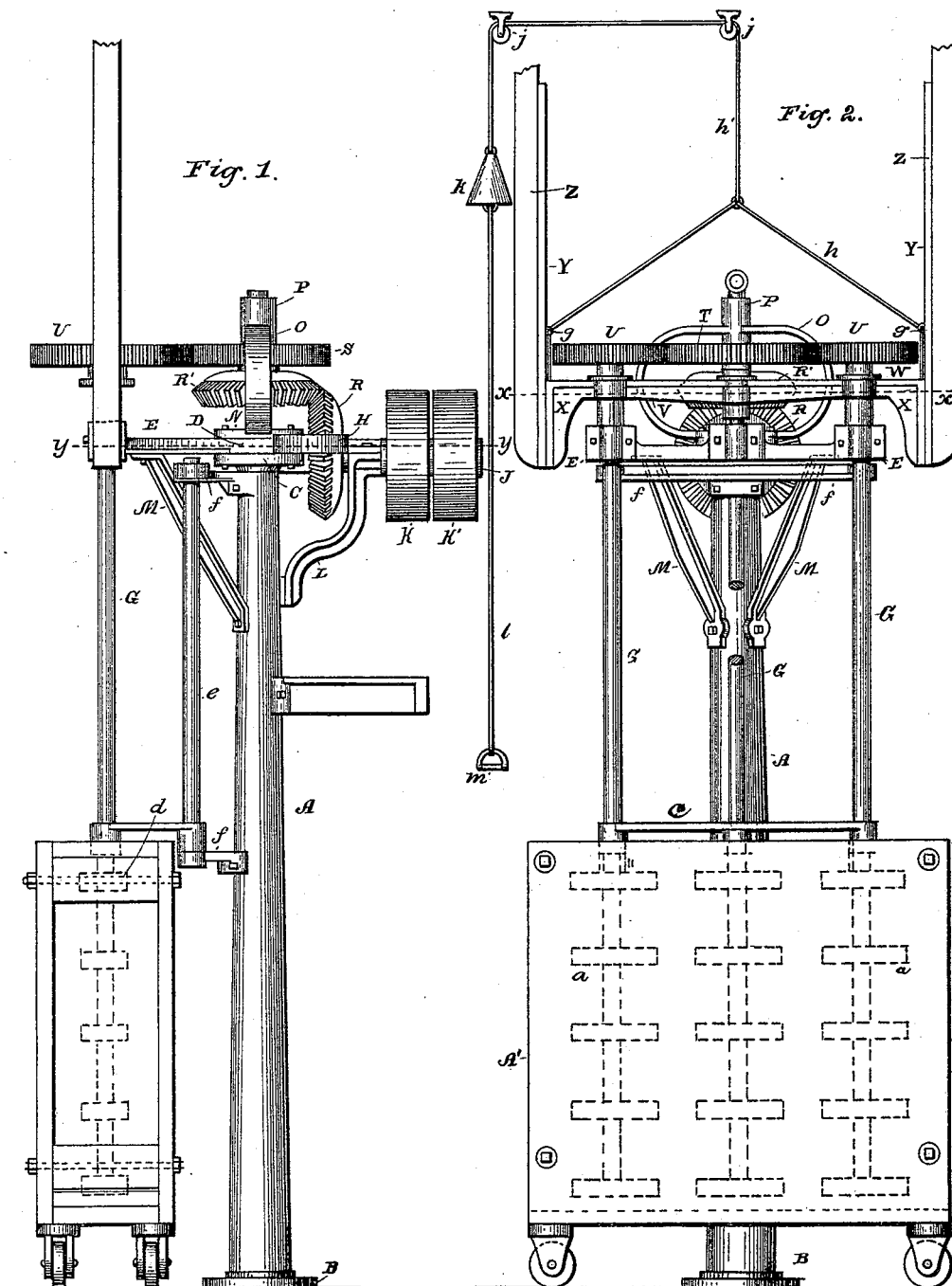


W. A. GRANT.  
SOAP MAKING APPARATUS.

No. 457,914.

Patented Aug. 18, 1891.



