UNITED STATES PATENT OFFICE.

ROBERT DUFF, OF NEW YORK, N. Y., ASSIGNOR TO ERNEST GREENFIELD AND PHILIP STRAUSS, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MIXING PASTE FOR CONFECTIONERY, &c.

Specification forming part of Letters Patent No. **114,423**, dated May 2, 1871.

To all whom it may concern.

Be it known that I, ROBERT DUFF, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Mixing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

In the manufacture of lozenges, crackers, candies, sweetmeats of every description, and, in fact, of all substances which require in the initiatory process a thorough mixing together of different ingredients so as to form either a fluid, semi-fluid, or plastic mass, the manufacture is not only retarded, but much enhanced in cost by the use of hand-labor in mixing the ingredients. It is for the purpose of abolishing the necessity for hand-labor in these initiatory processes that I have invented the machine now under consideration, and which consists, mainly, of a shaft or spindle studded at regular intervals by arms working in the center of a horizontal cylinder made to open at the top with a hinged cover, said arms passing between standards fixed to the bottom of the cylinder, so that by means of the revolutions of the shaft the contents of the cylinder are thoroughly intermingled by being driven at all possible angles between the arms, standards, and sides of the cylinder.

Having thus described the general features of my invention, I will now proceed to explain it in detail, and show by what means manufacturers and others can operate and use same to the best advantage.

Of the accompanying drawings, Figure 1 is a front or bird's-eye view. Fig. 2 is a side elevation.

By referring to these figures it will be seen that A represents a frame, upon which is mounted horizontally a cylinder. (Marked B B.) This cylinder is closed like a drum at bother ends, and is cut into equal halves at its diameter, the upper half being hinged, as shown at *a*, Figs. 1 and 2, so that the upper portion, *b*, Fig. 2, may be lifted up by means of handles *c c*, Figs. 1 and 2, to admit the materials designed to be mixed, and then shut down again, forming a tight lid or cover. Through the axis of this horizontal drum or cylinder, supported in the journals *d d*, Figs. 1 and 2, runs the shaft or spindle C C, Fig. 2, rotated by pinion-wheel D and spur-wheel E, which are operated by the pulleys F F, Fig. 1, to which the initial motive power is applied. To this shaft are attached at various intervals the quadrilateral skeleton arms G G, so constructed that the mixture in which they revolve can pass through as well as around them. These arms, during their revolutions, pass between **I**-shaped standards H H, Fig. 1, which are fastened in a straight line to the lowest part of the cylinder, and at such intervals that each standard falls directly between the pairs of revolving arms. The skeleton arms are fastened to the shaft at right angles to its axis, but at different points upon its circumference. The cover of the drum being raised for the introduction of the materials to be mixed, the shaft is set in motion, when it will be readily seen the contents are driven in currents at every possible angle to the periphery of the cylinder, being deflected by the numerous resisting-surfaces of the skeleton arms, the standards, and the surfaces of the cylinder itself. The mixing of the contents of the drum must be, it is obvious, most thorough and complete.

Although this machine has been designed with a special view to the mixing of materials for the manufacture of lozenges, confectionery, and candies, still it can be used with the most satisfactory results in all manufactures where the thorough mixing of various ingredients is necessary.

I claim as new and desire to secure by Letters Patent—

1. The quadrangular arms G G, having openings within their outer walls or edges, so as to allow the free passage through them of the substances, and revolving in the horizontal drum B B, substantially as described.

2. The **I**-shaped standards H H, attached to the periphery of the stationary drum B B, substantially as set forth and described.

3. The shaft C C, skeleton arms G G, and standards H H, operating within the hollow stationary drum or cylinder B B, with its hinged movable upper portion, *a*, all substantially as set forth and described.

ROBERT DUFF.

Witnesses:
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2 Sheets--Sheet 1.

Improvement in Sewing-Machines.

No. 114,424. Patented May 2, 1871.

Fig. 1.

