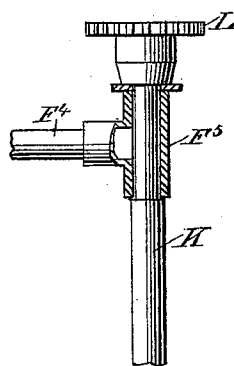


Fig. 4.



WITNESSES:

J. B. Griswell.
C. Sedgwick

INVENTOR:

C. W. Metcalf
BY Munn & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES WESLEY METCALF, OF SANTA PAULA, CALIFORNIA.

CENTRIFUGAL HONEY-EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 471,487, dated March 22, 1892.

Application filed April 25, 1891. Serial No. 390,423. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WESLEY 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 object of the invention is to provide a new and improved centrifugal honey-extractor, which is simple and durable in construction, very effective in operation, and permits the operator to easily insert the filled honey-combs or to remove the empty ones.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, 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 on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged perspective view of one of the shafts and the comb-holder supported by it; and Fig. 4 is an enlarged side elevation of one end of one of the shafts and its bearing, the latter being in section.

The improved centrifugal honey-extractor is provided with a vessel A, open on top and formed with a conical bottom B, on which is arranged a plate C, extending to the inner surface of the vessel A and arranged slantingly, the lowest point discharging into an outlet-pipe D, arranged in the side wall of the vessel A. The honey accumulating in the vessel A flows down the walls of the vessel or upon the cone-shaped bottom B and then to the plate C, and by the latter is directed to the outlet-pipe D, so that all the honey is readily discharged.

In the apex of the conical bottom B is arranged a step E, in which is journaled the lower end of the vertical shaft F' of a frame F, mounted to turn in either direction within the vessel A. The shaft F' is formed with an upper and lower hub F² and F³, respectively, from which extend radially arms F⁴, carrying on their outer ends bearings F⁵. The upper end of the shaft F' of the frame F is made hollow and engaged by a pin G, mounted to

turn in suitable bearings formed in a cross-piece H, secured to the upper end of the vessel A. The outer end of the pin G is formed with a polygonal offset G', adapted to be engaged by a correspondingly-shaped opening in a crank-arm I for turning the said pin, so as to rotate the frame F in a manner hereinafter more fully described.

In order to impart a higher rate of speed to the frame F, a sprocket-wheel J² is connected by a sprocket-chain J' with a sprocket-wheel J, secured on the said pin G. To the sprocket-wheel J² is secured the crank-arm I, which when it is to be applied to the pin G for turning the frame F, is detached from the sprocket-wheel, when it can be engaged with the offset G' of the pin. The sprocket-wheel J² is mounted to turn on a vertically-arranged stud J³, held on the cross-piece H. In corresponding bearings F⁵ of the frame F is mounted to turn loosely in either direction, a shaft K, carrying at its upper end a sprocket-wheel L, over which passes a sprocket-chain L', connecting the several sprocket-wheels with each other, and also passing over a sprocket-wheel L², secured on the pin G, previously mentioned. Thus when the pin G is rotated by any of the means above specified and in either direction, the sprocket-wheel L² exerts a pull on the chain L', and consequently on the sprocket-wheels L, so that the frame F is rotated.

Each of the vertically-arranged shafts K is provided with a U-shaped arm K', fastened with its end on the said shaft and having its lower end engaged by arms N', secured to the ends N² of the comb-holder N, extending between the middle part of the arm K' and the shaft K, as plainly illustrated in Figs. 1 and 3. The ends N² of the comb-holders are preferably made solid, while the sides N³ are made of wire-netting, the said sides slightly tapering from the bottom upward and outward, as illustrated in the drawings. Through the ends N² pass a series of cross-bars N⁴ and N⁵, of which the innermost set extend beyond the ends N², so as to engage the middle of the arm K' and the shaft K, thus limiting the swinging motion of the comb-holder N on the arm K' of the shaft K.

In order to limit the swinging motion of the shafts K, their arms K', and the respective

comb-holders N, two spring-arms O are provided for each arm K', the said arms extending from and secured by set-screws or other means to the hubs F² and F³ about midway between the two adjacent arms F¹. The outer ends O' of the arms O extend closely above and below the ends of the arms K', the said ends O' being formed with hooks O², bent inwardly, so as to engage the ends of the arm K'. The hooks O² are so located that when the shaft K turns to swing the arm K' outward, the respective set of hooks O² engage the ends of the arms K', thus limiting the outward swinging motion of the said arms and the comb-holders held thereby. When a comb-holder is in this position, the innermost cross-bars N⁴ or N⁵ rest against the middle part of the arm K' of the shaft K, so that the comb-holder is in an inclined position, the upper end being thrown outward to permit of conveniently inserting a filled comb or removing an empty one whenever necessary.

