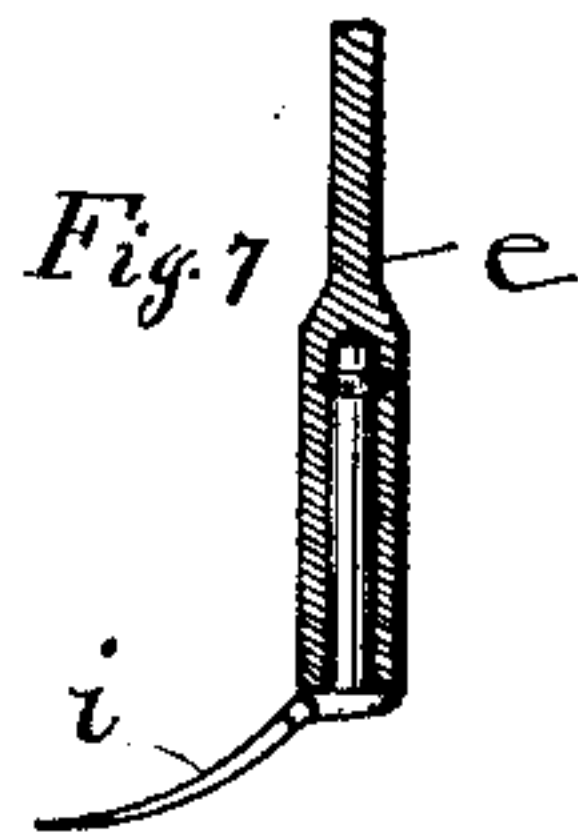
