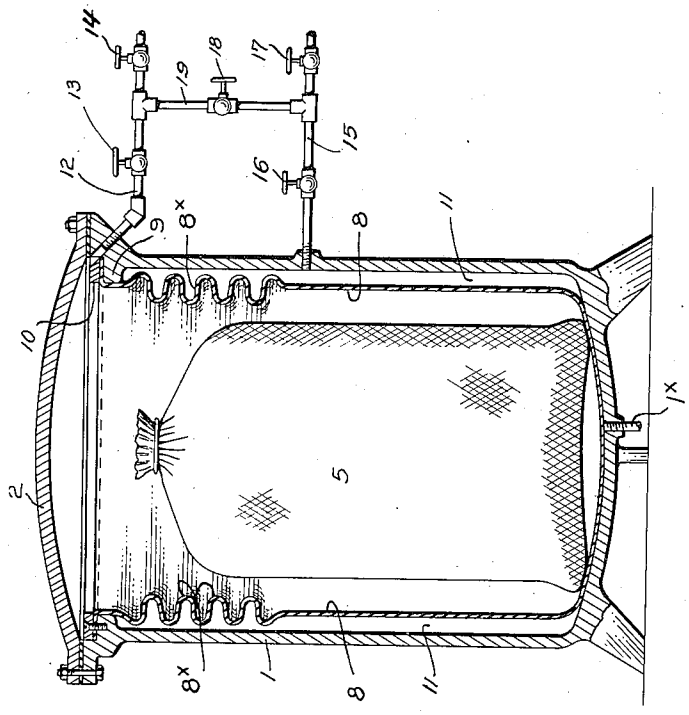
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PROCESS FOR SOLIDIFYING PULVERULENT MATERIAL.

APPLICATION FILED JULY 26, 1919.

1,405,440. Patented Feb. 7, 1922.



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UNITED STATES PATENT OFFICE.

CHESTER J. RANDALL, AND RICHARD R. TAYLOR, OF NAUGATUCK, CONNECTICUT, ASSIGNORS TO THE GOODYEAR'S METALLIC RUBBER SHOE COMPANY, A CORPORATION OF CONNECTICUT.

PROCESS FOR SOLIDIFYING PULVERULENT MATERIAL.

1,405,440. Specification of Letters Patent. Patented Feb. 7, 1922.

Application filed July 26, 1919. Serial No. 313,660.

To all whom it may concern:

Be it known that we, CHESTER J. RANDALL, a citizen of the United States, residing at Naugatuck, county of New Haven, and State of Connecticut, and RICHARD R. TAYLOR, a citizen of the United States, residing at Naugatuck, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Processes for Solidifying Pulverulent Material, of which the following is a full, clear, and exact description.

This invention relates to a process for compacting pulverulent material, such as carbon black and the like, and it aims to reduce the bulk of the material for packing and shipment without the annoyance heretofore occasioned by flying particles or dust to the great irritation of the packer.

It consists in a process comprising the steps of placing the particles of carbon or similar material in a yieldable container constructed to permit the passage of air therefrom, placing the container in a receptacle having yieldable walls, evacuating the receptacle and compressing the walls against the container to cause the particles to be compacted.

In the drawings we have illustrated an apparatus capable of performing the method. In the said drawings,

The figure is a transverse sectional elevation of the apparatus.

The latter comprises a tank 1 provided with cover 2 adapted to be hermetically sealed thereto by gaskets and bolts. A flexible receptacle or bag 8 of flexible material, preferably rubber, has its edges clamped between a ring 10 and an annular ledge 9 provided on the tank 1 so that a fluid tight chamber 11 is provided between the walls of the tank and the receptacle 8. Leading to the interior of the tank 1 is a pipe 12 provided with valve 13 which pipe connects to an exhausting pump by a pipe provided with valve 14. Leading to the annular chamber 11 is a pipe 15 provided with valve 16 which pipe connects to a compressor by a pipe provided with valve 17. A pipe 19 provided with valve 18 connects pipes 12 and 15. The receptacle 8 is placed within the tank in a manner to provide folds 8^x. The tank is provided with a pipe 1^x for withdrawing liquids therefrom. The bag 5, constructed to permit the passage of air therefrom, contains the pulverulent material.

In the preferred manner of conducting the process the pulverulent material, such as carbon black, is placed within the bag 5 and the cover 2 applied. Air is exhausted through pipes 12 and 15, valves 13, 14, 16, and 18 being open and 17 closed, a vacuum of 28″ being suitable. After this exhaustion, valve 18 is closed and fluid, such as air or water, under pressure is admitted to chamber 11 to compress the receptacle 8 around bag 5, a pressure of about 40 lbs, per sq. in. for five minutes being suitable. During this compression, valve 14 may be closed or valves 12 and 14 may remain open to effect a simultaneous compression and exhaustion. After a few minutes of compression, valve 17 is closed, 14 closed, and 18 opened to equalize the pressure, whereupon the cover 2 may be removed and the bag 5 taken out.

As a result of the treatment the carbon particles will be found to have been compressed to such an extent that they will cohere sufficiently to permit their being handled without flying about.

As many apparently widely different embodiments of this invention may be made without departing from the spirit thereof, it is to be understood that we do not intend to limit ourselves to the specific embodiment herein set forth, except as indicated in the appended claims.

Having thus described our invention, what we claim and desire to protect by Letters Patent is:

1. The process of compacting pulverulent material which consists in simultaneously pressing the particles of the material together, and exhausting air from between them.

2. The process of treating carbon particles comprising exhausting air from between the particles, subjecting them to pressure, and continuing the exhaustion of air from the particles.

3. The process for treating carbon particles comprising placing them in a yieldable container constructed to permit the passage of air therefrom, evacuating the container, compressing it to compact the carbon, and continuing the exhaustion of air from the container.

4. The process for treating carbon particles comprising placing them in a yieldable container constructed to permit the passage of air therefrom, placing the container in a receptacle having yieldable walls or sides, evacuating the receptacle, and compressing the yieldable walls or sides against the container to cause the carbon to be compacted.

5. The process for treating carbon particles comprising placing them in a yieldable container constructed to permit the passage of air therefrom, placing the container in a receptacle having yieldable walls or sides, evacuating the receptacle, compressing the yieldable walls or sides against the container to cause the carbon to be compacted and continuing the exhaustion of air from the container.

6. A process for treating carbon particles comprising placing them in a flexible container constructed to permit the passage of air therefrom, placing the container in a receptacle having yieldable walls or sides, evacuating the receptacle, compressing the yieldable walls or sides against the container by fluid pressure to cause the carbon to be compacted, and simultaneously continuing the exhaustion of air from the container.

Signed at Naugatuck, Connecticut, this 2nd day of July, 1919.

CHESTER J. RANDALL.
RICHARD R. TAYLOR.