(No Model.) 2 Sheets—Sheet 1.

M. BROUGHTON.

MACHINE FOR MIXING MINERAL COMPOUNDS.

No. 402,393. Patented Apr. 30, 1889.

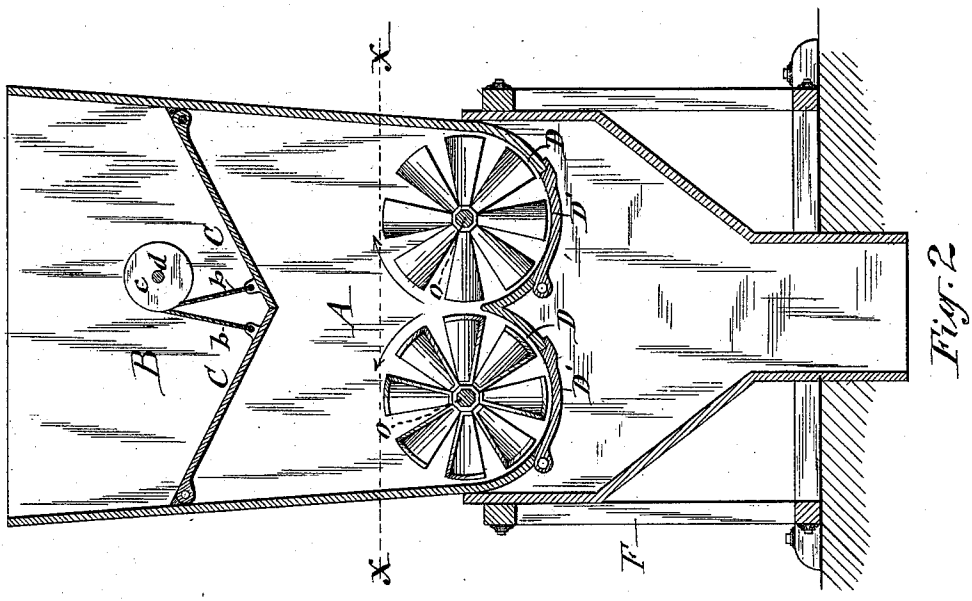


Fig. 2

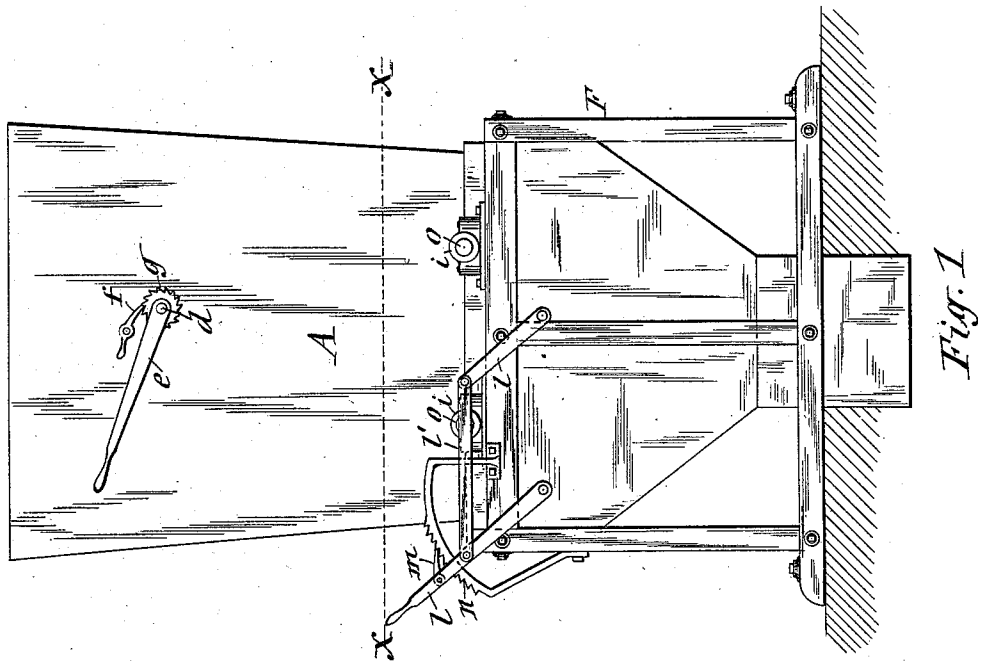


Fig. 1

WITNESSES:

C. L. Bendixon

J. J. Laass

INVENTOR

Milton Broughton

BY

Dull, Laass & Dull

ATTORNEYS

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

M. BROUGHTON.

MACHINE FOR MIXING MINERAL COMPOUNDS.

