No. 98,035. PATENTED DEC. 21, 1869.

F. COIGNET.

MALAXATOR FOR THE PREPARATION OF PLASTIC MATERIALS FOR ARTIFICIAL STONE AND FOR OTHER PURPOSES.

Fig. 1.

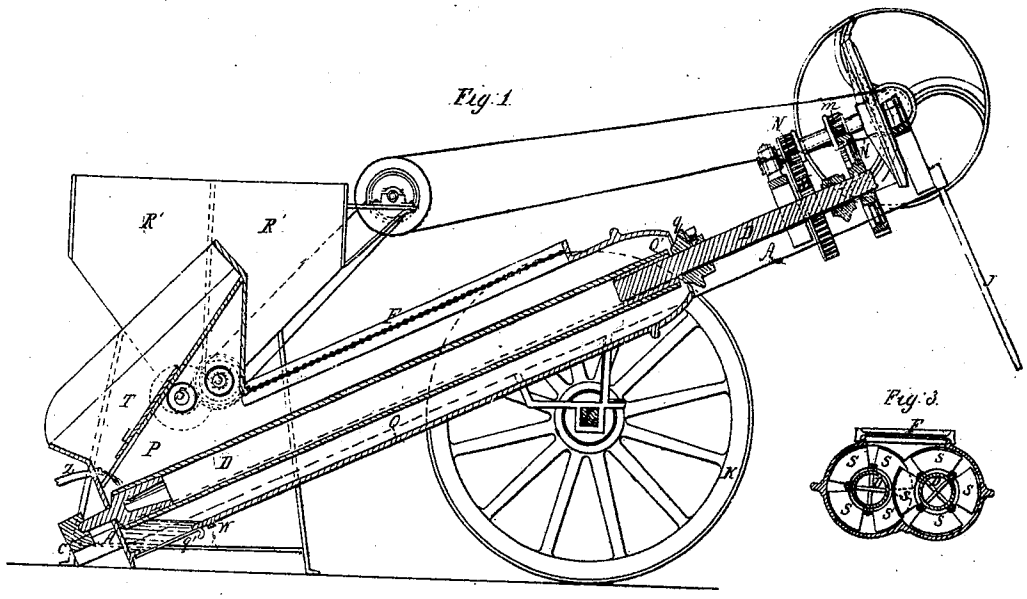
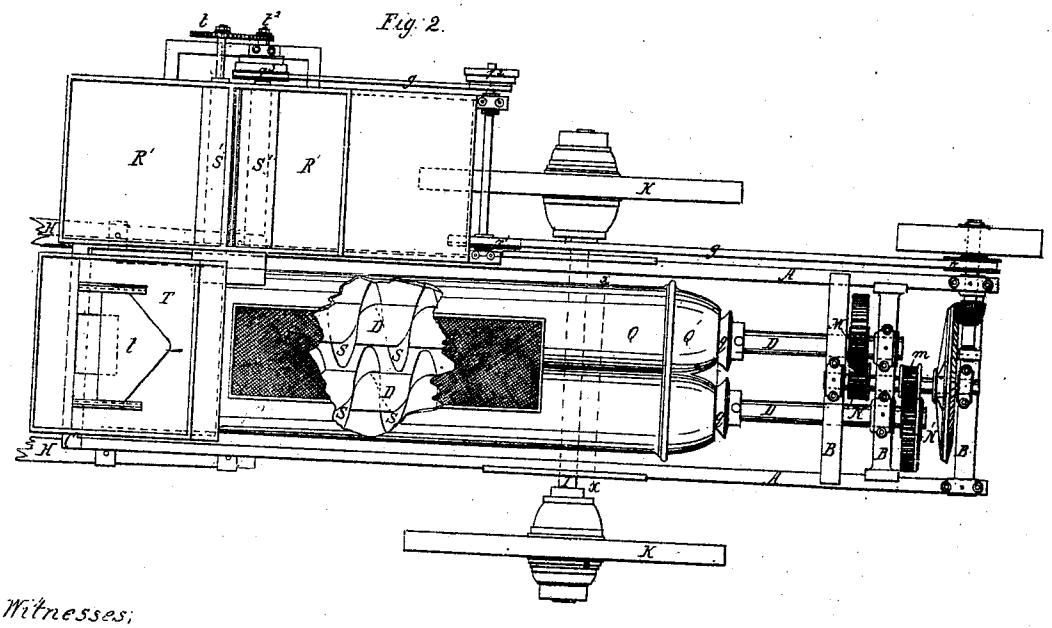


Fig. 3.

Fig. 2.



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UNITED STATES PATENT OFFICE.

FRANÇOIS COIGNET, OF PARIS, FRANCE.

IMPROVED MALAXATOR FOR THE PREPARATION OF PLASTIC MATERIALS FOR ARTIFICIAL STONE, AND FOR OTHER PURPOSES.

Specification forming part of Letters Patent No. 98,035, dated December 21, 1869.

To all whom it may concern:

Be it known that I, FRANÇOIS COIGNET, of the city of Paris, in the department of La Seine and Empire of France, have invented certain Improvements in Apparatus for the Manufacture of Agglomerates or Artificial Stone; and I do hereby declare that the following is a full and exact description of the same, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a sectional elevation of one of my improved malaxators through the longitudinal axis of one of its twin helices. Fig. 2 represents a top view or plan of the same, having part of the top broken to show inside work; and Fig. 3 is a cross-section, at *x x*, of the helices and helix-case.