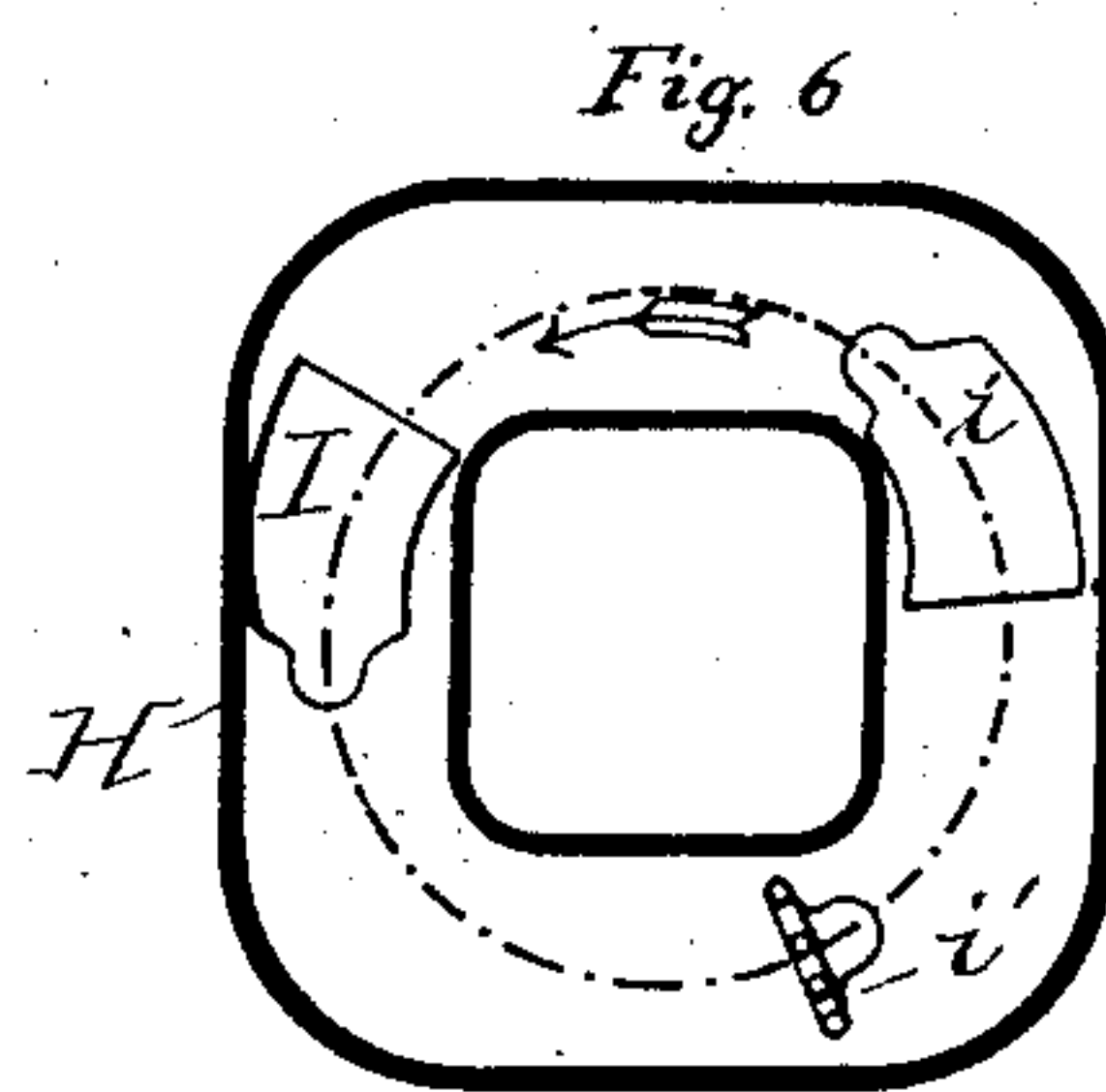
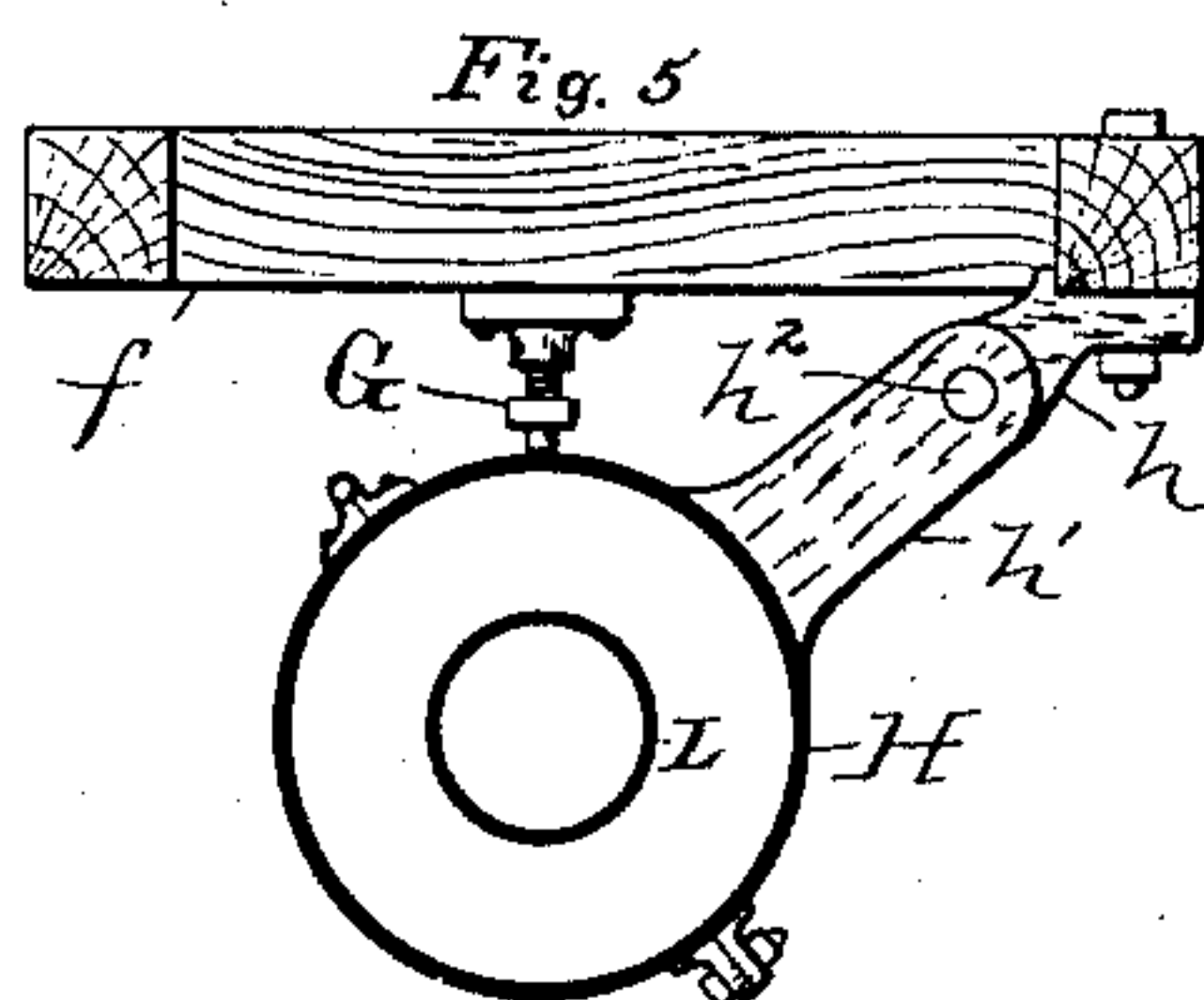
