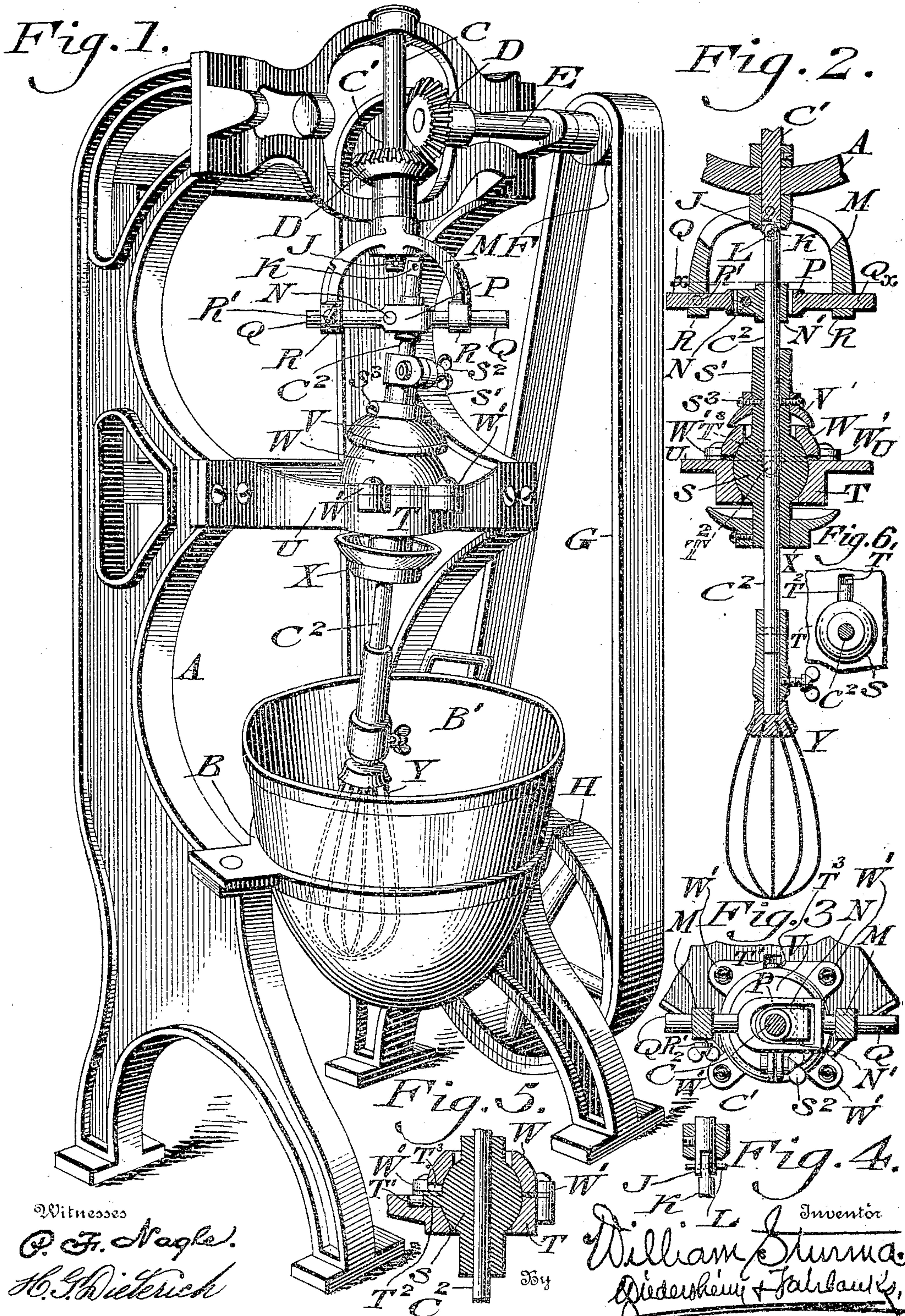


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UNITED STATES PATENT OFFICE.

WILLIAM STURMA, OF PHILADELPHIA, PENNSYLVANIA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM STURMA, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Beater, Whipper, Mixer, and Masher for Eggs, Cream, Vegetables, &c., of which the following is a specification.

My invention consists in providing a beater, whipper, mixer and masher for eggs, cream, vegetables, etc., with means whereby the beating member may receive motions that may be either gyratory or simply rotary in the plane of its axis according to the nature of the work to be accomplished.

