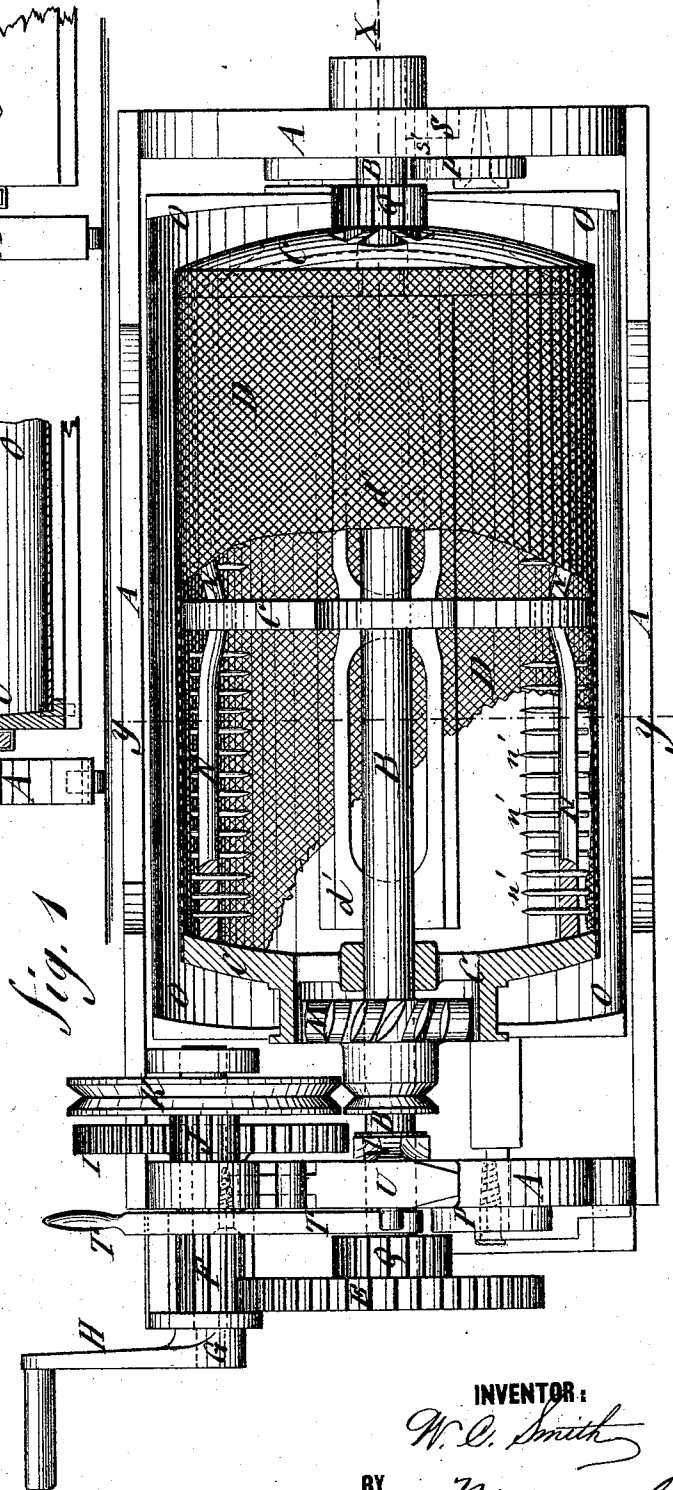
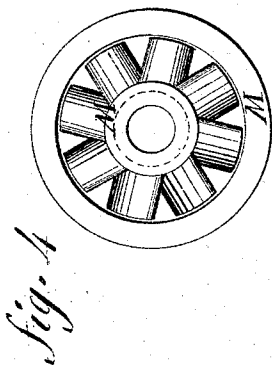
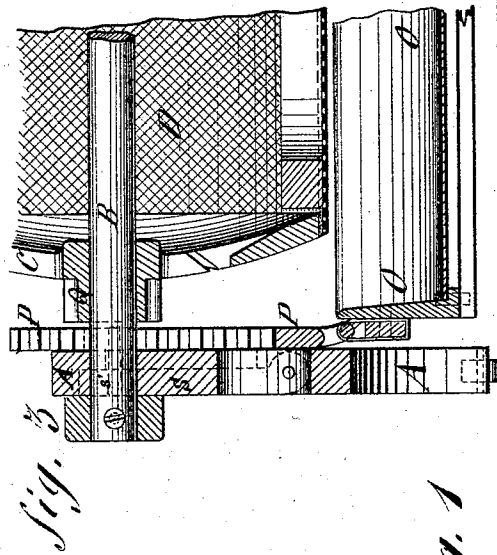
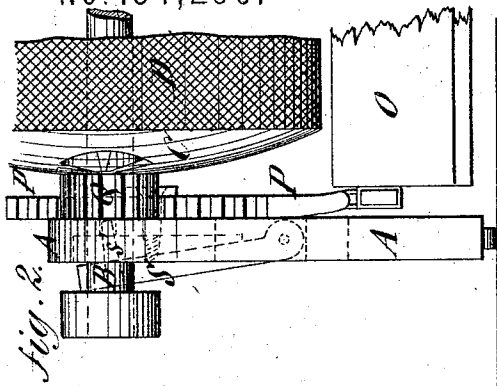


W. C. SMITH.
Curd-Workers.

No. 154,290.

