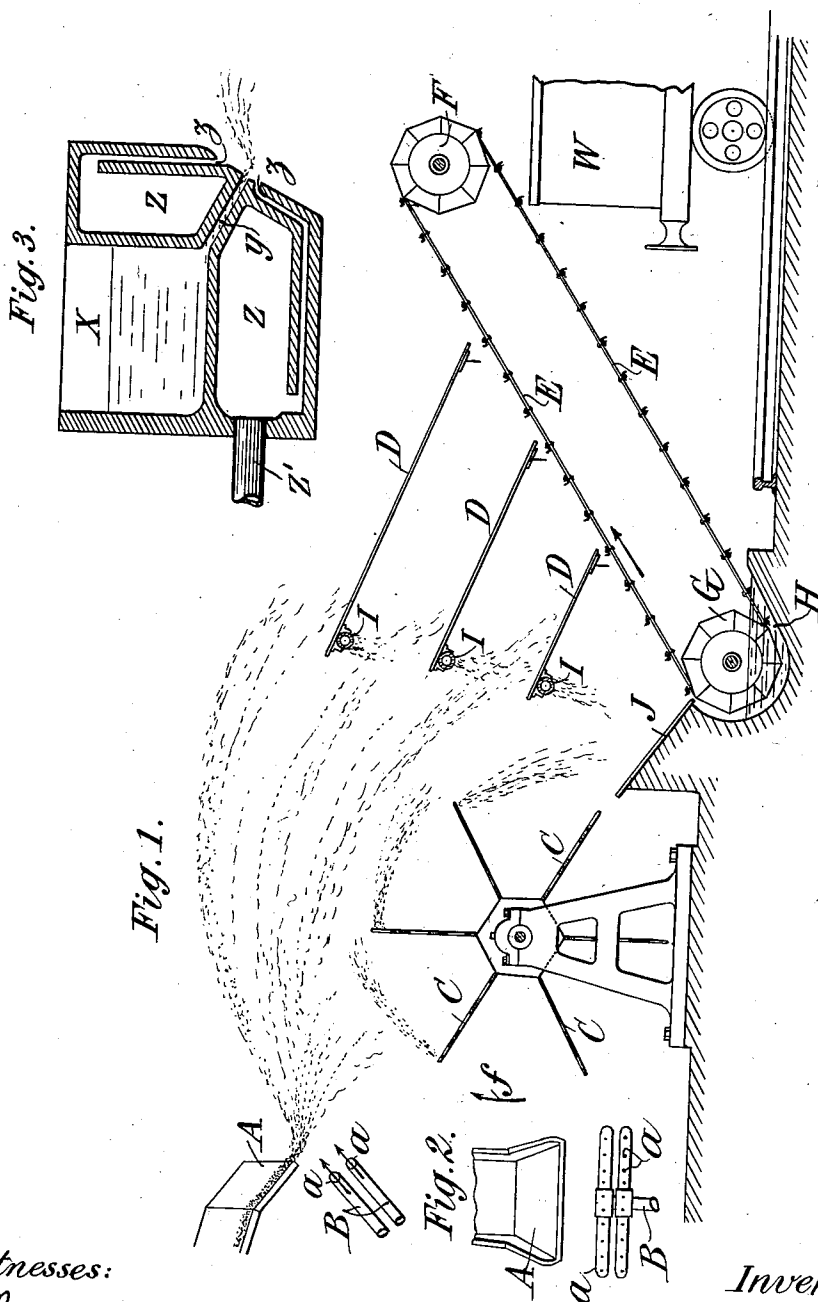


A. SEGHERS.
 GRANULATING SLAG.
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1,008,204.

Patented Nov. 7, 1911.



Witnesses:
 Fred White
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UNITED STATES PATENT OFFICE.

ADOLPHE SEGHERS, OF PARIS, FRANCE, ASSIGNOR TO "PYROTRASS" SOCIÉTÉ ANONYME POUR LA FABRICATION DU TRASS ARTIFICIAL (BREVETÉ) ET SES APPLICATIONS INDUSTRIELLES, OF PARIS, FRANCE.

GRANULATING SLAG.

1,008,204.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed February 9, 1909. Serial No. 476,986.

To all whom it may concern:

Be it known that I, ADOLPHE SEGHERS, of Paris, France, have invented certain new and useful Improvements in Granulating Slag, of which the following is a specification.

This invention relates to a process and apparatus for granulating and solidifying slag.

The process consists essentially in causing the liquid slag to fall continuously in a thin and uniform sheet in front of one or more jets of fluid under pressure, such jet or jets being sufficiently powerful to determine the subdivision of the slag into granules of more or less small diameter.

The process as defined above suffices when it is possible to allow the subdivided slag to fall through a sufficient distance to insure that the granules will be thoroughly cooled before they have time to agglomerate again. When, however, the height available is comparatively small, it is necessary to complete the action of the jet or jets by that of a rotating fan provided with blades which project the already formed granules on to a conveyer which conveys them to and discharges them into a wagon. The granules should not be allowed to fall directly upon the conveyer. They may be first received upon inclined planes suitably sprinkled with water which may also serve to wash them down on to the conveyer.

