

No. 698,767.

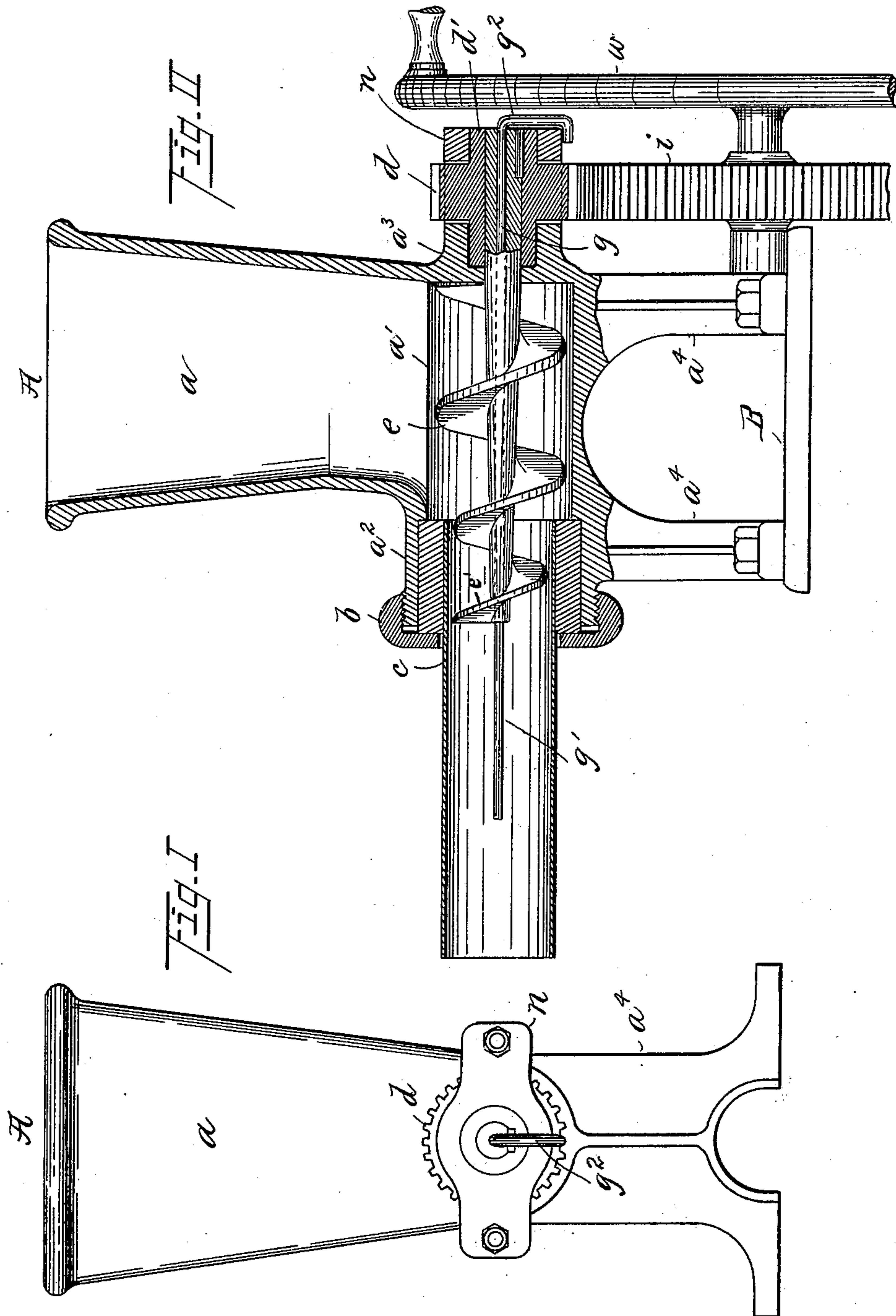
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G. H. WADSWORTH & E. J. SHERWIN.

CORE MAKING MACHINE.

(Application filed Dec. 5, 1901.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE H. WADSWORTH AND EDWARD J. SHERWIN, OF CUYAHOGA FALLS, OHIO.

## CORE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 698,767, dated April 29, 1902.

Application filed December 5, 1901. Serial No. 84,753. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE H. WADSWORTH and EDWARD J. SHERWIN, citizens of the United States, residing at Cuyahoga Falls, Summit county, State of Ohio, have invented certain new and useful Improvements in Core-Making Machines, of which the following is a full, clear, and exact specification, such as will enable those skilled in the art to which it appertains to make and use the same.

Our invention relates to a machine for making cores, and it relates particularly to machines for forming a hollow core, or, in other words, a core provided with a vent-hole through the center thereof.