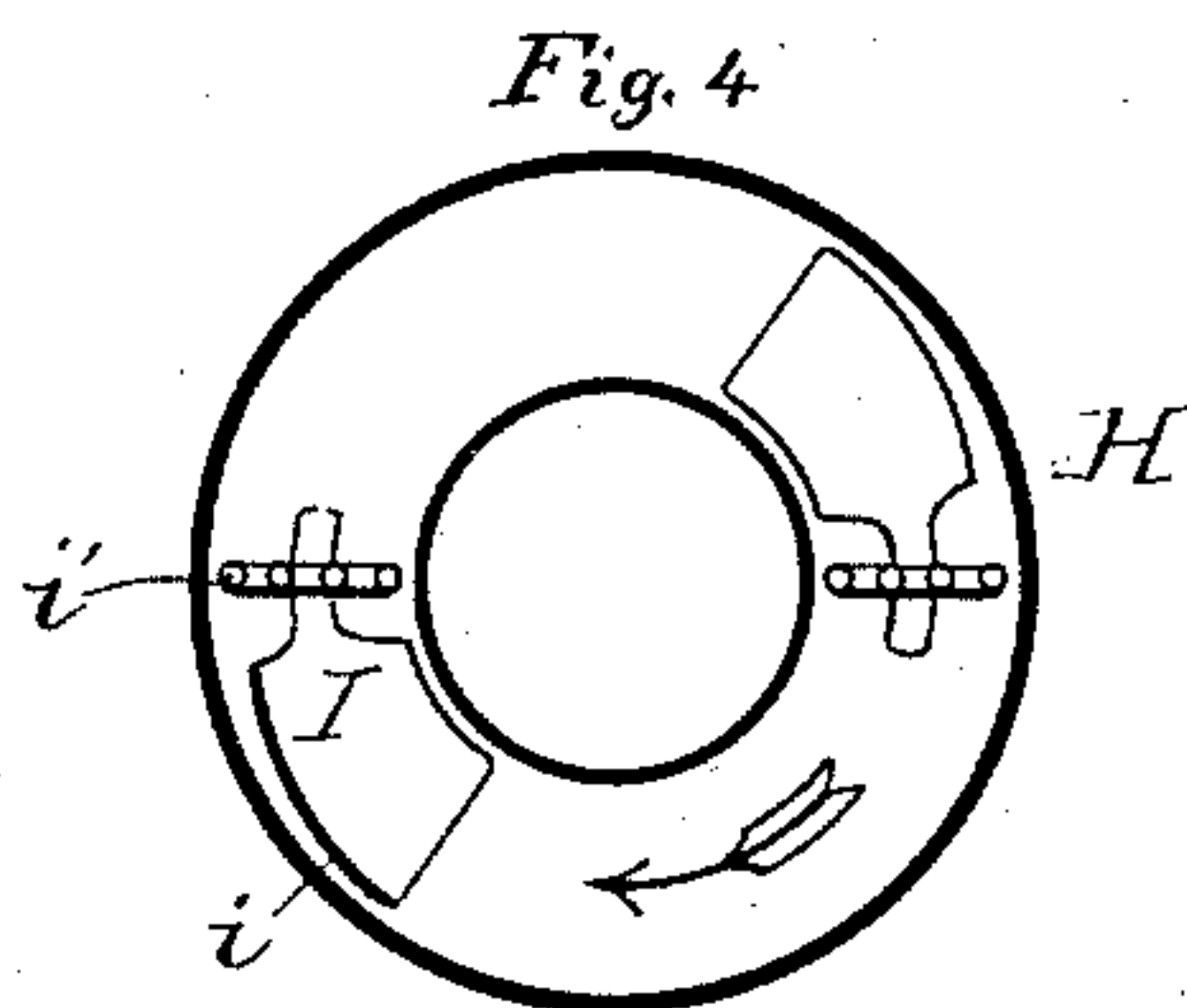
