(No Model.)

R. MORTON.

CHURNING OR MIXING MACHINE.

No. 343,835. Patented June 15, 1886.

Fig: 1.

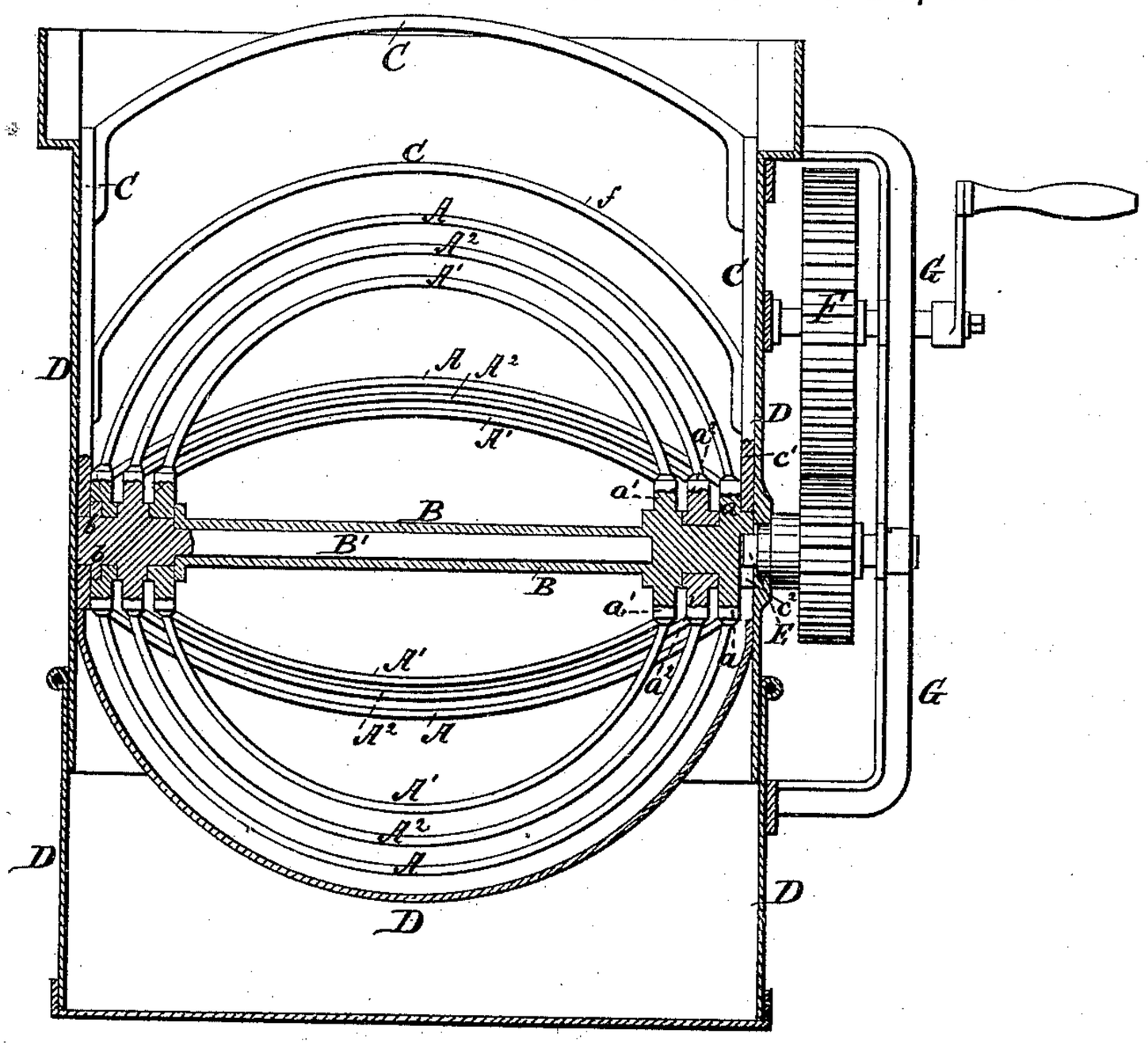


Fig: 2.

