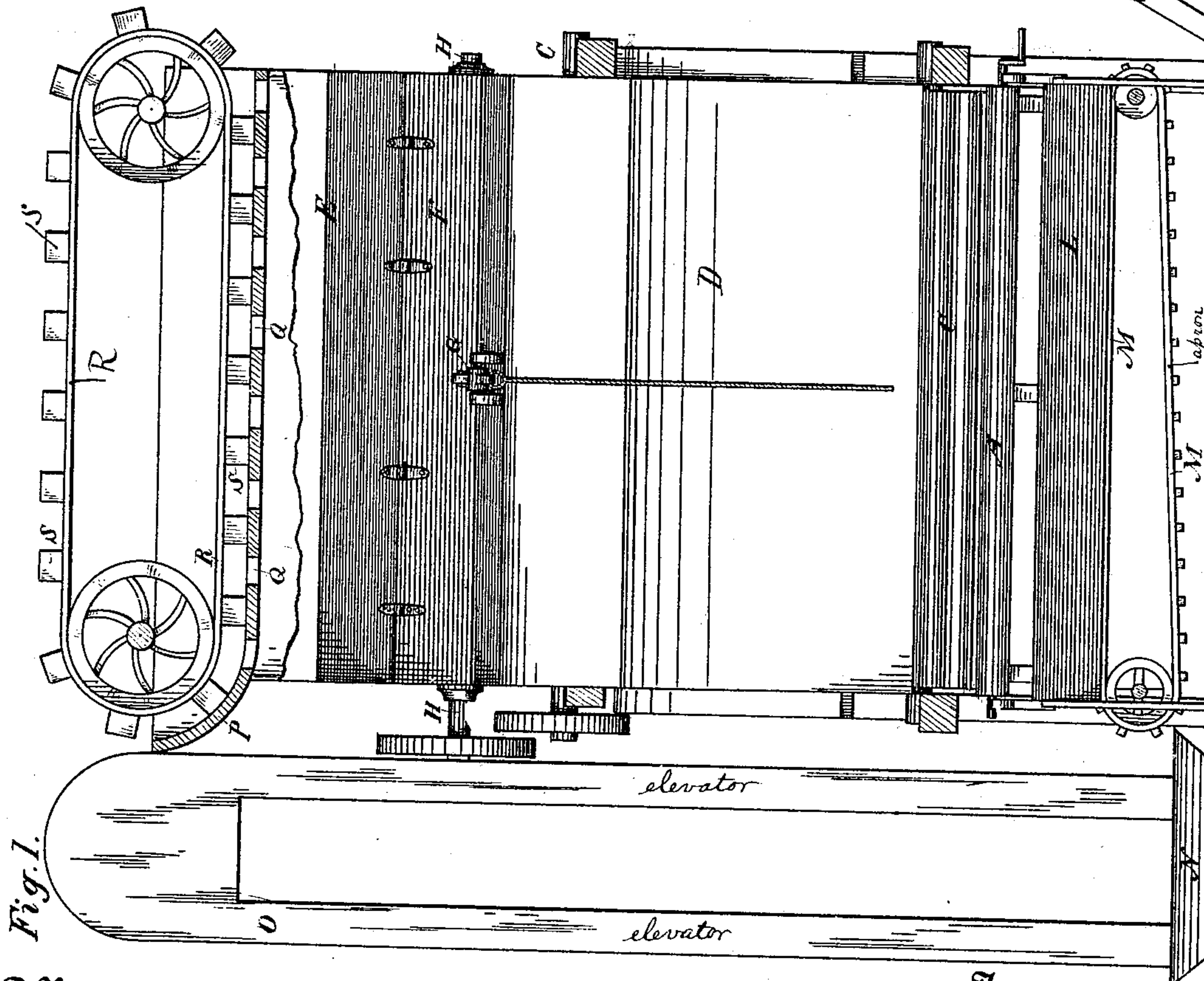
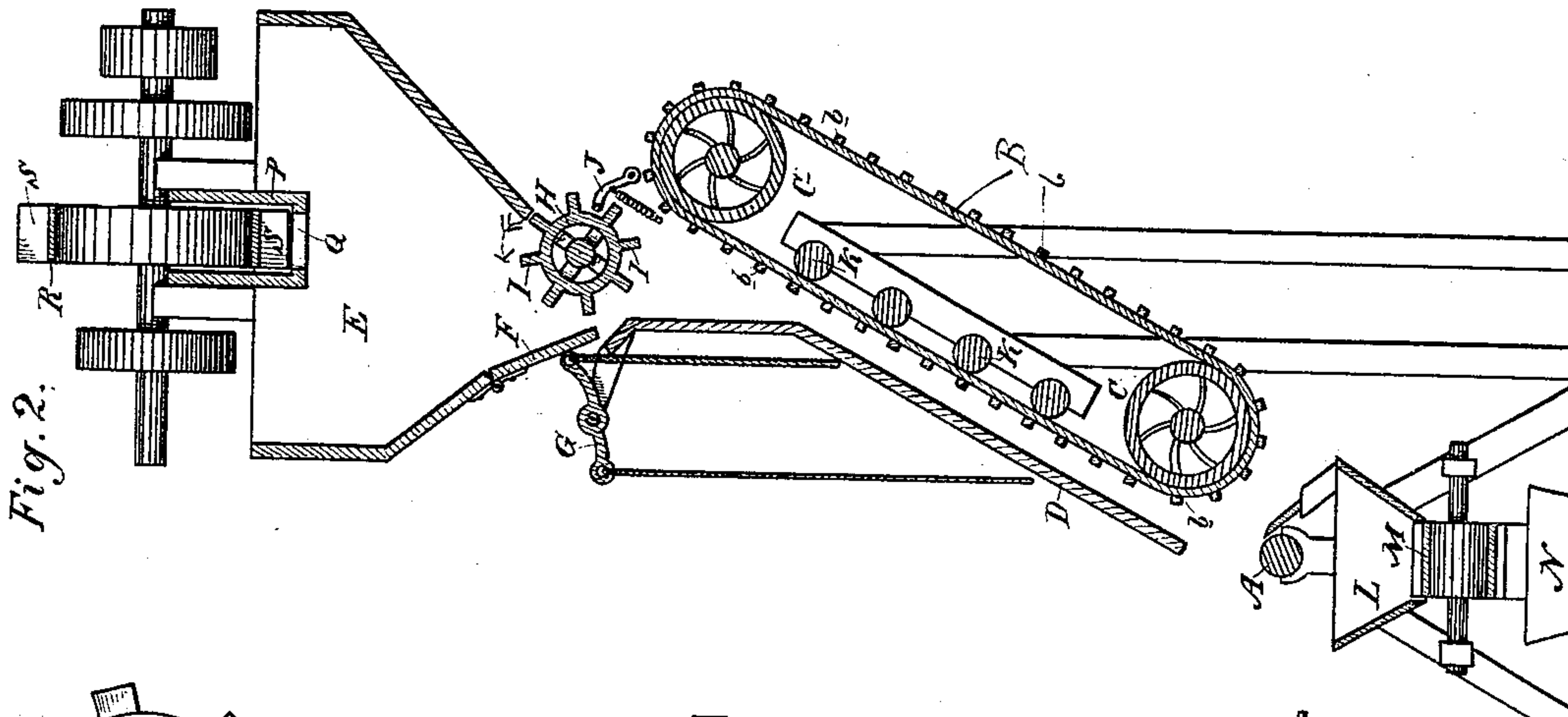