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Victor J. Evans.  
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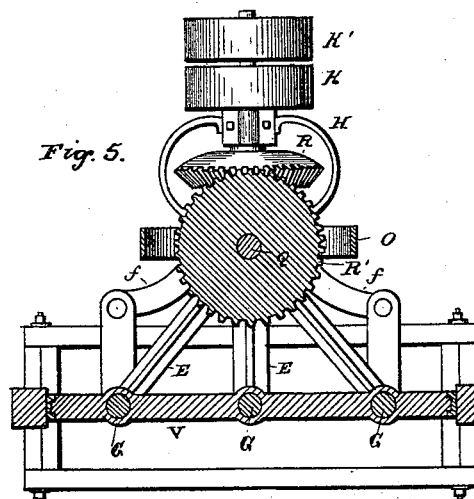
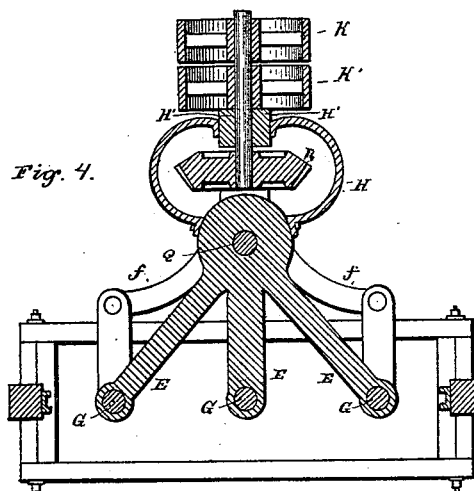
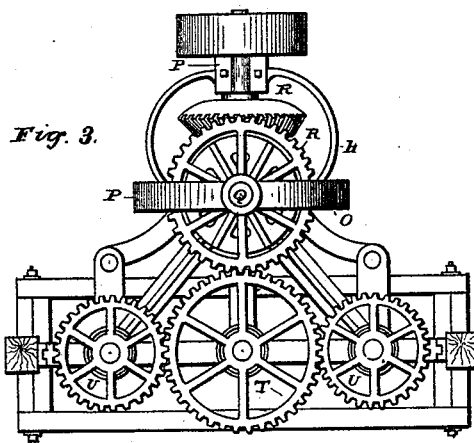
(No Model.)

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*Robt. A. Adams.*

# UNITED STATES PATENT OFFICE.

WILLIAM A. GRANT, OF HOUSTON, TEXAS.

## SOAP-MAKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 457,914, dated August 18, 1891.

Application filed January 28, 1890. Serial No. 338,400. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. GRANT, a citizen of the United States, residing at Houston, county of Harris, State of Texas, have invented a new and useful Improvement in Soap-Making Apparatus, of which the following is a specification.

My invention relates to apparatus for making soap; and it consists in improved mechanism, as herein described, whereby the same frames are employed in mixing the ingredients and in cooling the prepared mass, thus obviating the necessity of the removal of the mixed mass from the mixing-frame to a cooling-frame.

The mechanism embodied in my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the apparatus embodying the invention. Fig. 2 is an elevation of the apparatus at right angles to that shown in Fig. 1. Fig. 3 is a plan view. Fig. 4 is a horizontal section on line *y y*, Fig. 1. Fig. 5 is a horizontal section on line *x x* of Fig. 2.

Similar letters refer to similar parts throughout the several views.

A represents a metal column or standard having a base B. To the top of the column is secured a plate or flange C, and on top of the latter is bolted a boss D, having the radial arms E E E. The outer ends of each of the arms E is formed with a boss or box, which serves as a bearing for one of the mixer-shafts G. The mixer-shafts G, which in the apparatus shown are three in number, are each provided at their lower ends with the transverse mixer-blades *a* for agitating the ingredients in the mixing-box A'. Connected with the boss D, on the opposite side from the arms E, are the horizontally-extending curved arms H H, the outer ends of which support the boxes H' H'. The driving-shaft J has bearings in the boxes H' H', and has on one end the bevel gear-wheel R and on the other end the fast and loose pulleys K and K'.

Supporting the arms E E E are the braces M, bolted at their lower ends to the column A. The curved arms H and the braces L, secured to the boxes H' and the column A, aid in supporting the driving-shaft.

