

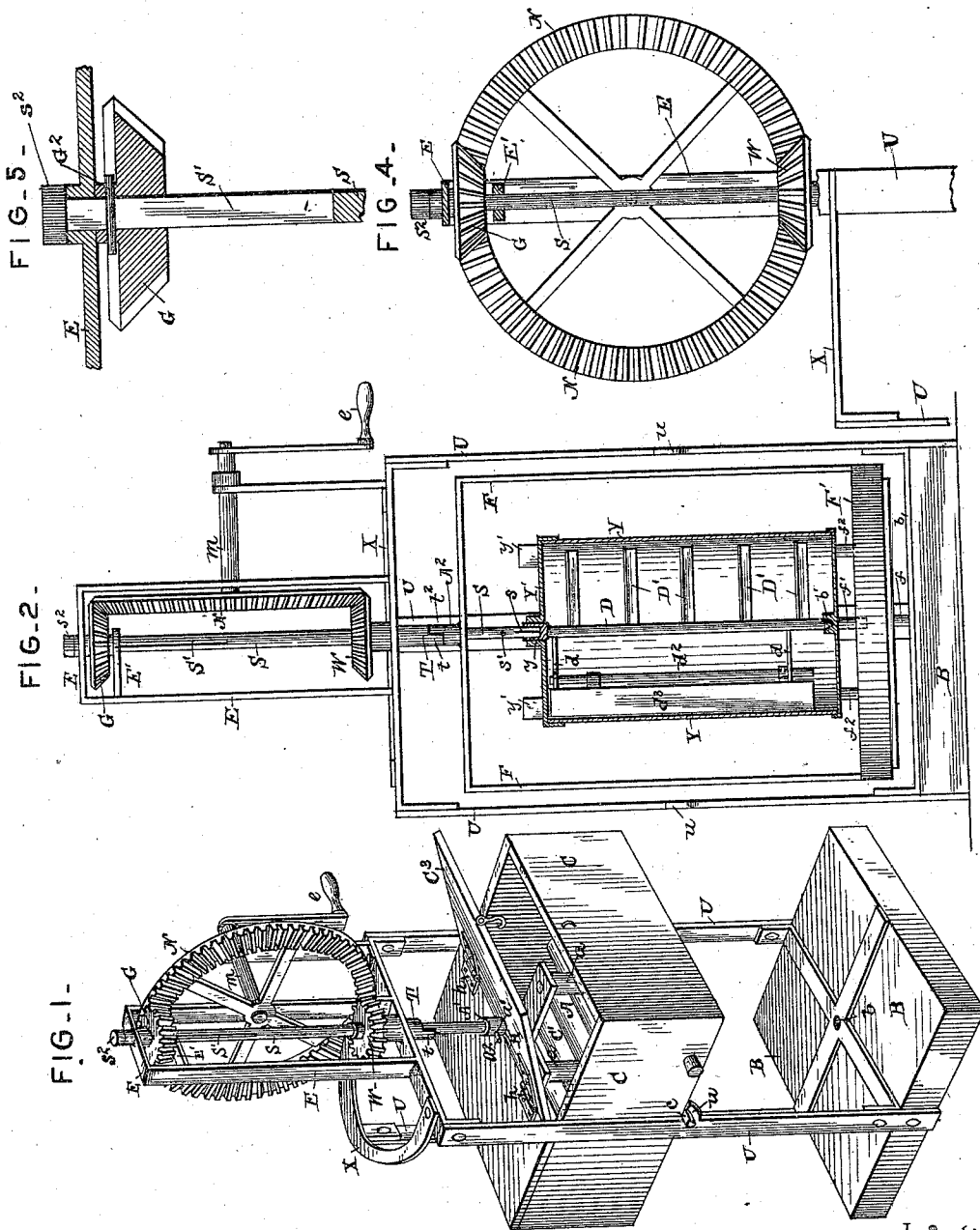
(No Model.)

2 Sheets—Sheet 1.

W. H. CRAWFORD.  
STIRRING MACHINE.

No. 470,407.

Patented Mar. 8, 1892.