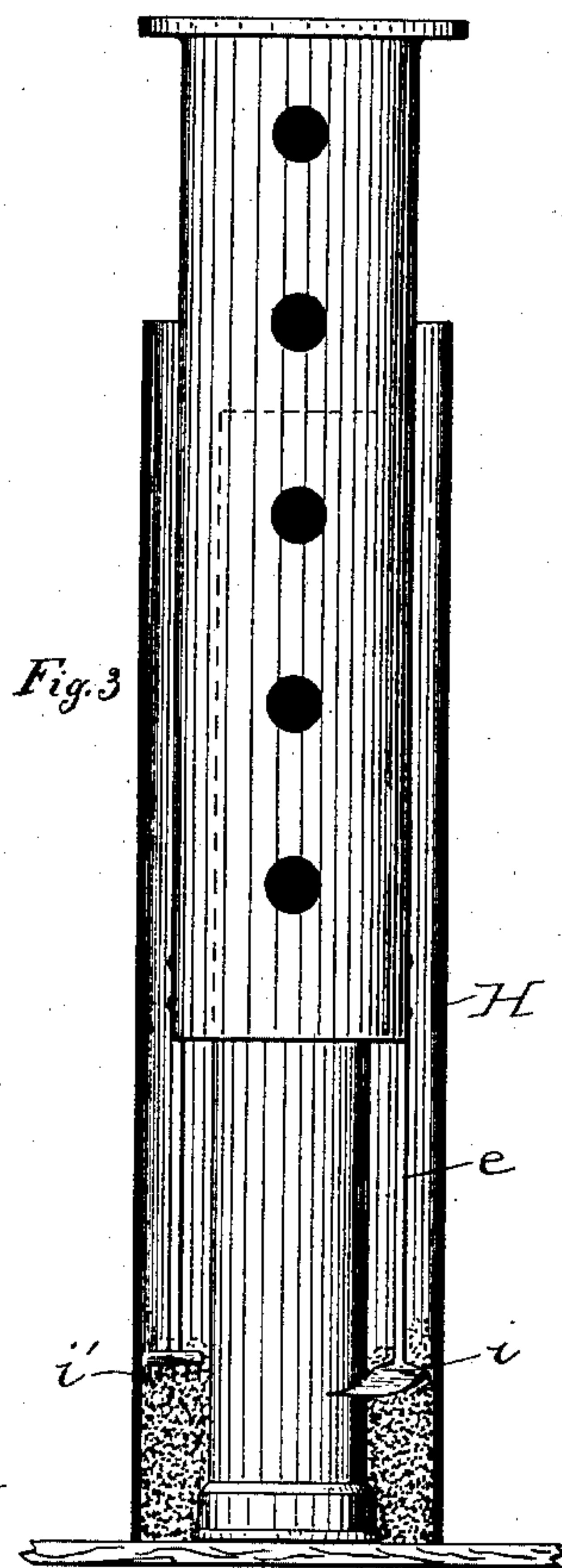
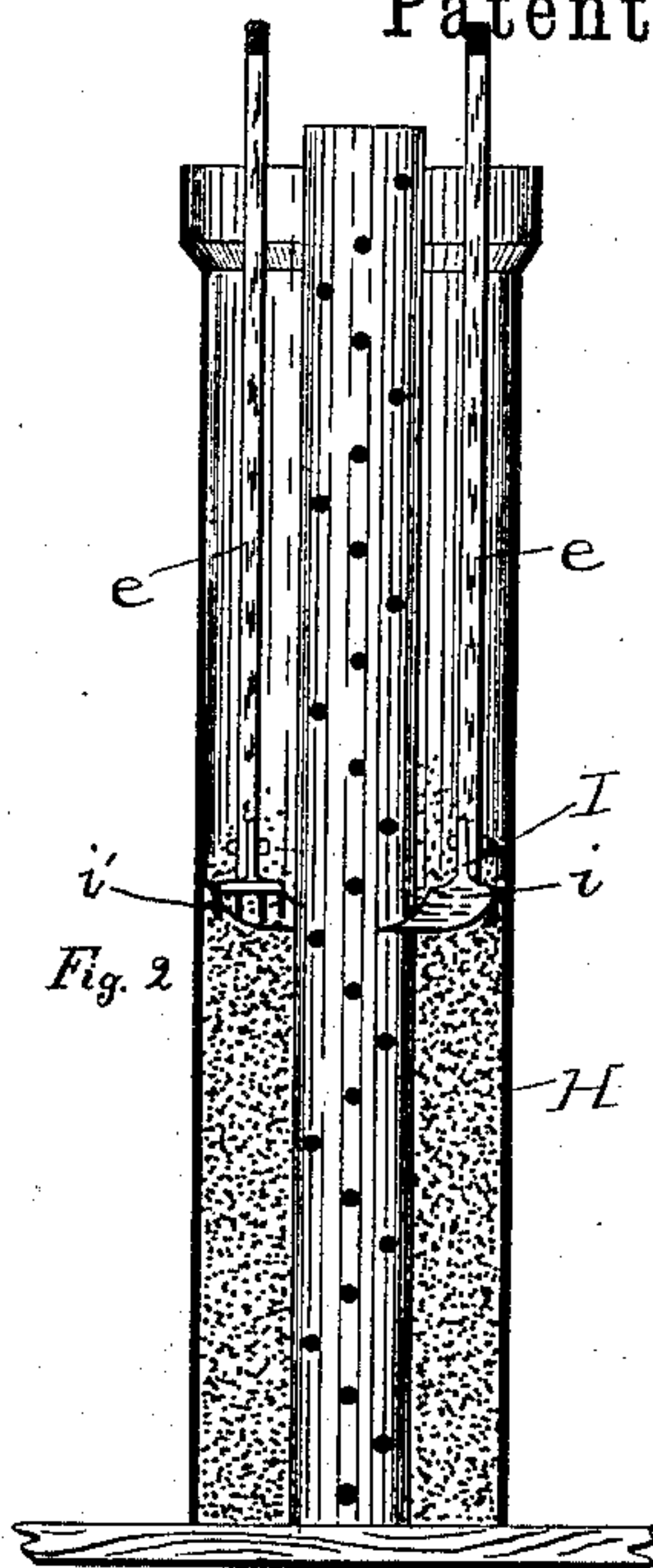