The general arrangement and the operation of an installation of this kind will be gathered from the accompanying drawings, in which—

Figure 1 is a diagrammatic representation of the whole installation, and Fig. 2 is a front view of a part thereof. Fig. 3 is a vertical section through a modification of the apparatus for producing a sheet of slag.

Referring to Figs. 1 and 2, the slag flowing down the channel A spreads itself in the form of a sheet in front of the jets proceeding from a twyer B which is composed of two or more tubes as may be necessary arranged parallel to each other (Fig. 2). Through this twyer is discharged a fluid under pressure, such as water under a head, or steam or air under pressure, and for this purpose the tubes are provided with perforations *a* arranged along a straight line so that the jets may entrain the sur-

rounding air giving an atomized spray. 55 The lower end of the channel A down which the slag flows is fan-shaped, as shown in Fig. 2, and is more steeply inclined than the rest of the channel for the purpose of allowing the slag to acquire a higher speed as it leaves the channel. The thin layer, the thickness of which is uniform throughout the width of the channel, falls as vertically as may be toward the jets of fluid proceeding from the tubes of the twyer. 60

In order that the slag may retain its fluidity and may have a temperature as constant as possible, there may be substituted for the channel A a vessel *x* (Fig. 3) having a discharge opening *y* through which the slag is discharged in the form of a sheet. The walls of the vessel *x* are double, and are maintained at a very high temperature by the combustion of a suitable gas under pressure in cells Z, the burned gases escaping through the outlets *z* in such a manner that they encounter the jets proceeding from the twyer. 75

Z' is a pipe for introducing the combustible mixture. 80

The tubes constituting the twyer may be varied in number as may be desirable, and they may be fed by separate pipes or by a single pipe branched to the several tubes.

Below and in front of the mouth of the channel A and also below the twyer, is situated a fan rotating in the direction of the arrow *f* and having blades C constructed of slats spaced apart. This fan, in combination with the twyer B, projects into space those granules which fall too rapidly. In front of the fan is a certain number of planes D inclined toward a conveyer E running over an upper drum F and a lower drum G. The periphery of the latter is immersed in water in a vat H so as to cool the conveyer, which may be a metallic band. Each of the inclined planes D is supported at its higher end upon a tube I perforated at the lowest part of its periphery, so that water flowing along it rains down on to the plane immediately beneath. The lowest of these pipes serves similarly to sprinkle an inclined plane J from which the vat H is supplied with water and upon which any granules which may not have been projected sufficiently far to fall upon the other planes may be collected. 95 100 105

The material which falls upon the several inclined planes D descends on to the conveyer E by which it is conveyed to and discharged into a wagon W.

5 The essential feature of the installation is the twyer, which acts directly, immediately, and suddenly upon the sheet of slag descending from the channel A. The fan, the inclined planes, and the conveyer are accessories which are particularly useful and have
10 a certain effect when there is not sufficient space to allow of a considerable fall of the granules of slag scattered into space by the powerful force of the steam or other fluid
15 forced under pressure from the twyer. The jet issuing from the twyer preferably meets the sheet of slag at an angle of approximately 90° , as illustrated in Fig. 1, though the twyer may be arranged so that the jets
20 issuing therefrom may meet the sheet of slag at greater or less angles which permit of its acting to granulate the slag. In Fig. 3, for instance, the twyer is so arranged that the jet issuing therefrom meets the sheet of
25 slag at an angle somewhat less than 90° .

The whole apparatus described above may be inclosed at the sides by sheet iron partitions for the purpose of preventing granules of subdivided slag from being projected
30 laterally.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect,
I claim:—

35 1. Apparatus for granulating slag, com-

prising a slag receptacle provided with double lower and front walls and a thin fan-like outlet passing outwardly between said double walls, and means for maintaining the double walls at very high temperature. 40

2. In apparatus for granulating slag, a slag receptacle having a narrow fan-like outlet, in combination with gas chambers provided with a gas inlet and outlets, the gas outlets being so directed as to meet the out- 45 coming slag at an angle.

3. Apparatus for granulating slag, comprising a slag receptacle having a narrow fan-like outlet, the walls of the receptacle being formed of chambers adapted to contain gas under pressure and at a high temperature, the said chambers being provided with inlet and outlet pipes, the gas outlet pipes being so directed as to deliver the high temperature gas under pressure at an angle 55 to the outflowing slag.

4. A process for granulating slag, which consists in inclosing the slag in a receptacle, maintaining the temperature of the slag very high by combustion of gas under pressure, 60 and directing the burned gases at an angle against the outflowing slag.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ADOLPHE SEGHERS.

Witnesses:

ELLWOOD AUSTIN WELDEN,
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