Witnesses

Jas. H. McLaughlin

N. L. Colman

By his Attorneys,

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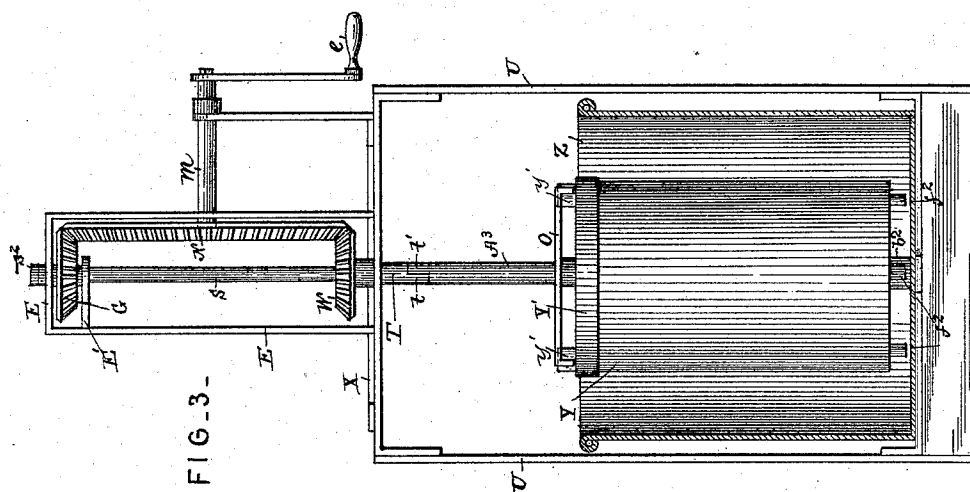
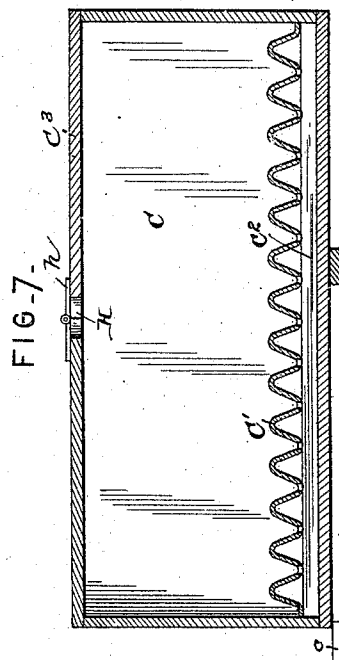
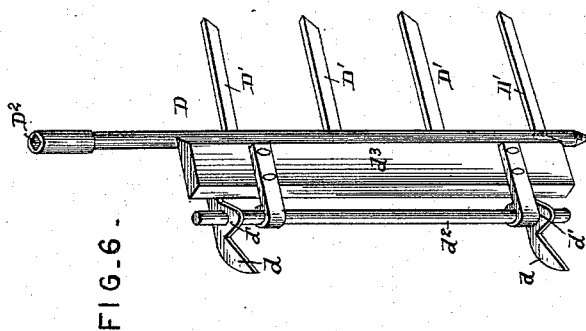
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# UNITED STATES PATENT OFFICE.

WILLIAM H. CRAWFORD, OF WEATHERFORD, TEXAS.

## STIRRING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,407, dated March 8, 1892.

Application filed December 15, 1890. Serial No. 374,762. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CRAWFORD, a citizen of the United States, residing at Weatherford, in the county of Parker and State of Texas, have invented a new and useful Stirring-Machine, of which the following is a specification.

This invention relates to agitating-machines adapted to be used for various purposes; and the object of the same is to produce a machine of this character capable of such uses.

To this end the invention consists of the specific details of construction hereinafter more fully described and claimed, and as illustrated in the two sheets of drawings, wherein—

Figure 1 is a perspective view of this device when used as a washing-machine, the cover of the clothes-box being slightly raised. Fig. 2 is a front elevation of this machine with the open frame therein, showing the cylinder in section supported by the frame and the dasher within the cylinder. Fig. 3 is a similar front elevation showing a tub in section as resting on the base and showing in elevation the cylinder within the tub and the cross-frame for causing its rotation. Fig. 4 is a side elevation of the driving mechanism complete. Fig. 5 is a cross-section through the upper gear and the shaft. Fig. 6 is an enlarged perspective detail of the dasher with its wing folded inwardly. Fig. 7 is a central longitudinal section of the clothes-box.