Patented Aug. 18, 1874.



WITNESSES:

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C. Edgwick

INVENTOR:

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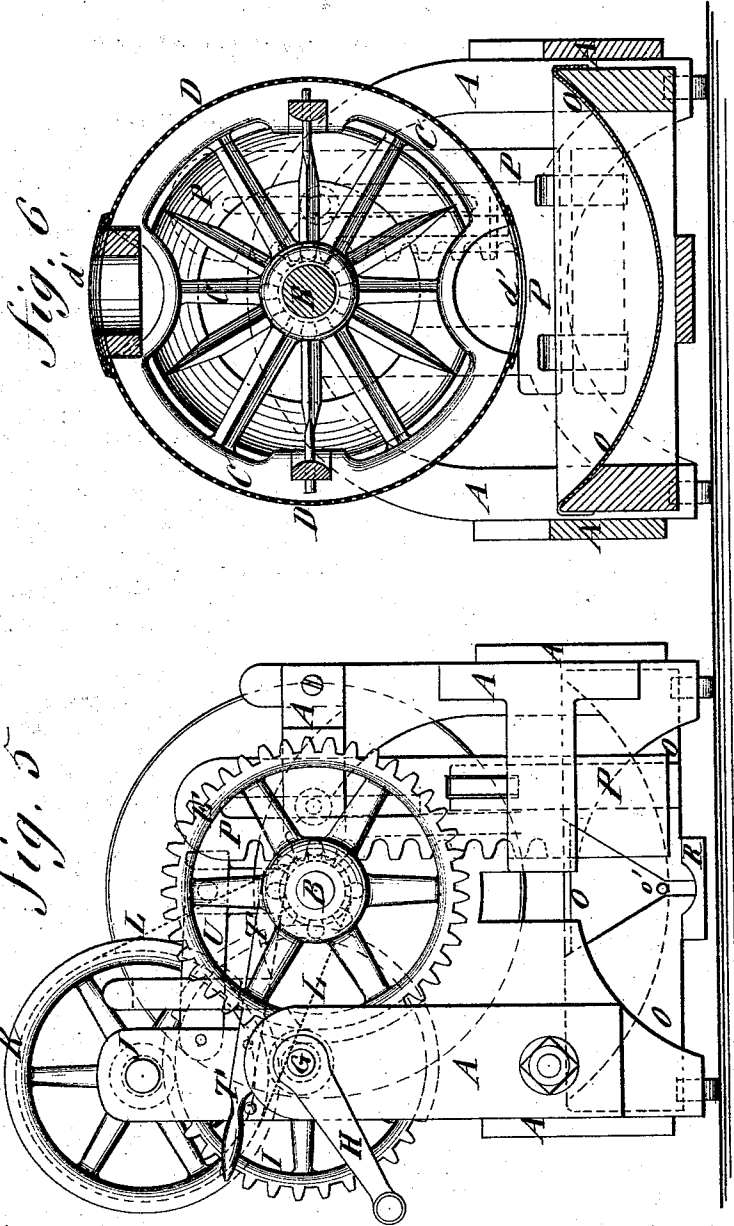
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UNITED STATES PATENT OFFICE.

WILLARD C. SMITH, OF NORWAY, NEW YORK.

IMPROVEMENT IN CURD-WORKERS.

Specification forming part of Letters Patent No. **154,290**, dated August 18, 1874; application filed June 27, 1874.

To all whom it may concern :

Be it known that I, WILLARD C. SMITH, of Norway, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Curd-Workers, of which the following is a specification :

Figure 1, Sheet 1, is a top view of my improved machine, part of the cylinder being broken away to show the construction. Fig. 2, Sheet 1, is a side view of one end of the same. Fig. 3, Sheet 1, is a detail vertical section of the same end, taken through the line *xx*, Fig. 1. Fig. 4, Sheet 1, is a detail view of the wind-wheel. Fig. 5, Sheet 2, is an end view of the machine. Fig. 6, Sheet 2, is a vertical cross-section of the same, taken through the line *yy*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The invention consists in the construction and arrangement of parts, which will be hereinafter fully described, and subsequently pointed out in the claims.