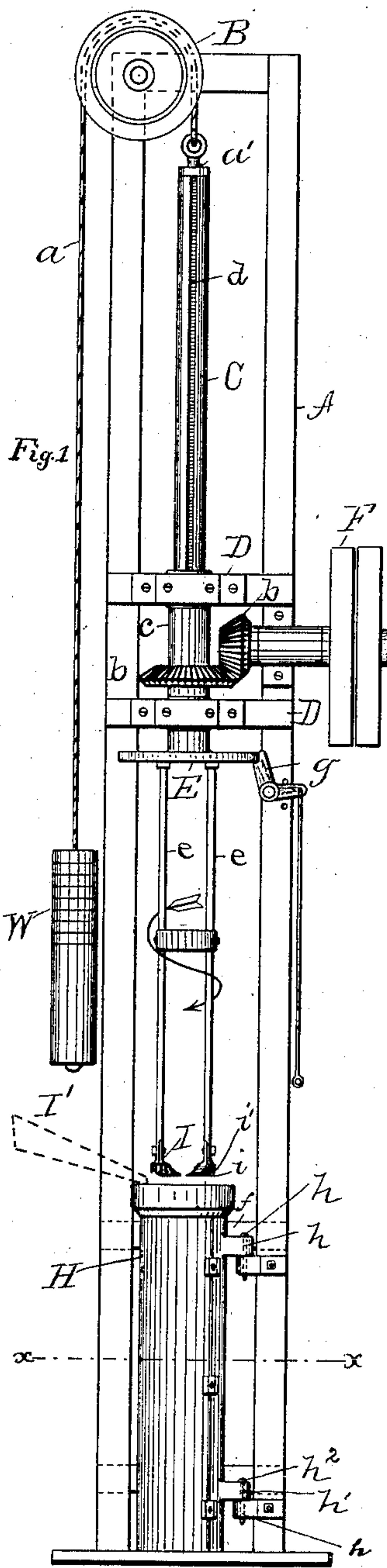