Referring to the said drawings, the letter B designates the base, from which rise three uprights U, connected at their upper ends by a cross-frame X. Above this frame is an extension E, through one side of which is journaled the main shaft *m*, carrying the main gear-wheel N and having a crank-handle *e* at its outer end. Journaled in the cross-frame X is a tubular shaft T, having a shouldered lower end *t*, and secured upon the shaft above the frame is a gear-wheel W, which meshes with the main gear N. At the upper end of the extension E is another gear G, held normally in place and in engagement with the main gear by a bracket E' of the extension, and passing vertically through the upper end of the extension E, through the upper gear G, and through the tubular shaft T is a shaft S,

having a longitudinal slot S' in its body, which engages a pin G<sup>2</sup> across the opening through the hub of the upper gear, and this shaft is provided with a squared lower end *s* and hole *s'* through its body slightly above said end and an enlarged upper end or knob *s*<sup>2</sup>. By this construction when the crank *e* is turned the main gear N drives the gears G and W in opposite directions, and hence causes the solid shaft S and tubular shaft T to turn oppositely.

The letter C designates the clothes-box of a washing-machine, which has laterally-projecting pins *c*, adapted to engage holes or hooks *u* in the uprights U, as seen in Fig. 1. Within this box is arranged a removable corrugated bottom C', mounted upon longitudinal cleats C<sup>2</sup>.

C<sup>3</sup> is the cover to this clothes-box, which is made in two parts connected by hinges *h* and having a hole H through its center. After this box has been arranged in position, with the pins *c* engaging the hooks *u*, the dasher, or more properly the agitator A, is brought into position within the clothes-box, so that its depending feet *a* shall pass over the corrugated bottom C'. This agitator is an X-shaped frame, from which rises a tubular shank A', that passes through the hole H in the cover and loosely embraces the lower end of the shaft S. This shank is provided with a transverse hole *a'*, adapted to register with that lettered *s'* in the shaft, and when a pin *a*<sup>2</sup> is put through these holes the agitator is connected to the shaft S and will be rotated thereby when the crank *e* is operated.

The letter F designates an open frame, which carries an open or solid rotary base F', having a central depending stud *f*, which turns in a step *b* at the center of the base B. The upper end of the frame F is provided with a tubular shank A<sup>2</sup>, the same as that of the agitator, except that it has a shouldered upper end *t*<sup>2</sup>, the same as the lower end of the tubular shaft. When this frame is put in place with the stud *f* in the step *b*, its upper shouldered end engaged with the lower end of the tubular shaft, the solid shaft S passed through the tubular shank, and the crank *e* operated, the frame will be rotated in one direction, while the shaft S will turn in the opposite direction.

The letter Y designates a cylindrical dish having a closed lower end provided with a central depending stud  $f'$  and inside with a central step  $b'$ , and this dish or cylinder is supported, when its stud does not rest in a step, by three or more depending feet  $f''$ . The cylinder Y has a cover Y' provided with a central aperture or bearing  $y$  and with ears  $y'$ , as shown.

The letter D designates a dasher, which comprises a main vertical shaft having a conical lower end forming a stud adapted to fit and turn in the step  $b'$  within the cylinder Y. Extending horizontally from this shaft are arms  $D'$ , which preferably are flat and stand at an angle to a horizontal plane. Extending from the other side of the shaft are two arms  $d$ , each of which is provided midway of its length with an eye  $d'$ , and journaled in these eyes is a removable shaft  $d''$ . A paddle  $d^3$  is connected to this removable shaft, and as the latter turns in the eyes the paddle is thrown out or in, according to the direction in which the dasher is rotated. The lower end of the dasher-shaft is seated in the step  $b'$  at the bottom of the cylinder, and its upper end extends through the collar  $y$ , and has a square hole  $D^2$ , adapted to receive the squared lower end  $s$  of the shaft S.

If the frame F is mounted in the step in the base and its shouldered upper end connected with the lower end of the tubular shaft, the driving mechanism will cause the frame to turn in a direction opposite to that in which the dasher turns, and hence a double speed of rotation will result. This is very useful for churning, and toward the last of the process the direction of rotation may be reversed, whereby the paddle  $d^3$  will be dragged behind its pivots, rather than pushed by the arms  $d$ .

When the tub Z is placed upon the base, as shown in Fig. 3, the device becomes an ice-cream freezer—that is to say, the ice and salt are placed in the tub around the cylinder, the latter mounted in a step  $b^2$  in the lower end of the tub, the dasher above described inserted in the cylinder, passed through the bearing  $y$  of the cover Y', and connected with the squared lower end of the shaft S, and a cross-frame O brought into place to connect the tubular shaft with the body of the cylinder. This cross-frame comprises a horizontal arm adapted to engage the ears  $y'$  on the cover, and from the center of this horizontal arm rides a tubular shank  $A^3$ , having a shouldered upper end  $t'$ , the same as the upper end of the frame F. The tubular shank surrounds the solid shaft S and engages the lower end of the tubular shaft T, by means of which it is rotated and whereby the cylinder is turned in one direction; but the solid shaft, extending through the tubular shaft into the interior of the cylinder and connected with the dasher, causes it to rotate in the opposite direction. A double degree of motion is thus given the parts, the cream is stirred

so as to prevent it sticking to the can or dasher, and the cylinder is moved within the ice so as to prevent an uneven freezing of the cream. If desired, the cross-frame can be omitted and only the dasher rotated within the cylinder.