No. 402,393. Patented Apr. 30, 1889.

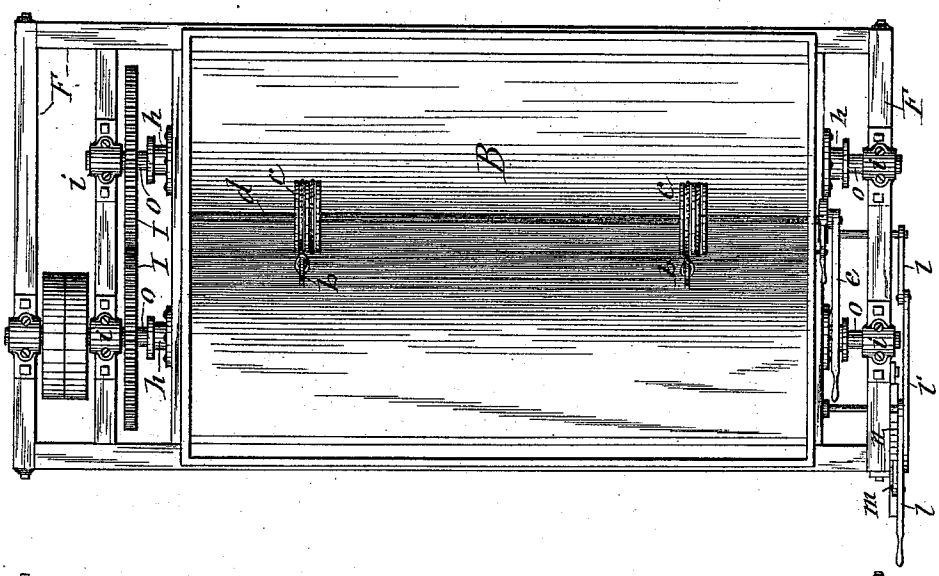


Fig. 3

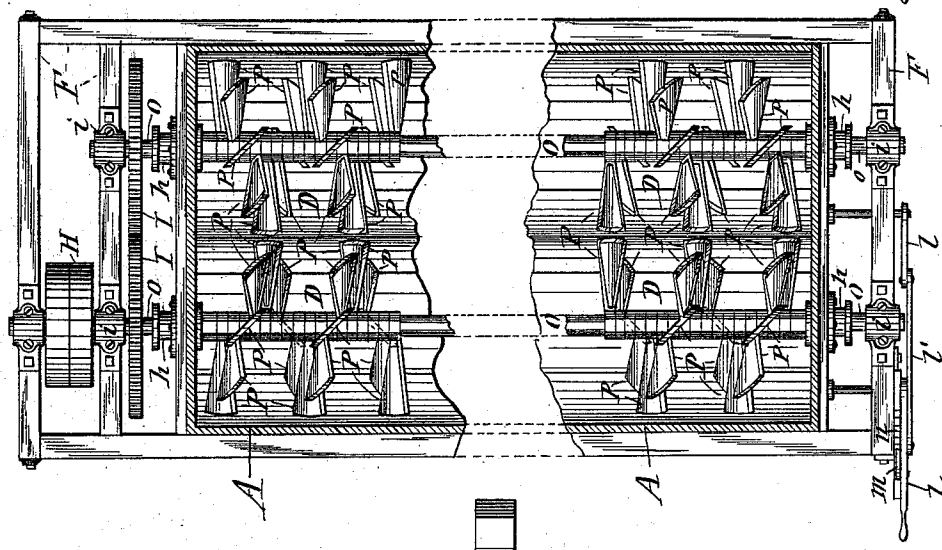


Fig. 4

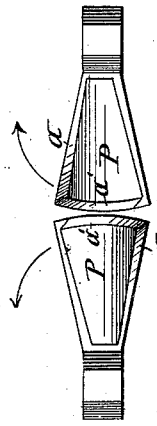


Fig. 5

WITNESSES:

C. L. Bendixon

J. J. Lane

INVENTOR.

Milton Broughton

BY

Hull, Lassor & Hull

ATTORNEYS

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MILTON BROUGHTON, OF SYRACUSE, NEW YORK.

MACHINE FOR MIXING MINERAL COMPOUNDS.

SPECIFICATION forming part of Letters Patent No. 402,393, dated April 30, 1889.

Application filed April 30, 1888. Serial No. 272,311. (No model.)

To all whom it may concern:

Be it known that I, MILTON BROUGHTON, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Machines for Mixing Mineral Compounds, &c., of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of machines which are designed for mixing dry pulverized minerals and analogous substances.