The preparation of the artificial-stone paste, which I have described in my former patents, has caused me to modify greatly the apparatus generally employed in the manufacture of mortars, and to create or invent the following triturating-machine, which is characterized by the employment of twin and conjoint helices, parallel or convergent, turning in like or opposite directions, and being brought close enough one to the other, so that their thread or blades work one in the other, and that they both exert their thrust in the same direction.

The operation of this apparatus is such, and the effect it produces upon my artificial-stone paste is so defined, that I have called my machine a "malaxator." My malaxator brings up the material, and at the same time works it. It is provided with adjustable automatic arrangement for feeding itself with the substances or materials used in my preparation of artificial-stone paste, and, once set, will always deliver an identical product at whatever speed it is run.

A is the frame of the machine, having at the upper end the cross-pieces B, upon which are mounted the gearings, and at the lower part the cross-piece C, upon which is fixed the rests or steps for the lower part of the helices to run in. D is the cores of the helices, upon which are fastened the continuous or interrupted blades S S S, &c., forming the thread of the helix. K are wagon-wheels, mounted upon the axle I, which enable the machine to be transported thereon, and which, when the machine is in use, serve to maintain the malaxator at its proper inclination—about twenty-five degrees. The brace J is used to steady the malaxator. M N *m* N′, gearings of any kind for giving motion to the helices, either by steam, horse-power, or hand-power; *q*, conical sleeves or stoppers, adjustable upon the shafts D, for regulating the exodus of the artificial-stone paste, and, by retarding the same, increase the pressure and malaxation of the paste in the part Q′ of the machine; Q, body of the malaxator, corresponding in shape and size to the helices. (See drawing, Fig. 3.) P, receiving-chamber, where the materials enter the malaxator; T, sand-hopper, with its adjustable register or gate *t*, and, when required, sifting apparatus T′; *q′*, sliding gate, to allow of the drainage of the machine; S′ S′, feeding-screws, working in the lower part of the two hoppers R′ R′, the one for lime, the other for sand or any other material or substance to be introduced into the artificial-stone paste, and feeding the same to the chamber P; *r r*^{1} *r*^{2} *r*^{3}, pulleys for chains or belts *g*, for transmitting the movement to the feeding-screws S′ S′; *t*^{1} *t*^{2}, spur-wheel and pinion, (changeable for others of different relative speed,) for regulating the exact amount of the two substances in the hoppers R R to be delivered, in so many turns of the helices, into the receiving-chamber P.

I have contemplated feeding, also, the water in an automatic manner by the use of a suitable intermittent cock or reservoir cock or valve; but so far I prefer having a constant stream of water entering at Z, and an overflow at W for the same, and, the sand being drowned or fully saturated, in a given proportion, by varying the overflow W, gives us the proper amount of water for each turn of the helices.

H are movable wooden shafts, which are placed in proper straps in the machine, and serve to hitch or harness a horse to the same when it has to be taken from one place to another, making of it a perfect wagon.

Without precising the details of construction, which may be varied, the advantages I derive from the type of apparatus I have invented are the following: First, the apparatus, having the receiving-chamber P upon the

ground, is fed easily, with little labor, and the part Q′, or delivery, elevated, allows of a wheelbarrow or basket being placed under to receive the artificial-stone paste. This inclination also causes a more powerful malaxation by retarding the progress of the matter, owing to their specific gravity. Second, the gearings are out of the way, away from sand, water, dust, &c. Third, the helices having their blades interlaid, their action upon the materials is of a quite different character than when said helices are not thus conjugated. Fourth, the sand is gaged by a register. The lime and the hydraulic cement, the coloring-matter, texture-giver, or any other material used, may be also fed automatically, and, the machine once set by the inspector, the product is invariably the same, besides saving the labor of a hand whose trustworthiness was required to obtain good results.

The continuous introduction, by small and regular quantities, of the different substances, and the constant amount of water supplied to the sand, place the materials in the best of circumstances for producing by proper action of the helices an excellent result, difficult to attain if the component ingredients had been thrown in by shovel or basket full at a time.

Having described in full my malaxator, what I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The inclined body or case P Q Q′, in combination with the conjoint helices D S D S, substantially as and for the purpose set forth.

2. The regulating sand-hopper, with its gate *t*, or equivalent device, in combination with the helices D S D S and case P Q Q′.

3. The use of one or more screws, S′, with hopper R, and of definite rotated spur-wheels and pinions t^1 t^2, in combination with the helices D S D S, substantially as specified, and to the end of securing automatic feed to the malaxator.

4. The water-pipe Z and variable overflow W, or their equivalent, to obtain the effect specified upon the sand in the malaxator.

5. The conical adjustable sleeves *q q*, in combination with the piece Q′ and conjoint helices D S D S.

6. The combination of the wheels K K, body P Q Q′, and shafts H H, in the manner and to the end set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

FRANÇOIS COIGNET.

Witnesses

EMILE BARRAULT,
17 *Bas St. Martin.*

DEMARS,
41 *Rue Merlay.*