

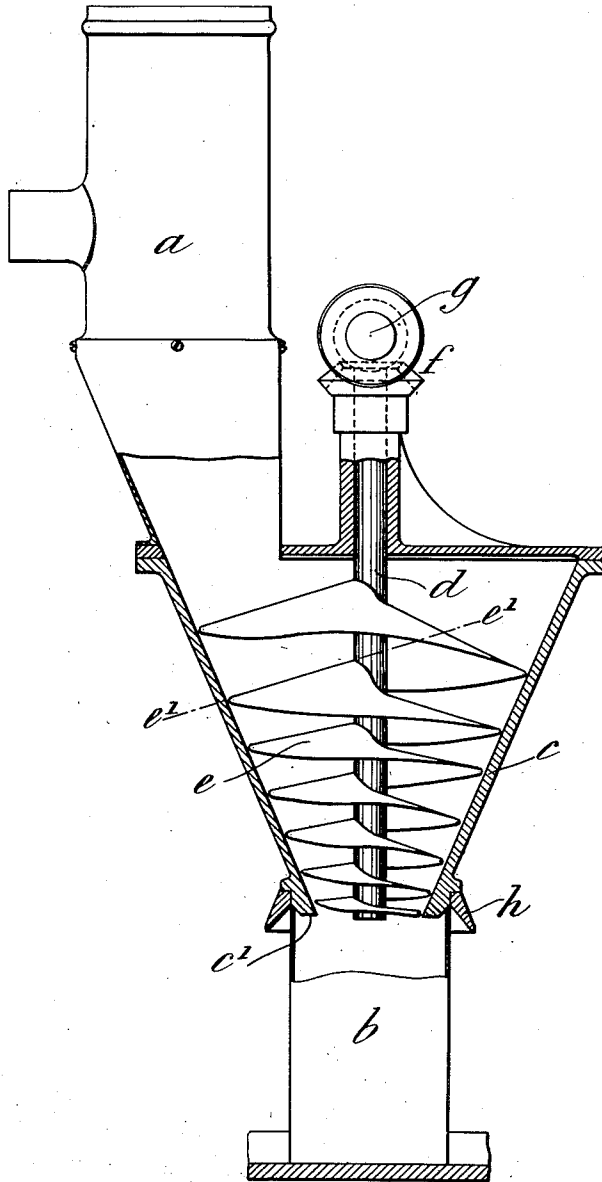
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APPARATUS FOR FILLING AND PACKING MATERIALS INTO RECEPTACLES.

APPLICATION FILED JUNE 29, 1911.

1,077,810.

Patented Nov. 4, 1913.



Witnesses:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR FILLING AND PACKING MATERIALS INTO RECEPTACLES.

1,077,810.

Specification of Letters Patent.

Patented Nov. 4, 1913.

Application filed June 29, 1911. Serial No. 636,036.

To all whom it may concern:

Be it known that I, ROSS VERNON CRAGGS, a citizen of the United States of America, residing in Gainsborough, England, and whose post-office address is Albion Works, Gainsborough, in the county of Lincoln, England, engineer, have invented certain new and useful Improvements in Apparatus for Filling and Packing Materials into Receptacles, of which the following is a specification.

Apparatus for filling and packing into receptacles various materials, especially those of a powdery or pulverulent nature which contain entrained air before being packed, are known, wherein the packing mechanism comprises a converging receiving hopper having a reciprocatory agitator therein and a compressor member adapted to press upon the top of the heaping material and force it firmly into the receptacle while at the same time allowing the entrained air thus forced out to escape but such packing mechanisms have not been satisfactory by reason of the fact that some of the material, especially when of an oily nature such as mustard or cocoa, frequently adheres to the underside of the packing elements and some of the material escapes with the expelled air and settling on parts of the mechanism impairs their efficiency.

The invention relates to mechanism of the above character, for packing materials into receptacles and consists in improvements having for their object the elimination of the above stated drawbacks.

The invention will be described with reference to the accompanying drawing which is a vertical section through the funnel or casing of the packer, the object of this invention.

The material to be packed, as delivered from a feed hopper or from weighing or measuring mechanism *a*, passes as usual through a packing funnel on its way to the receptacle *b* into which it is to be packed. The funnel consists of an open ended conical casing *c*, the smaller end downwardly directed, but according to this invention a rotatable shaft *d* passing axially through the casing carries a continuously tapering screw thread or worm *e*, the convolutions of which are of a varying pitch or lead, the pitch decreasing toward the lower end of the funnel. The screw may be of any suitable ma-

terial, but is preferably formed of sheet metal, while the outer edges of the threads are arranged to move in close proximity to the inner surface of the wall of the funnel. The generating line *e'*, *e''* of the upper surface of the screw thread may be inclined to the axis of the shaft, as indicated in the drawing, but it may be horizontal in which case there is then less tendency for the material to work its way below the thread toward the central shaft.

By reason of the variable pitch, the surfaces of the screw approach nearer and nearer to each other in the downward or outlet direction, and consequently the material fed into the funnel, as it is carried downwardly by the rotating screw, is compressed more and more between the surfaces and also against the converging sides of the funnel, the air entrained in the material meanwhile being forced out and escaping upwardly more especially around the shaft.

The shaft and screw should be driven at a sufficiently high speed to cause the material on reaching the outlet *e'* of the funnel to be thrown swiftly toward the bottom of the receptacle. The material is thus packed into the receptacle from the bottom upward, little or no air remaining to be squeezed out. Preferably the lowermost portion of the surface of the screw is arranged to rotate in a plane substantially level with the top of the receptacle so that the whole of the material pushed into the receptacle may be well compressed.

The shaft may be driven by suitable gearing from any source of power, for instance by the gearing *f* driven by the power shaft *g*.

The funnel and its cooperating parts may be arranged to be raised and lowered on to the top of a receptacle brought into position below it, or the receptacles may, alternatively and successively, be moved up toward or away from the mouth of the funnel. In the drawings the lower end of the funnel is shown as resting upon a fixed annular collar or ring *h*, internally flared to receive and guide into position the open end of a receptacle or container *b* for the material to be packed.

I claim as my invention:

In an apparatus for packing powdery materials into receptacles, the combination of a conical casing having an inlet to receive the material and having an outlet toward

its apex provided with means for positioning and forming a tight joint with a receptacle, and a conical screw revoluble within the casing, the periphery of the screw co-
5 operating with the walls of the casing, the screw presenting conical pockets toward said outlet, the walls of the pockets being generated concentrically with the axis of the screw and operating to compact the material

and to press the same into a receptacle co- 10
operative with the outlet of the casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROSS VERNON CRAGGS.

Witnesses:

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