The purpose of this invention is to mix pulverized ingredients of a dry compound which is designed to be mixed with water and to be used as plaster for the walls of buildings and analogous architectural purposes; and the invention consists in an improved organization of a machine which is capable of performing the aforesaid function in a most thorough and expeditious manner, all as hereinafter more fully described, and specifically set forth in the claim.

In the accompanying drawings, Figure 1 is an end elevation of the machine. Fig. 2 is a vertical transverse section of the central portion of the machine. Fig. 3 is a top plan view. Fig. 4 is a horizontal transverse section on lines *x x*, Figs. 1 and 2; and Fig. 5 is a detached top plan view of two adjacent paddles of the two shafts.

Similar letters of reference indicate corresponding parts.

A represents the case in which the operation of mixing the dry minerals or other substances is to be performed. Said case is either formed with or otherwise provided with a hopper, B, at the top, and between this hopper and the subjacent case are gates C C, preferably hinged to the sides of the base of the hopper, and when in a closed position are somewhat inclined toward each other and meet with their free edges central over the case A, as shown in Fig. 2 of the drawings. Said gates are operated and sustained in their closed position by cords or chains *b b*, each connected at one end to one of the gates and connected at the opposite end to pulleys *c c*, secured to a shaft, *d*, which is extended to opposite ends of the case and is provided at one or both ends with a lever, *e*, by which to turn said shaft. A dog, *f*, connected to the case and engaging a ratchet-wheel, *g*, attached to the shaft *d*, serves to prevent the reverse movement of said shaft, and thereby retain the gates C C in their closed position.

The bottom of the case A is formed with troughs D D, which are preferably of semicircular or segmental form in cross-section, and are arranged parallel side by side and in proximity to each other. Each of said troughs has its longitudinal central section, D′, hinged at one of its longitudinal edges, to serve as a trap-door by which to empty the trough when required. Said trap-doors are fastened to the hinge-rods, and to the ends of the latter are attached levers *l l* for turning said rods and doors attached thereto. The levers *l l* are connected by a bar, *l′*, so as to cause them to move in unison. A pawl, *m*, on one of the levers, engaging a stationary ratchet, *n*, serves to confine the levers, so as to retain the trap-doors D′ D′ in their closed position. Longitudinally through the axis of each of said troughs is extended a shaft, *o*, and both shafts pass through stuffing-boxes *h h* in the ends of the case A, and are journaled in suitable boxes or bearings, *i i*, on the supporting-frame F of the apparatus. The shafts *o o* have secured to them gears I I, which mesh with each other, and thus, when in motion, cause the said shafts to rotate in opposite directions from each other, one of the shafts being provided with the driving-pulley H, to receive motion from a driving-belt. Each shaft *o* is armed with paddles P P, distributed over the length of the shaft and projecting radially and successively at different angles therefrom. Said paddles are of proper lengths to reach part way toward the center between the two shafts and have their free ends passing in proximity to the interior of the troughs. All of the paddles P P of both shafts stand with their flat sides oblique and nearly or quite at one and the same angle in relation to the axes of the shafts. Said paddles rotating in opposite directions, with the free ends thereof passing only part way toward the center, between the shafts and in proximity to the interior of the troughs, and to each other, in their upward

movement, under the longitudinal central portion of the case A, causes them to lift the substance from the bottoms of the troughs, and in doing so said paddles of one shaft cast said substance toward one end of the case, while the paddles of the other shaft cast the substance toward the opposite end of the case. This reversed action causes the aforesaid substance to become uniformly distributed throughout the longitudinal central portion of the base of the case A, and at the same time thoroughly and uniformly mixed throughout.

One of the salient features of my invention is the shape of the paddle, having its flat sides at a uniform angle in relation to the axis of the shaft and reaching only part way toward the center between the shafts, thereby causing the substance under treatment to be cast along the center between the troughs, and in approaching said center the masses from the two troughs are thrown toward opposite ends of the machine.

In order to promote the lifting action of the paddles, I form the same with ribs *a a* along the lower edges of the ascending paddles, and, preferably, also with ribs *a' a'* across the free ends of the paddles, as best seen in Fig. 5 of the drawings.

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

In a machine for mixing minerals, &c., the combination of troughs arranged parallel side by side, shafts extending longitudinally through said troughs and geared to rotate in opposite directions, and paddles projecting from the shafts only part way toward the center between the shafts and standing with the entire lengths of their flat sides at the same angle in relation to the axes of the shafts, substantially as described and shown.

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 27th day of April, 1888.

MILTON BROUGHTON. [L. S.]

Witnesses:

C. L. BENDIXON,

MARK W. DEWEY.