A is the frame-work of my improved machine, consisting of two end frames connected by two side boards. In bearings in the end frames A revolve the journals of a shaft, B, which journals are made longer than their bearings, so that said shaft may have a longitudinal movement. To the shaft B are attached two, three, or more wheels, C, to the rims of which are attached perforated sheet-metal plates D, which form the curved wall of the cylinder. In the opposite sides of the cylinder B C D are formed openings, which are closed by doors *d'*, formed by attaching sheets of perforated sheet metal to suitable frames to stiffen them. The rims of the central or intermediate wheels C, opposite the doors *d'*, are notched or recessed, as shown in Fig. 6, to prevent the curd from spattering out when thrown into the said cylinder. To one end of the shaft B is attached a large gear-wheel, E, the teeth of which mesh into the teeth of the small gear-wheel F, attached to the short shaft G, which works in bearings attached to the frame-work of the machine, and to its outer end is attached the crank H, by which the machine is operated. The small gear-wheel F is made long, so that the longitudinal movement of the shaft B will not throw

the gear-wheels E F out of gear with each other. To the inner end of the crank-shaft G is attached a large gear-wheel, I, the teeth of which mesh into the teeth of the small gear-wheel J, pivoted to the upper part of the frame-work A, and with which is rigidly connected a large pulley, K, around which passes a band, L, which also passes around the hub of the wind-wheel M. The wind-wheel M revolves loosely upon the shaft B, close to the end of the cylinder C D, so as to force a stream of air through the said cylinder to cool the curd. By this construction of gearing the cylinder C D will be revolved slowly, while the wind or fan wheel M will be revolved rapidly, so as to force a strong stream of air through the said cylinder. To the rims of the wheels C, at a little distance from the shell D, are secured two or more longitudinal bars, N, which are provided with cross-pins *n'*, to break up the curd as the cylinder C D is slowly revolved. O is the whey tub or trough, which is made with a concave bottom to fit upon the lower side of the cylinder C D. The trough O moves up and down within the frame A, and to its ends are secured the lower ends of the bars P, in such a way that the said trough may be squarely and firmly supported when suspended by the said bars P. The bars P move up and down in guides attached to the end frames A, and have teeth formed upon their inner edges, which mesh into the teeth of the gear-wheels Q, attached to or formed upon the shaft B, so that the trough O may be raised and lowered by turning the said shaft B. The gear-wheels Q are thrown into and out of gear with the teeth of the rack-bars P by the longitudinal movement of the shaft B. One of the gear-wheels Q is made larger than the other, so that one end of the trough O, when lowered, may be a little lower than the other to cause the whey to run off freely. In the lower part of the end of the trough O is formed a discharge-hole, which is closed with a faucet or plug, *o'*, and to said end, beneath the said plug, is attached a spout, R, to guide the whey into a receiving-vessel. The upper edge of the end of the trough O is notched directly above the spout R, so that should the trough O overflow, the whey, as it runs over, may flow into the spout R, and thence into the receiv-

ing-vessel. In slots in the end frames A are placed bars S, in such positions that their upper ends may be at the side of the journals of the shaft B. The lower ends of the bars S are pivoted to the frames A, and to their upper ends are attached pins s' , to pass between the teeth of the rack-bars P and support the trough O when the said bars are out of gear with the gear-wheels Q. When the shaft B is moved longitudinally to throw the gear-wheels Q into gear with the rack-bars P, the teeth of the said gear-wheels Q will push the pins s' back out of the way. When the shaft B is moved in the other direction to throw the gear-wheels Q out of gear with the racks P, a collar or shoulder of the said shaft B will push the bars S and pins s' back to their places. T is a lever, pivoted to the frame A in such a position that when the shaft B is drawn in the direction to throw the gear-wheels Q out of gear with racks P, its inner end may drop between the gear-wheel Q and frame A, to lock the shaft B in place. As the lever T is operated to release the shaft B, the end of said lever T strikes against a pin or projection attached to or formed upon the side of the free end of the block U, and raises it. The block U is pivoted to the upper part of the frame A, and to the inner side of its free end is attached an arm, V, which, when the shaft B is moved to bring the gear-wheels Q into gear with the racks P, drops down between the

frame A and a shoulder or collar of the shaft B, to lock the said shaft in place. The lock-arm V is raised to release the shaft B by operating the lever T.

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

1. The curd-cylinder formed of the shaft B, wheels C, perforated wall D d' , and the longitudinal bars N, provided with pins n' , substantially as herein shown and described.

2. The combination of the gear-wheels E F, crank-shaft G, gear-wheels I J, pulley K, and band L with the shaft B, the curd-cylinder C D, and wheel M, substantially as herein shown and described.

3. The combination of the rack-bars P and gear-wheels Q with the whey-trough O, substantially as herein shown and described.

4. The combination of the pivoted bars S and pins s' with the rack-bars P, gear-wheels Q, and cylinder-shaft B, substantially as herein shown and described.

5. The combination of the pivoted lever T, pivoted block U, and arm V with the shaft B, substantially as herein shown and described, and for the purpose set forth.

WILLARD C. SMITH.

Witnesses:

H. W. DEXTER,

A. J. FENNER.