Dec. 22, 1925. 1,566,325

C. C. HANSEN

MORTAR PROJECTOR

Filed Sept. 24, 1924

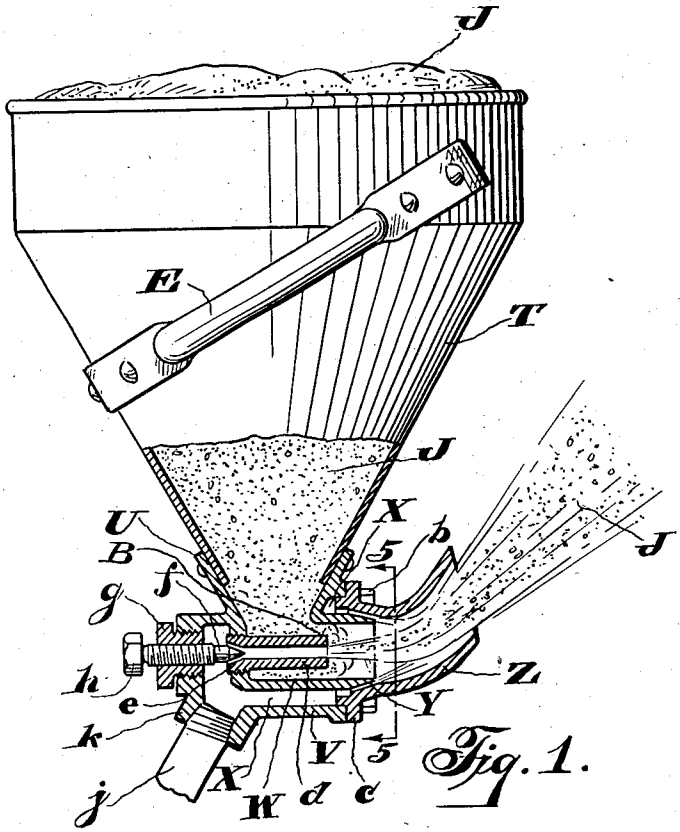


Fig. 1.

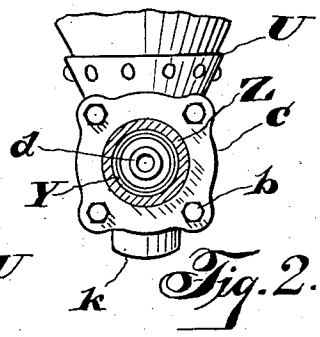


Fig. 2.

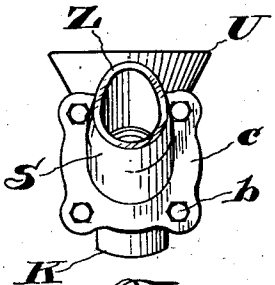


Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES C. HANSEN, OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MORTAR PROJECTOR.

Application filed September 24, 1924. Serial No. 739,448.

To all whom it may concern:

Be it known that I, CHARLES C. HANSEN, a citizen of the United States, and a resident of Easton, county of Northampton, and State of Pennsylvania, have invented a certain Mortar Projector, of which the following is a specification accompanied by drawings.

This invention relates to mortar projecting devices and more particularly that type of device which utilizes for its motive force a fluid, such as compressed air.

One object of the invention is to project the mortar with as little waste mortar as possible and with efficient and economical air consumption.

The type of machine to which this invention relates is that in which mortar is projected from a nozzle attached to a suitable hopper or other supplying means with sufficient force to carry it a considerable distance through the air and at the wall or other surface to be covered. One difficulty in constructing a machine of this type is the fact that the ingredients of the mortar mixture tend to separate. For instance, if the mortar is composed of sand, cement, lime and water mixed homogeneously, when it is attempted to project the material the apparatus is apt to cause these elements to come out separately. The water may first be removed, then the cement will be blown from the sand, and lastly the sand particles come cleaned of the rest of the mortar ingredients. This trouble is avoided in the construction hereinafter described, in which the mixture is supplied partly by gravity and partly by an air jet which produces suction, and is ejected by means of the air jet and a supplemental ring jet located around the nozzle.

The invention will be more clearly understood by reference to the drawings, in which—

Figure 1 is an elevation partly in section showing the internal arrangement of the parts of the device constructed in accordance with the practice of the invention;

Figure 2 is a section taken along the line 5—5 of Figure 1 looking in the direction of the arrows, and

Figure 3 is a front view of a preferred form of nozzle.

Referring to the drawings, the device includes a hopper T attached to the flange U of the body V, which is provided with a chamber W for receiving material J from the hopper T through the restricted opening B. The hopper T is preferably conical in shape, as shown in the drawings, and grips or handles E are provided by which the operator can support the device.

The body V is hollow around the chamber W having a space X for the compressed air or other suitable motive fluid to flow through a ring jet Y formed by the forward tapered edge of the chamber W and the nozzle Z which is attached to the body V by means of bolts *b* passing through the flange *c* formed on the nozzle Z into the forward face of the body V. Within the chamber W there is provided a jet *d* centrally located and similar in its functions to the jet D of the first described embodiment. The jet *d* is adapted to draw by suction the material which flows by gravity into the chamber W and to project it into the stream of air issuing from the jet Y by which it is carried at high velocity through the nozzle Z and projected into the atmosphere.

Means are provided to apportion the amount of air passing through the jets *d* and Y and to this end the jet *d* is provided with a tapered seat *e* for a needle valve *f* adjustable with respect to the seat by reason of its screw threaded engagement with a plug *g* threaded into the rear wall of the body V. A suitable head *h* is provided at the outer projecting end of the valve *f* to permit adjustment of the amount of air flowing through the jet *d*. Air is supplied to the space X through an air supply hose or pipe *j* threading into a suitable boss *k* on the body V.

The nozzle Z may be curved as shown in the drawings for projecting material in a generally upward direction, or it may be straight, depending upon its use.

I claim:

1. A mortar projector including a hopper having a restricted outlet, a chamber at said outlet to receive material by gravity from said hopper, a nozzle, a jet for compressed motive fluid centrally located in said chamber and adapted to draw material from said chamber and project the same into the nozzle, a ring jet for compressed motive fluid concentric with said central jet adapted to impart additional velocity

to the material projected by said central jet and means to regulate the relative amounts of motive fluid delivered to the two jets.

2. A mortar projector including a hopper having a restricted outlet, a chamber at said outlet to receive material by gravity from said hopper, a nozzle, a jet for compressed motive fluid located in said chamber and adapted to project material from said chamber into the nozzle, a ring jet for compressed motive fluid adapted to impart additional velocity to the material projected by the central jet, and a needle valve for regulating the flow of pressure fluid through the central jet in relation to the ring jet.

In testimony whereof I have signed this specification.

CHARLES C. HANSEN.