(No Model.)

R. SAVAGE.
CORE MAKING MACHINE.

No. 329,959.

Patented Nov. 10, 1885.



Witnesses,
Geo. H. Strong.
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UNITED STATES PATENT OFFICE.

RICHARD SAVAGE, OF SAN FRANCISCO, CALIFORNIA.

CORE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 329,959, dated November 10, 1885.

Application filed March 31, 1885. Serial No. 160,835. (No model.)

To all whom it may concern:

Be it known that I, RICHARD SAVAGE, of the city and county of San Francisco, State of California, have invented an Improvement in Core-Making Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in apparatus for manufacturing cores from sand for casting purposes.

It consists of a belt passing over drums or rollers at the upper and lower ends, and provided with projections, teeth, or corrugations, so that when caused to travel rapidly it carries the sand downward and discharges it upon the core-bar with any desired speed and force. This belt may have a cover or directing-chute, in which the sand is received from a hopper or receptacle above a toothed or flanged roller revolving in the outlet of the receptacle to regulate the flow of sand, and a means for clearing the teeth or flanges of the roller as it revolves.

It also consists of a regulating-gate by which the supply passing through the discharge may be regulated.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a front view of the apparatus. Fig. 2 is a transverse vertical section taken through the hopper and directing-chute, belt, and core-bar.