When the device is used as a washing-machine, the clothes are placed in the clothes-box C and the dasher, or more properly the agitator A, connected to the lower end of the shaft S and rotated or oscillated, as above described.

It will thus be seen that this improved device is useful for a variety of purposes; but in all cases the frame-work, the driving mechanism, the hollow and solid shafts, (the latter moving vertically,) a receptacle, and a dasher are employed. With a washing-machine the hollow shaft is useless. With a churn the open frame F and cylinder Y are used, and with a freezer the cross-frame O, cylinder Y, and tub Z are used. The vertical movability of the solid shaft is useful to disconnect it from the dasher, and in the last two cases to allow the frame and cylinder to be withdrawn, and the shank of either frame and lower end of the tubular shaft are formed with L-shaped shoulders, which readily disengage transversely when the vertical shaft is withdrawn upwardly by the knob  $s^2$ . My improved stirring-machine is thus useful for a variety of purposes, to all of which it is well adapted.

What is claimed as new is—

1. In a stirring-machine, the combination, with a base having a frame-work rising therefrom, a cross-frame having an extension E, mounted on the frame-work, a tubular shaft journaled through and depending from said cross-frame, a bevel-gear on its upper end, a bracket across the extension near its top, a bevel-gear between said top and bracket, a solid shaft having a squared lower end, a longitudinal slot in its body and a knob at its upper end, the shaft extending loosely through the tubular shaft, the hubs of both gears, and the cross-frame, bracket, and top of the extension, a pin across the hub of the upper bevel-gear passing through said slot, a cranked operating-shaft journaled in the extension, and a main gear thereon in constant mesh with both said bevel-gears, of a receptacle removably mounted on the base and having a hole through its cover, and a dasher journaled in said hole and having a socket in its shaft detachably connected with said squared lower end, all as and for the purpose set forth.

2. In a stirring-machine, the combination, with the base having a step, the frame-work rising from the base, a tubular shaft through said frame-work having an L-shaped shoulder at its lower end, a solid shaft turning in and vertically movable through said tubular shaft, and means, substantially as described, for driving said shafts in opposite directions, of a frame having a tubular shank provided with a shoulder adapted to be connected at its up-

per end to said tubular shaft, a receptacle having a stud turning in said step, the cover of said receptacle having an aperture through its center, through which said solid shaft extends when lowered, and a dasher within the receptacle detachably connected with said shaft, as and for the purpose set forth.

3. In a stirring-machine, the combination, with a supporting-base having a step, a frame-work rising from said base, a tubular shaft journaled in said frame-work and having an L-shaped shoulder at its lower end, a solid shaft extending through and vertically movable in said tubular shaft, and means for driving the shafts in opposite directions, of a laterally-open frame having an upwardly-extending tubular shank loosely embracing the solid shaft and provided with a shouldered upper end engaging that at the lower end of the tubular shaft, a receptacle mounted in and turning with said frame and having a removable cover provided with an aperture, the solid shaft extending through said aperture, and a dasher within the receptacle detachably connected to the lower end of the solid shaft, as and for the purpose set forth.

4. In a stirring-machine, the combination, with a frame-work, a main gear mounted therein and having an operating crank-han-

dle, a tubular shaft in said frame-work and having a gear meshing with the main gear, and a receptacle connected to said tubular shaft, of a bracket in said frame-work, a gear above said bracket meshing with the main gear and having a pin across the hole through its hub, a solid shaft journaled in the frame-work and through said tubular shaft and having a slotted body sliding on said pin, and a dasher within said receptacle detachably connected to the lower end of said solid shaft, as and for the purpose set forth.

5. In a stirring-machine, the combination, with the receptacle, of a dasher therein, the same comprising a vertical shaft having laterally-extending arms, two of which are provided with eyes midway of their length and in vertical alignment, a removable shaft journaled in said eyes, a paddle connected to said shaft and adapted to rest against the outer or inner ends of the arms, and means for operating said dasher, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

W. H. CRAWFORD.

Witnesses:

S. B. WADLEY,

H. B. DORSEY.