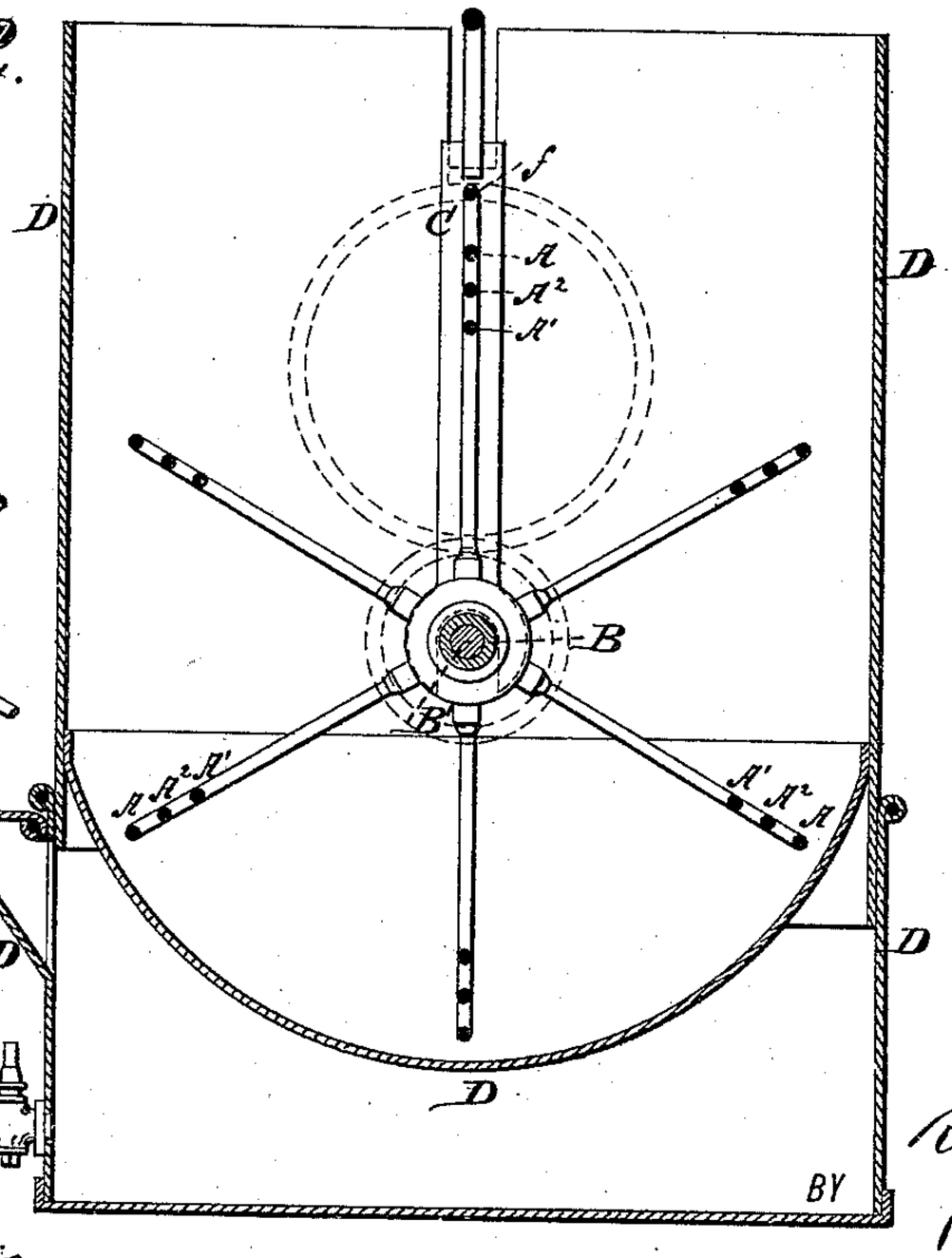
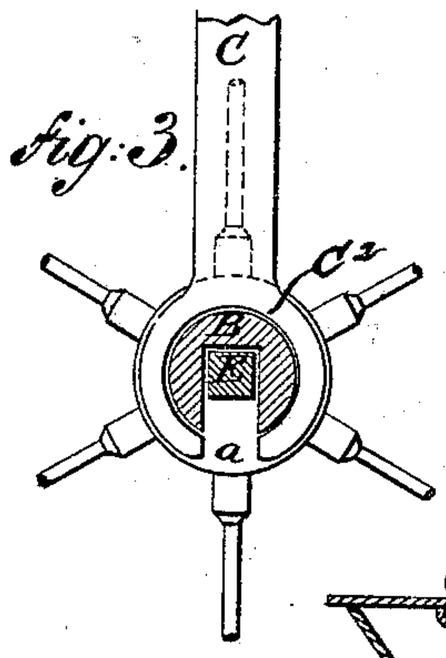


Fig: 3.