The object of the invention is to provide means for forcing the sand into the core-die and to form a core with a vent-hole throughout its length, the vent-former remaining stationary while the feed-screw revolves, said vent-former being independent of the feed-screw, and thereby forming a more uniform vent-hole.

Other objects of the invention will appear in the following specification.

In the drawings forming a part of this specification, Figure I is an end view of the improved core-making machine with the power-wheel and lower gear removed. Fig. II is a side view of the machine, showing the upper parts in central vertical section.

Similar characters represent similar parts in the drawings and specification.

Referring to the drawings, A represents the body-casting of the machine, which consists of the sand-hopper  $a$  in open communication with the cylindrical portion  $a'$ , an extension  $a^2$ , adapted to receive the core-die  $c$ , the extension  $a^3$ , which forms a bearing for the pinion  $d$ , and the supports  $a^4$ .

$b$  is a cap threaded into the extension  $a^2$  for holding the die  $c$  rigidly in place. Within the cylinder  $a'$  is a differential screw  $e$ , the shaft of which is keyed or otherwise rigidly secured to the pinion  $d$ . The shaft of the screw  $e$  has a hole through the center thereof, said hole extending the entire length of the shaft. A rod  $g$  passes through the opening in the shaft of the differential screw, the forward end  $g'$  of said rod extending into the core-die  $c$  any desired distance and the rear

end  $g^2$  extending out of the end of the shaft and rigidly locked to a plate  $n$ , which forms a bearing for the outer end of the pinion-hub  $d'$ . The mode of locking the rod  $g$  to the plate  $n$  as illustrated in the drawings is by bending the end of said rod downward and under said plate. This is a simple and effective way of locking the rod to prevent its revolution with the differential screw; but I wish it to be understood that any manner of fastening the rod so that it will not revolve is within the scope of the invention. The operating-wheel  $w$ , rigidly attached to the gear-wheel  $i$ , is mounted on a fixed shaft, which is secured to the bed B of the machine. The gear  $i$  is in mesh with the pinion  $d$ .

The operation of the machine is as follows: By turning the operating-wheel  $w$  in the proper direction the differential screw is caused to revolve and force the sand into the core-die. This is brought about by the gear  $i$ , attached to the operating-wheel  $w$  and in mesh with the pinion  $d$ , the shaft of the differential screw being rigidly attached to said pinion  $d$ , the revolution of the screw around the rod  $g$ , said rod remaining stationary, insures a perfectly-centered vent-hole in the core. If the vent-former were rigid with the screw, the material as it leaves the end of the thread on the screw would cause uneven wear on the said vent-former, an excess of wear coming on said vent-former at the point where the thread ends and where the former begins, while the revolution of the screw around the stationary rod  $g$  distributes the wear the full length of said rod. Still another and an important advantage is the following: It is often desired to form a core with a spindle therein. By the use of the improved core-making machine the rod  $g$  may be extended through the core any desired distance, and after the core is molded around the rod the rear end of the rod may be cut off and the rod, with core molded thereon, removed from the machine. The rod then forms the spindle, and another rod may be inserted in the machine at small cost.

A well-known fact to all who are familiar with core-making is the difficulty of mixing the material to insure a uniform and homogeneous core throughout, the nature of the



material being such that it does not flow freely, but has a tendency to pack. Therefore the differential screw used in the improved machine is a prominent element of the invention inas-  
5 much as it provides a perfect mixer and insures a steady pressure. If the thread of the screw were the same diameter throughout, the material carried forward by said screw would clog at the mouth of the die owing to the ex-  
10 cess of material packed around the stem of the screw and under the steady pressure of the larger thread of the screw. By the use of the differential screw the excess material as it reaches the smaller thread  $e'$  of the screw  
15 is thrown off, backs up, and mixes more evenly with the material back of it. The larger thread that receives the material from the hopper  $a$  provides the steady pressure of the material, while the tapering of the screw  
20 down to the smaller part  $e'$  allows sufficient clearance between the screw and the casing to permit the excess material to free itself from the screw and become thoroughly mixed, thus insuring a uniform core when the ma-  
25 terial is forced into the die.

Having now described our invention, what we claim, and desire to secure by Letters Patent, is—

In a core-making machine in combination, a cylindrical casing in open communication 30 with a hopper, a die attached to the outlet of the casing, a differential screw within said casing, the thread diameter of the screw being largest at the inlet and tapering down toward the outlet of the casing, thereby pre- 35 venting clogging of the material, said screw having a hole throughout its entire length, a rod passing through said hole and extending into the die beyond the outlet of the casing, means for revolving said differential screw 40 and means for holding the rod and thereby preventing its revolution with the screw, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE H. WADSWORTH.

EDWARD J. SHERWIN.

Witnesses:

W. W. REED,

L. F. GRISWOLD.