For the purpose of explaining the invention, the accompanying drawing illustrates a satisfactory reduction of the same to practice, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 represents a perspective view of a beater etc. embodying my invention. Fig. 2 represents a vertical section of a portion thereof, certain members being in a different position from that shown in Fig. 1. Fig. 3 represents a partial top view and partial horizontal section on line $x-x$, Fig. 2. Fig. 4 represents a partial side elevation and a partial vertical section of a detached portion. Figs. 5 and 6 represent views respectively vertical and horizontal of detached portions.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings:—A designates the frame of the machine, the same having secured to its lower portion the ring B, in which is supported the pan B', the latter being adapted to contain the material to be beaten, whipped, mixed, mashed or otherwise worked.

C designates the main shaft, the same being vertically mounted in the upper portion of the frame A and receiving power from any suitable source, in the present case, the bevel gearing D, the shaft E, the pulley F, the belt G and the wheel H. The shaft C is formed in sections C', C², the adjacent ends of which are adapted to be coupled, they being formed respectively with the tongue and groove J, K, which are adapted to engage and receive the pin L, thus con-

necting the sections as one, see Figs. 2 and 4, but when said pin is withdrawn, said sections are disconnected, and may be separated, as shown in Fig. 1. The lower end of the section C' has connected with it the semi-circular yoke M, which is adapted to rotate with said section. The upper end of the section C² is mounted in the journal box N, which is fitted within and swingingly attached by the pivot N' to the yoke P, the latter having connected with it the rods or stems Q, which project outwardly in opposite directions from said yoke P and are fitted freely in eyes R on the lower terminals of the yoke M. On the shaft section C² below the yoke P, is the ball S whose lower portion has its bearing T of the form of a half socket supported on the horizontally-arranged arm U, which extends from and is secured to an adjacent member of the frame A. The upper portion of the ball has its bearing in a half-socket W, above which latter is the cap V, which covers the same. Below the socket or bearing T is the oil-drip cup X, which is properly secured to said ball S. The ball S has an upward continuity of the form of a split sleeve S', in which and said ball the section C² is freely fitted, said sleeve having its members adapted to be compressed to the proper extent upon said section by the bolt and nut S². The cap V is firmly secured to said sleeve S' by the screw S³ which passes through the same and the adjacent portion of said sleeve. In the upper face of the bearing T is the recess T', which freely receives the gudgeon T², which is adapted to rock in said recess as the ball S oscillates in its bearings. Connected with the lower end of the shaft section C², is the beating member or beater proper Y, which enters the pan B', and is adapted to operate therein. The bearing W is provided with ears W', by which it is screwed or otherwise secured to an adjacent support U on the frame A, and so retained stationarily in position, said bearing having in its top an enlarged opening centrally therein for the play of the adjacent portion of the sleeve S' during the oscillations of the shaft section C² and corresponding motions of the ball S.

The operation is as follows:—Should it be desired to cause the beating member Y to oscillate or sweep around the interior of the pan B', the pin L is withdrawn and the

screw R' loosened. The yoke P is now moved in lateral direction, in the present case to the right, and the rods Q move correspondingly through the eyes R, and the shaft section C² is placed at an inclination, the screw R' then being tightened, said screw passing through one end of the yoke M and having its point engaging the adjacent portion of the rod Q. The screw S² is also tightened so that the split sleeve of the ball clamps the shaft section C², thus depriving the latter of independent rotary motion on itself. The position of parts being shown in Fig. 1, motion is communicated to the shaft section C', and by it to the yoke M, the yoke P, box N and shaft section C², said box oscillating with said yoke P, while said section, and consequently the beating member Y, are in inclined position. The ball S oscillates in its bearings, sustained to some extent by the gudgeon T², which has free rocking motions on the wall of the recess T', and so the beating member Y is held in inclined position and thereby sweeps around the inner sides of the pan without rotating on itself, whereby it acts to whip the material in the pan, thus causing an effective working of the same. As the ball oscillates, the gudgeon T² will rise and fall to a limited extent, the rise being permitted by the slot or recess T³ in the periphery of the upper bearing W of the ball, said recess being above the recess T' and registering therewith.

In some cases, the material requires to be beaten, etc. by simply rotary motion of the beating member Y. In this case, the screw R' is loosened, and the shaft section C² moved into engagement with the shaft section C', when the two sections are coupled by the pin L, the yoke P and connected parts moving with the section C², the latter now being centered in the pan.