WITNESSES:

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ROBERT MORTON, OF WISHAW, COUNTY OF LANARK, SCOTLAND, ASSIGNOR TO JOSEPH BAKER & SONS, OF LONDON, ENGLAND.

CHURNING OR MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 343,835, dated June 15, 1886.

Application filed December 11, 1885. Serial No. 185,363. (No model.) Patented in England February 28, 1884, No. 4,072.

To all whom it may concern:

Be it known that I, ROBERT MORTON, of Belhaven Terrace, Wishaw, in the county of Lanark, Scotland, do hereby declare the nature of my said invention for an Improved Churning or Mixing Machine, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section, and Fig. 2 a cross-section of my improved whisk or mixing machine. Fig. 3 is a detail sectional view showing the connection between the frame C, shaft B, and spindle E.

This invention relates to improvements in machines used for agitating and beating or mixing liquid or semi-liquid substances. In England this machine was patented February 28, 1884.

The invention consists in the new combination of parts hereinafter particularly specified.

According to one modification of my invention, applicable where three sets of beaters are employed in the agitating-machine, and which is illustrated in longitudinal and transverse section in Figs. 1 and 2 of the accompanying drawings, two of the sets of beaters A A′ are fixed by eyes or collars *a a′*, or otherwise integral to the shaft B near one end, and to independent collars that loosely embrace the stationary shaft B′ near the other end, and they revolve with it in the portable frame C, which is fitted within the whisking-vessel D. The other sets of beaters, A^2, are mounted between the two sets A A′, and have one end fixed to a stationary shaft, B′, secured at one end to the arm *c* of the frame C, while the other end of each beater A^2 is secured to a loose ring, a^2, that surrounds the shaft B. The shaft B of the revolving beaters is in part tubular, and passes over the stationary shaft B′, and is free to move within an eye or collar, a^2, which is secured to the central or stationary set of beaters, A^2, at one end. This end of the shaft B is fitted to revolve loosely in a journal-eye, c^2, in the arm *c′* of the portable frame C in Fig. 3, where it is driven by a square end formed on a short spindle, E, operated by gearing F, fitted in a bracket-piece, G, attached to the vessel, the square end being fitted into a recess in the end of the revolving shaft B. The stationary or central set of beaters, A^2, has one of its eyes or collars fixed to the stationary shaft B′, while the other eye or collar, a^2, of this set of beaters is mounted loose on the shaft B of the revolving beaters. The central set of beaters is thus held stationary by its stationary shaft B′, on which one eye or collar of the revolving beaters is mounted to revolve loose at that side of the machine, thereby allowing the revolving axis B and beaters to revolve freely within the arms *c c′* of the portable frame C, carrying the whole. This frame C is adapted to be lifted out of the vessel D and dropped into place in it. In order that the lower end of the frame C and the recessed end of the shaft B may pass over the inwardly-projecting square end of the spindle E, pieces are cut out of the frame and out of the shaft B, as indicated by dotted lines in Fig. 2, and in the detail view, Fig. 3. A collar, *b*, is secured to the shaft B′ to retain the eye a^2 independently of the retaining power of the frame, and the shaft is also soldered or otherwise fixed to the arm of the frame C. When desired, outer stationary beaters, *f*, might be secured to the lower arms of the frame, which might be strengthened and supported by a cross-bar at the outer ends of the arms, so as to be portable, and raised and lowered out of carrying slides or notches in the sides of the vessel, and when inserted would be in a line with the axis of the outer driving-shaft on the vessel, which would be square and inserted into a corresponding recess in the shaft of the revolving beaters, and be retained there and actuated by the ordinary driving-gear outside the vessel heretofore used for such switches and beaters.

The mixing-vessel D is formed with a double casing at the bottom, in which hot water may be placed to heat the material being mixed or switched.

Having now particularly described and as-

certained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is—

The series of beaters or mixers A, A′, and A², and their shafts B and B′, in combination with the portable frame C, adapted to fit the mixing-vessel D, and with the said vessel and the driving-gear that is attached to the vessel, the beaters and the frame C being detachable therefrom, substantially as herein described and illustrated.

ROBERT MORTON.

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