

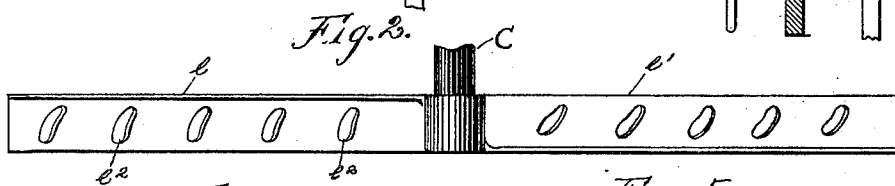
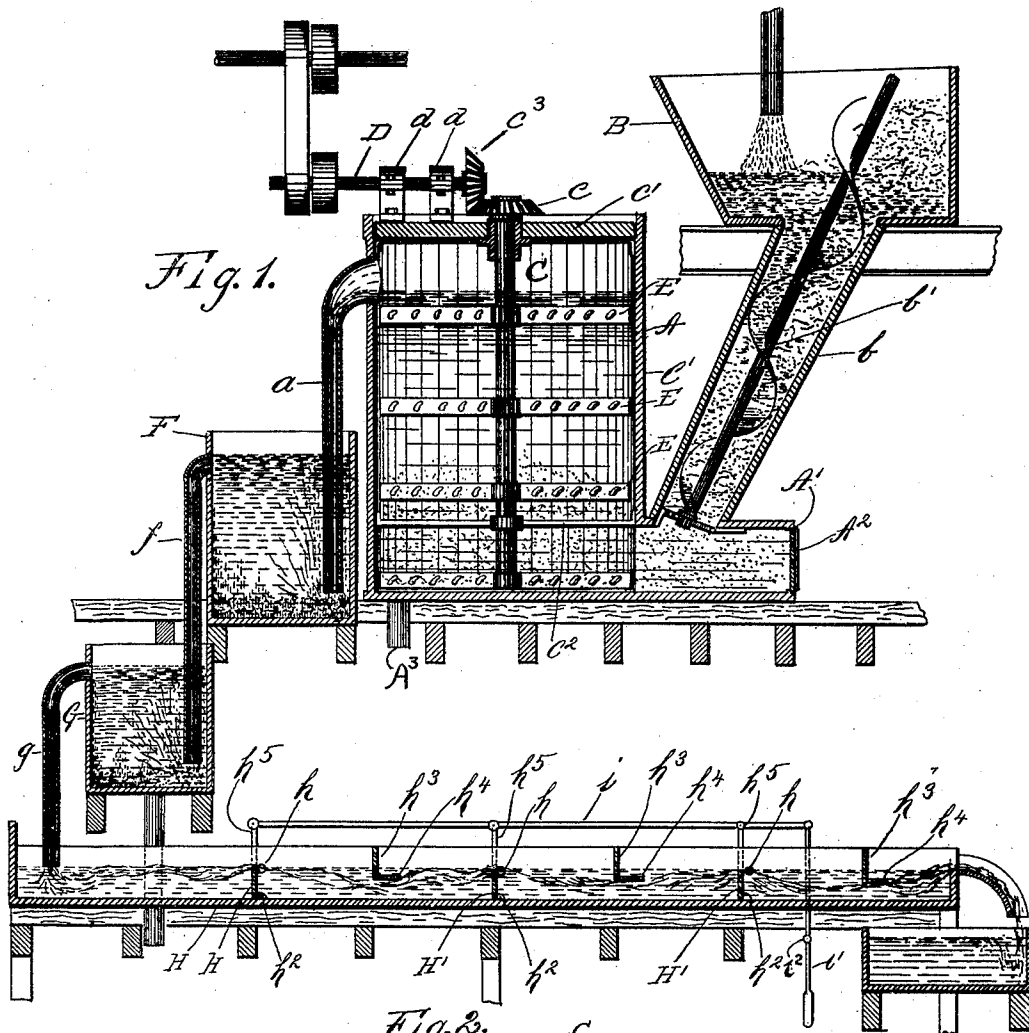
No. 690,082.

Patented Dec. 31, 1901.

G. D. SNYDER.
CLAY SEPARATING APPARATUS.

(Application filed Dec. 3, 1900.)

(No Model.)



WITNESSES:

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GEORGE D. SNYDER, OF NEW YORK, N. Y.

CLAY-SEPARATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 690,082, dated December 31, 1901.

Application filed December 3, 1900. Serial No. 38,492. (No model.)

To all whom it may concern:

Be it known that I, GEORGE D. SNYDER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Clay-Separating Apparatus, of which the following is a specification.

This invention relates to means comprising an improved apparatus for the treatment of kaolin or china-clay and the like, the same being intended to wash out the clay and free it from sand, mica, and grit by a continuous, expeditious, and efficient process.

In order that my invention may be properly understood and explained in detail, I have annexed hereto a sheet of drawings, wherein—

Figure 1 is a sectional elevation of the complete apparatus. Fig. 2 is an enlarged detail view of a beater or disintegrator. Fig. 3 is an end view of Fig. 2, and Figs. 4 and 5 are detail views showing the pear-shaped openings in the blades.