On the boss D is bolted a boss or flange N,

and formed integral therewith is the circular hood or ring O, the latter having connected therewith on the top and opposite to the boss D the box P, which serves as a bearing for the vertical shaft Q, the lower end of which is stepped into the bosses or flanges N and D. On the shaft Q is secured the bevel gear-wheel R' and the cog-wheel S, the former meshing with the bevel gear-wheel R of the shaft J and the latter with the gear-wheel T on the center mixer-shaft G. On the side mixer-shafts G are the gear-wheels U, each meshing with the gear-wheel T. (See Fig. 3.)

The lifting-bar V, which is located below the hub of the gear-wheels U T U, is provided at its outer ends with the tongued wings X X, and has bosses or boxes through which pass the mixer-shafts G. The oil-cups W are formed in the upper faces of the said boxes.

Z represents wooden supports to which are secured the metal grooved plates Y, in which the tongues of the wings X are adapted to move.

The mixer-shafts G G G are kept in line while being lifted out of and lowered into the mixing or cooling frames by a bar *c*, which is provided with bosses, through which said shafts G G G pass. To the rear of the bar *c* and at right angles therewith are fastened the horizontal arms *d*, having at their rear ends bosses adapted to slide on the vertical guide-rods *e*, the latter having at their upper and lower ends the horizontal arms *f*, which are firmly secured to the column A.

To the wings X X of the lifting-bar are secured the eyebolts *g*, the eye portions of which extend above the wheels U U, as shown. A bent iron rod *h* is fastened at its ends to the eyebolts and has attached at its center an iron or other rope *h'*, which passes over the pulleys *j j*, and has attached to its end an equipoise-weight *k* to balance the mixer-shafts and connected parts. A cord or rope *l*, with hand-piece *m*, is secured to the weight, so that the mixer-shafts may be readily raised or lowered, as desired.

The operation of the apparatus is as follows: A mixing-frame having been placed in position, the mixer-shafts are lowered into the same and the driving-shafts operated by means of power communicated from any suitable motor to the fast pulley K. This com-

communicates rotary motion by the bevel-wheels R R' to the shaft Q and gear-wheel S, and thus to the gear-wheels T and U U, the latter two being rotated in opposite directions and at a different rate of speed from the wheel T. When the ingredients have been thoroughly mixed, the mixer-shafts are raised out of the frame *b* by lowering the cord *l*, so as to raise the lifting-bar V, and thereby the mixer-shafts G and the gears T U U, the tongued wings X of the bar V working in the grooves Y and the bosses of the arms *d* sliding on the guide-rods *e*, thereby preserving a right-line movement of the said parts.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a soap-manufacturing apparatus, the combination of a mixing-frame, a series of mixer-shafts with transverse blades, a standard with the flange C at the top thereof, the boss D on the said flange, the radial arms E E on the said boss and having bosses at their outer ends serving as bearings for the mixer-shafts, the curved arms H, with boxes at their outer ends, a rotatable shaft journaled in said boxes and having thereon the bevel gear-wheel R and the fast and loose pulleys K and K', respectively, the shaft Q, with gear-wheel R' and cog-wheel S, the gear-wheel T on the center mixer-shaft gearing with the wheel S, and the gear-wheels U on the side mixer-shafts and gearing with the said wheel T, substantially as described.

2. The combination of a mixing-frame, a standard with a flange on its top, a boss D, secured on top of said flange and having radial arms with bosses in their outer ends, rising and falling mixer-shafts having bearings in said bosses and provided with transverse blades, horizontal curved arms with boxes at their outer ends, the rotatable shaft J, journaled in said boxes and having the bevel gear-wheel R thereon, the flange N, secured to said boss D, the ring O, with the box P opposite the boss D, the vertical shaft Q, with the gear-wheel R' and the cog-wheel S, and cog-wheels on said mixer-shafts, substantially as described.

3. The combination of a mixing-frame, the mixer-shafts with horizontal gear-wheels thereon, a lifting-bar below said gear-wheels and adapted to raise the same with the mixer-shafts, tongued wings on said bar, a support having grooved plates secured thereto, eyebolts secured to said wings, a rod bent in center and secured at its ends to said eyebolts, a rope secured to said rod, pulleys over which said rope passes, a balance-weight on one end of said rope, a standard and a vertical guide-rod secured thereto, and a horizontal bar with arms movable on said guide-rod, substantially as described.

WM. A. GRANT.

Witnesses:

E. C. CRAWFORD,  
C. W. ALSWORTH.