The screw S² is operated to release the split sleeve of the ball from its holding action on the shaft section C², when the latter is free to rotate within said sleeve and ball. The screw R' is also tightened, the several parts assuming the positions as shown in Fig. 2. Power is now applied to the shaft, when both sections C', C² rotate as one, while the ball S remains stationary in its bearings. The beating member Y thus rotates on itself within the pan on its vertical axis without oscillating or sweeping around the pan, as in the case when the parts are in position, Fig. 1, the effect of which is the working of the material by rotary motion from the center of the pan.

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

1. In a device of the character stated, a beater, a sectional shaft carrying the same, means adapting said beater to be operated

revolvably in a vertical plane, other means permitting it to gyrate without rotation on its own axis, and means for directly or indirectly connecting said shaft sections, said means embodying an oscillatory member serving for all the movements of said beater.

2. In a device of the character stated, a vessel, a beater receivable in said vessel, a divided shaft, said beater being detachably connected with one section of said shaft, means for placing the latter-named section at different angles, means for directly or indirectly connecting said sections, means for rotating one of the two sections when they are separated, means for detachably connecting said sections, means whereby one section in its indirectly connected condition gyrates without rotation on its own axis, said sections connected or disconnected serving as the actuating means for said beater.

3. In a device of the character stated, a beater, a vessel in which said beater is receivable, a divided shaft, said beater being adapted to be disconnected from one section of said shaft, a ball and corresponding bearings for said section, a gudgeon on said ball, and means for giving said section a gyratory motion.

4. In a device of the character stated, a vessel, a beater receivable in said vessel, a shaft formed in sections, said beater being detachably connected with one section thereof, means for directly or indirectly connecting said sections, and means for operating said sections one from the other in either their directly or indirectly connected condition.

5. In a device of the character stated, a vessel, a beater receivable in said vessel, a shaft formed in sections, connectible to form a straight shaft, said beater being attached to one section thereof, a shiftable connection for said sections adapting the beater to be placed in inclined positions to the perpendicular axis thereof, means forming at all times a connection between said sections, means for operating the beater carrying section from the other section in either position of the beater and means whereby the shaft in its indirectly connected condition gyrates without motion on its axis.

6. In a device of the character stated, a vessel, a beater receivable in said vessel, a shaft formed in sections, connectible to form a straight shaft, said beater being attached to one section thereof, a shiftable connection for said sections adapting the beater to be placed in inclined positions to the perpendicular axis thereof, means forming at all times a connection between said sections, means for operating the beater carrying section from the other section in either position of the beater, a support for said connection, means whereby the shaft in its indirectly connected condition gyrates without

motion on its axis and means at all times connecting said support with the other section.

7. In a device of the character stated, a vessel, a beater receivable in said vessel, a shaft formed in sections, connectible to form a straight shaft, a swinging bearing for said shaft, said beater being attached to one section of said shaft, a shiftable connection for said sections, adapting the beater to be placed in inclined positions to the perpendicular axis thereof, means forming at all times a connection between said sections, means for operating the beater-carrying section from the other section in either position of the beater and means whereby the shaft in its indirectly connected condition gyrates without motion on its axis.

8. In a device of the character stated, a divided shaft, the sections of which are connectible to form a straight shaft, a beater, the latter carried by said shaft, a ball and ball bearing for one section of said shaft, a member on which said bearing is mounted, means for giving said beater a gyratory motion without rotation on its own axis, and a vessel in which said beater is receivable.

9. In a device of the character stated, separately mounted shafts, means for connecting and disconnecting them, a bearing for one of said shafts, and a mounting for said bearing, whereby, when the shafts are directly connected, said bearing has a rotary

motion, said bearing and mounting forming means also for indirectly connecting said shafts whereby said bearing revolves in a fixed position about the axis of the fixed shaft.

10. In a device of the character stated, a gyratory shaft, a beater, the beater carried by said shaft, a ball and ball bearing for said shaft, a member on which said bearing is mounted, means on the frame of the device adapted to cover and guard said ball, and a vessel in which said beater is receivable.

11. In a device of the character stated, a shaft for carrying a beater, a beater, a ball and ball bearing for said shaft, and a drip cup suspended from the ball member thereof.

12. In a device of the character stated, a vessel, a beater receivable therein, a divided shaft carrying said beater, and means cooperating with said shaft to give said beater motions either revoluble around the inner surface of the vessel or solely rotary in the plane of its axis, comprising means for directly or indirectly connecting the sections of the shaft, and means whereby the beater-carrying section in its indirectly connected condition gyrates without motion on its own axis.

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Witnesses:

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