(No Model.)

S. L. ROBERTSON.
SAND DISTRIBUTER AND PACKER.

No. 375,895.

Patented Jan. 3, 1888.



Witnesses.
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E. E. Masson.

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UNITED STATES PATENT OFFICE.

SAMUEL L. ROBERTSON, OF CLEVELAND, OHIO.

SAND DISTRIBUTER AND PACKER.

SPECIFICATION forming part of Letters Patent No. 375,895, dated January 3, 1888.

Application filed October 14, 1887. Serial No. 252,391. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. ROBERTSON, of the city of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sand Distributers and Packers for Molding Apparatus, of which the following is a full, clear, and exact description, such as will enable one skilled in the art to make and use the same.

In the accompanying drawings, which form a part of this specification, the like parts are represented in the several figures by the same letters.

In the drawings, Figure 1 is a side elevation of my improved device. Fig. 2 is a partial section of the flask or core-box, showing the sand distributers and packers in operative position. Fig. 3 shows a modification of the device as shown in Fig. 1, to be used in the manufacture of extra long pipe. Fig. 4 is an end view of the flask or core-box from the lower end. Fig. 5 is a section taken on the line xx in Fig. 1; and Fig. 6 is an end view from the lower end, showing the shovels and rakes pivotally connected to the carriers instead of being fixed thereto, this being a modification for the purpose of adapting the device to making ingot-molds. Fig. 7 is a vertical section of one shovel and its carrier when pivotally connected together.

My invention relates to devices for automatically distributing and packing the sand to form a mold for casting pipes and other like articles; and it consists in the construction and combination of parts herein described, and pointed out definitely in the claims.