A is the core-bar upon which it is desired to form a cylindrical coating of sand, of any desired size to serve as a core for tubes or pipes which are to be afterward cast about it. In order to deliver the sand upon this bar so as to cause it to adhere to it, and produce any desired velocity of the sand to impact it sufficiently hard upon the bar, I employ a belt, B, having a width equal to or exceeding the length of the core to be made. This belt passes over drums or rollers C C, one situated just above and near the core-bar, and the other at an angle above and back from the first one, as shown. Above this belt may be a cover, D, which lies parallel with it and a little distance therefrom, so that the belt forms the bottom of a directing chute or carrier and the cover D forms the top of it. When the top or cover D is employed, the device need not stand at

any particular angle, but may be approximately vertical.

The belt is provided with projections, corrugations, or teeth, as shown at *b*, and these serve to carry the sand, so that it will move along with the same velocity that the belt moves, and the latter cannot be driven so fast as to slip away from the sand without carrying it along.

Above the belt is a hopper, E, into which the sand is received, and this hopper has a discharge-opening at the lower end, with a gate, F, forming a part of it. This gate has an arm or lever, G, connected with it, so that by moving the lever the gate may be allowed to swing open, or be closed somewhat, so as to regulate the amount of sand which passes out of the hopper E. Within the opening at the bottom of the hopper is a roller, H, having teeth or flange projections I extending radially from its periphery, so as to occupy nearly the whole of the discharge-opening. This roller is caused to revolve by a belt or other suitable mechanism, and the teeth serve to loosen the sand in the hopper and prevent it from packing, (as it would naturally do in its adhesive state,) delivering it upon the belt B which carries it downward and discharges it forcibly against the core-bar.

In order to prevent the teeth or flanges I of the roller H from becoming clogged and filled with the sand from the hopper E, I employ hook-shaped cleaners J, which are secured at a point at the rear of the roller and made to act, by means of rubber or metallic springs, so that their ends or points will project between the teeth I and rake out any sand which may have become fixed upon the roller. That portion of the belt B which serves as the bottom to the chute, and which carries the sand, is supported upon a series of friction-rollers, K, journaled in a frame-work just beneath the belt and sufficiently near together to keep the belt nearly or quite straight. This belt is caused to travel at so high a velocity that it carries the sand more rapidly than it could fall by gravitation and this delivers it in a sheet upon the core-bar, impacting it so that the core will be very solid when completed. A knife of any of the usual patterns may be fixed so as to smooth and shape the core as the sand

is applied. The superfluous sand falling from the core-bar passes downward into the hopper or receptacle L, and is carried upon a traveling belt, M, to one end, where it is delivered into the hopper N, and is carried upward from this by an elevator, O, which delivers it into a trough, P, situated just above the hopper E. The bottom of this trough P has openings Q made in it, through which the sand may fall into the hopper E. The sand is carried along the trough P, and is caused to fall through these openings Q by a traveling belt, R, which has projecting ribs S, that travel in the bottom of the trough, thus carrying the sand along and causing it to fall through the openings Q into the hopper, whence it is delivered to the directing-chute, as before described.

In my invention the whole of the belt or carrier is caused to travel, thus giving all the sand upon it an impetus corresponding with its own velocity of movement.

The features shown herein, but not claimed, are the subject-matter of another and pending application, No. 160,836, of even date herewith.

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

1. In a machine for forming cores from sand, an inclined directing-chute into which the sand is received, and from which it is delivered upon the core-bar, said chute having a traveling flexible bottom or endless belt with projections or corrugations, by which the sand is caused to move with the same velocity as itself, substantially as herein described.

2. In an apparatus for forming cores from sand, an inclined directing-chute having a

flexible traveling bottom or belt with teeth or projections, a hopper from which the sand is delivered upon the traveling bottom or belt, and a toothed drum or feed-roller which revolves within the discharge-opening of the hopper, so as to regulate the flow of sand, substantially as herein described.

3. The revolving toothed drum or roller journaled in the discharge-opening of the sand-hopper, in combination with the stationary or spring-actuated arms J, projecting between the teeth or flanges of the roller, substantially as herein described.

4. A directing-chute having the flexible traveling bottom or belt, by which the sand is delivered from a supply-hopper upon the core-bar, and the rotary toothed roller journaled and revolving within the discharge-opening of the hopper, in combination with the gate F, and adjusting-lever G, whereby the flow of sand may be regulated, substantially as herein described.

5. The inclined directing-chute with the flexible traveling bottom or belt, and the supply-hopper situated above, in combination with a horizontal trough, a belt having projections secured to it, so as to travel through said trough, and perforations in the bottom of said trough, through which the sand is delivered by a traveling belt into the supply-hopper above the directing-chute, substantially as herein described.

In witness whereof I have hereunto set my hand.

RICHARD SAVAGE.

Witnesses:

HOLLAND SMITH,
S. H. NOURSE.