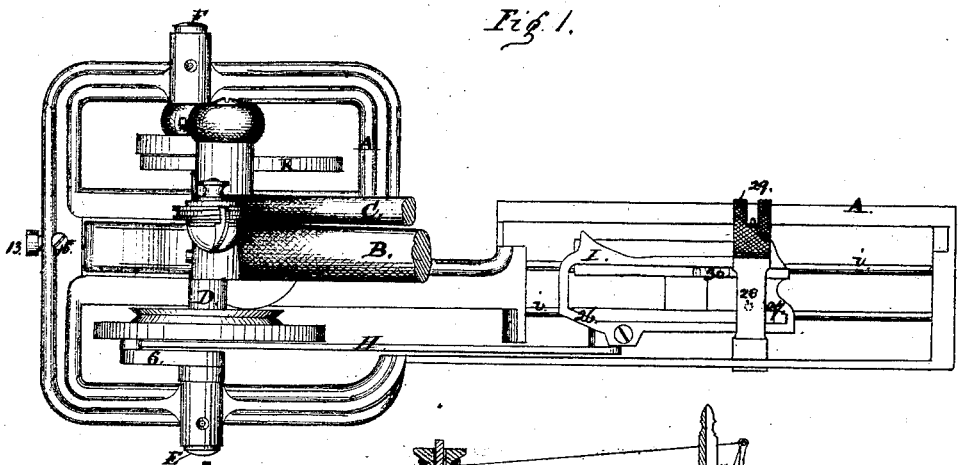


Fig. 2.

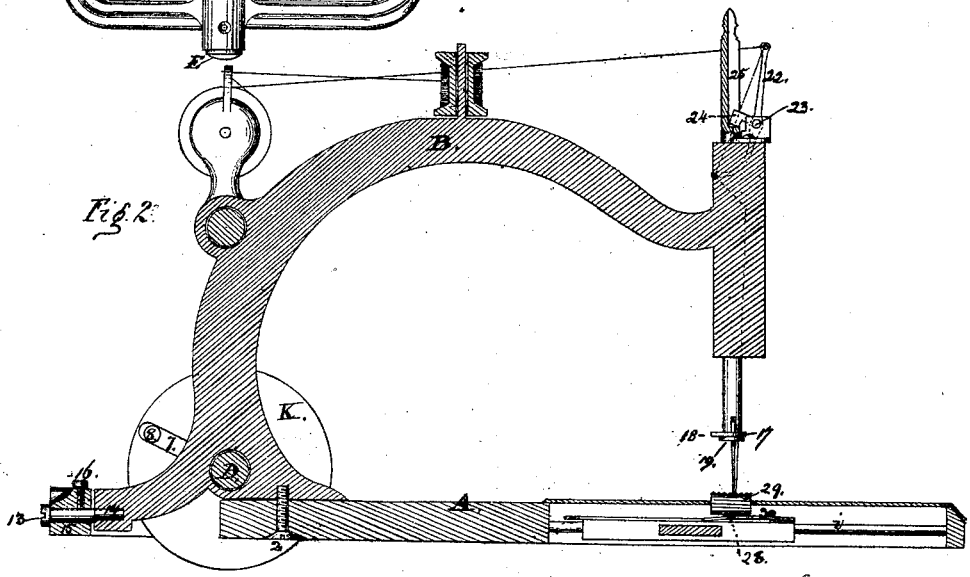
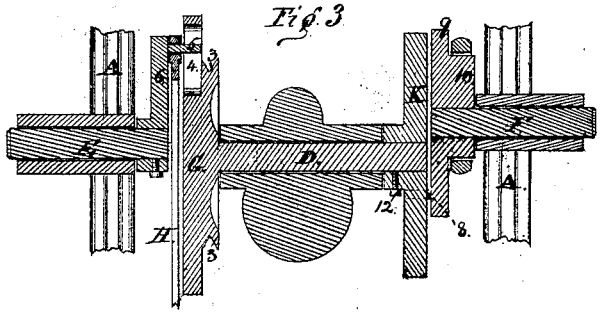


Fig. 3



Witnesses.

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