Referring to the parts by letter, A represents the supporting frame-work of the device, and H the core-box or flask in which the molds are made, which flask may be removably hinged to said frame-work at a suitable height by the perforated lugs h h' and the pin h^2 , and is adapted to be swung beneath the center of the device, as shown in Fig. 1.

Near the upper end of the frame A the vertically-movable rod C is passed loosely through a sleeve, c , which is mounted in bearings D D' on the frame-work. The sleeve c is provided with a spline or feather, which engages with a groove, d , in said rod, whereby the rod C is permitted a vertical movement, but is com-

pelled to revolve by the revolution of said sleeve. A beveled gear, b' , attached to said sleeve, meshes with a beveled gear, b , on the end of the shaft to which the power is applied through the pulley F. To the lower end of this rod C carriers, preferably in the form of arms e e , bolted to a disk, E, are rigidly attached, and on the lower ends of said arms a combined shovel and rake, I, is secured, for the purpose of distributing and packing the sand. The shovels i are inclined on their lower faces from their ends upward to the points of attachment with the arms, and they are attached so that in revolving the rakes i' move in front of the shovels.

The operation of the device is as follows: The flask or core-box H being swung into position and the pattern or core barrel placed therein, the shovels and rakes are permitted to drop to the bottom by removing the pivoted catch g . The sand is then introduced in a continuous stream from the chute I, and the carriers e e are revolved through the instrumentalities above described. The weight of the rod C and the other vertically-moving parts attached thereto furnishes the necessary pressure, which causes the shovels to pack the sand after it has been distributed by the rakes. The inclined faces of the shovels and the constantly-increasing quantity of sand cause the shovels to revolve spirally until they are forced out of the flask, leaving the sand tightly packed behind them.

In order that the pressure of the shovels may be varied as circumstances may require, I attach a swivel or eyebolt, a' , to the upper end of the rod C and connect it by means of the rope or cord a to a weight, W, said cord being made to pass over a sheave, B, mounted on a frame-work, A. By varying this weight the pressure of the shovel may be varied to any extent.

In the manufacture of extra long pipe it is necessary to adopt something more rigid than the arms e e as carriers for the shovels. This I do, as shown in Fig. 3, by attaching a cylinder, e^3 , to the disk E and attaching the short arms e e , bearing the distributers, to its lower periphery.

The details of construction may be further modified, as shown in Fig. 3, wherein a shovel,

i, and a rake, *i'*, are attached to separate carriers *e e*, instead of having the shovel and rake combined, as shown in Figs. 1 and 2; and the shovels and rakes may be pivoted to their carriers, as shown in Figs. 6 and 7, to adapt the device to forming ingot or other molds not circular in form.

In Fig. 5 a set screw, *G*, is shown attached to the cross-piece *f* of the frame, and as the flask *H* rests against the end of this screw its position may be exactly adjusted by turning this screw in or out, as required.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a sand distributor and packer, the combination of a vertically-moving rod and means for revolving the same, with carriers rigidly attached to the lower end of said rod, and rakes and inclined shovels attached to said carriers, substantially as and for the purpose specified.

2. In a sand distributor and packer, the combination of a rotating sleeve journaled in the

frame and having a spline or feather, and a grooved rod passing loosely through said sleeve, with carriers rigidly attached to the lower end of said rod, and rakes and inclined shovels attached to said carriers, substantially as and for the purpose specified.

3. In a sand distributor and packer, the combination of a vertically-movable rod and means for revolving the same, with carriers on said rod, rakes and inclined shovels on said carriers, and a counterbalancing-weight connected, substantially as described, with the upper end of said rod, for the purpose specified.

4. In a sand distributor and packer, the combination of a core-box or flask and means for removably hinging the same to the frame, with an adjusting-screw, *G*, and the revolving carriers, bearing the rakes and inclined shovels herein described, for the purpose specified.

SAM. L. ROBERTSON.

Witnesses:

E. L. THURSTON,
LEONARD WATSON.