The operation is as follows: When the several comb-holders N are in the position illustrated in Figs. 1 and 2, the filled combs can be readily inserted into the said holders, as the upper ends of the latter extend outward toward the inner surface of the vessel A. When the several comb-holders have been filled, the frame F is rotated in the manner above described and in the direction of the arrow a'. Then the centrifugal force of the frame causes the honey in the outer half of the combs to be ejected through the outer side of the holder, the honey thus passing against the inner wall of the vessel A to flow down the same upon the plate C and from the latter to the outlet D. When the operator desires to eject the honey on the inner half of the comb, he suddenly reverses the motion of the frame F, so that a pull is exerted by the sprocket-wheel L² on the sprocket-chain L' and the sprocket-wheel L, but in an opposite direction, so that the shafts K are revolved, thereby swinging the comb-holders N in the direction of the arrows b' (see Fig. 2) until the shafts K have made about one-half revolution, and further motion is stopped by the respective arms K' engaging the adjacent hooks O² of the spring-arms O. When the arms K' strike the hooks O² of the arms O, the comb-holders N swing in the said arms K' so as to again assume an outermost position with their upper ends. It will be observed that by this movement on reversing the frame F the comb-holders N have changed their position—that is, the former inner side is now the outer side—and consequently the remainder of the honey in the combs is now ejected on further rotation of the frame F in the inverse direction of the arrow a'. When the operator desires, he may again reverse the frame F so as to turn the latter in the direction of the arrow a', whereby the comb-holders N change position. This reversing of the frame F insures complete extraction of

the honey from the comb on both its inside and outside.

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

1. In a centrifugal honey-extractor, the combination, with a frame mounted to turn in either direction, of vertical shafts mounted in the frame and having a limited turning motion in either direction and comb-holders mounted loosely on the shafts to swing thereon independently of the motion of the said shafts, substantially as described.

2. In a centrifugal honey-extractor, the combination, with a frame mounted to turn in either direction, of shafts journaled in the frame, said shafts being provided with arms and having a limited turning motion in either direction, and comb-holders pivoted to the arms of the shafts to swing thereon independent of the motion of the said shafts, substantially as described.

3. In a centrifugal honey-extractor, the combination, with a frame mounted to turn in either direction, of vertical shafts having arms and journaled in the ends of the arms of the said frame, the said shafts having a limited turning motion in either direction, comb-holders mounted to swing in the arms of the said shafts, and means, substantially as described, for limiting the swinging motion of the said comb-holders on the arms of the shafts, substantially as shown and described.

4. In a centrifugal honey-extractor the combination, with a frame mounted to turn in either direction, of vertical shafts having arms and journaled in the ends of the arms of the said frame, comb-holders mounted in the said arms to swing therein, and hooks projecting from the said frame and adapted to engage the arms to limit the motion of the shafts, substantially as shown and described.

5. In a centrifugal honey-extractor, the combination, with a frame mounted to turn, of vertical shafts journaled in the ends of the arms of the said frame, comb-holders mounted to swing in arms on the said shafts, hooks projecting from the said frame and adapted to limit the turning motion of the said shafts, and means, substantially as described, for limiting the swinging motion of the said comb-holders, substantially as shown and described.

6. In a centrifugal honey-extractor, the combination, with a vessel, of a frame mounted to turn therein, vertical shafts journaled in the ends of the arms of the said frame, means for limiting the motion of the shafts, comb-holders supported on the said shafts, a pin mounted to turn and forming a bearing for one end of the said frame, a sprocket-wheel held on the said pin, a sprocket-chain engaging the said sprocket-wheel, and a series of sprocket-wheels held on the said shafts and engaged by the said sprocket-chain, substantially as shown and described.

7. In a centrifugal honey-extractor, the combination, with a vessel, of a frame mounted to turn therein, vertical shafts journaled in the ends of the arms of the said frame, means
5 for limiting the motion of the shafts, swinging comb-holders supported on the said shafts, means for limiting the swinging motion of the comb-holders, a pin mounted to turn and forming a bearing for one end of the said frame,
10 a sprocket-wheel held on the said pin, a sprocket-chain engaging the said sprocket-wheel, a series of sprocket-wheels held on the said shafts and engaged by the said sprocket-chain, and means, substantially as shown and
15 described, for imparting a rotary motion to the said pin, as set forth.

8. In a centrifugal honey-extractor, the combination, with a vessel, of a frame mounted

to turn therein, vertical shafts journaled in the ends of the arms of the said frame, comb- 20 holders supported on the said shafts, a pin mounted to turn and forming a bearing for one end of the said frame, a sprocket-wheel on said pin, a sprocket-chain engaging said sprocket-wheel, a series of sprocket-wheels 25 held on the said vertical shafts and engaged by the said sprocket-chain, and hooks projecting from the said frame and adapted to engage arms on the said shafts to limit the turning motion of the latter, substantially as 30 shown and described.

CHAS. WESLEY METCALF.

Witnesses:

J. M. ERDMAN,

JOS. F. KING.