In the drawings the letter A indicates a circular receptacle wherein the clay is beaten with water, broken up, and formed into a creamy mass, the clay being primarily dumped into an adjacent hopper B, from the bottom of which a chute *b* leads into the lower portion of receptacle A. I preferably provide a spiral conveyer *b'* within chute *b* to facilitate the downward passage of the clay, said spiral conveyer being rotated by power. Water is introduced through the same channel together with the clay, the supply thereof being suitably regulated.

C indicates a vertical shaft located within receptacle A and extending to near the base thereof. The said shaft is provided with a bevel-gear *c* at its upper end, where it is rotatably supported in bearings formed in a cross-head *c'*, and a corresponding bearing is provided in a transverse bar *c''*, arranged near the lower end of the shaft. A drive-shaft D, communicating with a source of power, (not shown,) is mounted in bearings *d*, which are supported upon the cross-head *c'*, and terminates in a bevel-gear *c''*, which latter meshes with the gear *c*, as seen.

Secured upon the shaft C and adapted to rotate therewith are a series of circularly-acting paddles or beaters E, arranged at suitable intervals apart to render efficient service.

The construction of these paddles or beaters is more clearly shown in the enlarged views of Figs. 2 and 3. As seen, each paddle is composed of the oppositely-extending blades *ee'*, the set of said blades having opposite inclinations, and said blades having approximately pear-shaped angular apertures *e''* therein to throw the broken-up mass toward the center and upwardly without breaking up the sand particles. The rotation of the inclined paddles or beaters breaks up the clay, mixes the water with it until in the form of a creamy fluid mass, and elevates said mass to the upper portion of the receptacle A. The elevated mass of clay and water passes off through an elongated spout *a*, falling into a vessel F, arranged to receive it. As this vessel fills the heavier foreign particles naturally remain at the bottom and the clayey mass again passes off through an elongated spout *f*, falling thence into a second vessel G, which latter has an elongated overflow-spout *g*, permitting the mass to fall smoothly into a trough H. The spouts *a*, *f*, and *g* by depositing the fluid mass gently and smoothly at low points in the respective receivers prevent disturbance of the body of the mass therein, and thus permit the heavier particles to settle and remain undisturbed at the bottom thereof. Said trough H is of considerable length and may be arranged in a suitable manner to economize space. It is necessary for the fluid clay to traverse a certain length of trough in the process of eliminating the impurities, although such length is greatly diminished by the use of my apparatus, and to aid the operation I place riffles, as H', to collect the sand, and particularly the mica, which latter element it is ordinarily a difficult matter to remove from kaolin. My riffles are boards pivoted or hinged at their upper ends to the sides of the trough, as seen at *h*, whereby they may be raised to flush the trough in cleaning it out, stops *h''* being provided to hold the riffles in operative position. Alternating the riffles H' along the trough course are the bridges *h''*, which extend downwardly to a point below the upper ends of the riffles, said bridges being provided with the horizontally-extending platforms *h'''*. To operate the riffles H', I provide extensions *h''''* therefor and connect same pivotally with a

common horizontal bar i , said bar itself being pivotally connected to an operating-lever i' , which latter is fulcrumed at i^2 . By the operation of lever i' the riffles H' may all be simultaneously elevated or lowered, as desired. It will be understood that the liquid mass passing rapidly along the trough after surmounting a riffle in its path impinges against a bridge h^3 and the under side of its extension h^4 , and the impact and depressing effect causes the heavier particles, such as the mica and grit, to descend to the bottom of the trough, where they are caught and held by the next riffle met with. The clay-water runs into filter-presses and is subsequently dried out in the usual manner.

A' indicates a manhole in the receptacle A for cleaning out the latter and having a suitable cover A^2 .

A^3 indicates a valved nozzle arranged near the bottom of receptacle A and intended for service in drawing off the fluid mass when the apparatus has stopped working.

Having now described my invention, I declare that what I claim is—

1. In a clay-separating apparatus, in combination, a beating-engine, and a trough leading from said beating-engine in the path of

the beaten product, said trough having a series of pivoted riffles, stops therefor, and a series of impact-bridges alternating therewith; together with a connector between said riffles, and a lever whereby said riffles may be simultaneously raised or lowered.

2. In a clay-separating apparatus, in combination, a beating-engine consisting of a cylinder having a feed-opening near its base, a vertical shaft rotatably supported in said cylinder, a series of beaters or paddles carried by said shaft, means for rotating the latter, and an overflow-spout for said cylinder; the said beaters or paddles being set in horizontal pairs at opposite inclinations, and each beater or paddle having a series of approximately pear-shaped angular apertures therein arranged to throw the beaten mass upwardly toward the center of the cylinder without breaking up the particles.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. D. SNYDER.

Witnesses:

CHAS. S. LONGHURST,
WALTER J. CAREY.