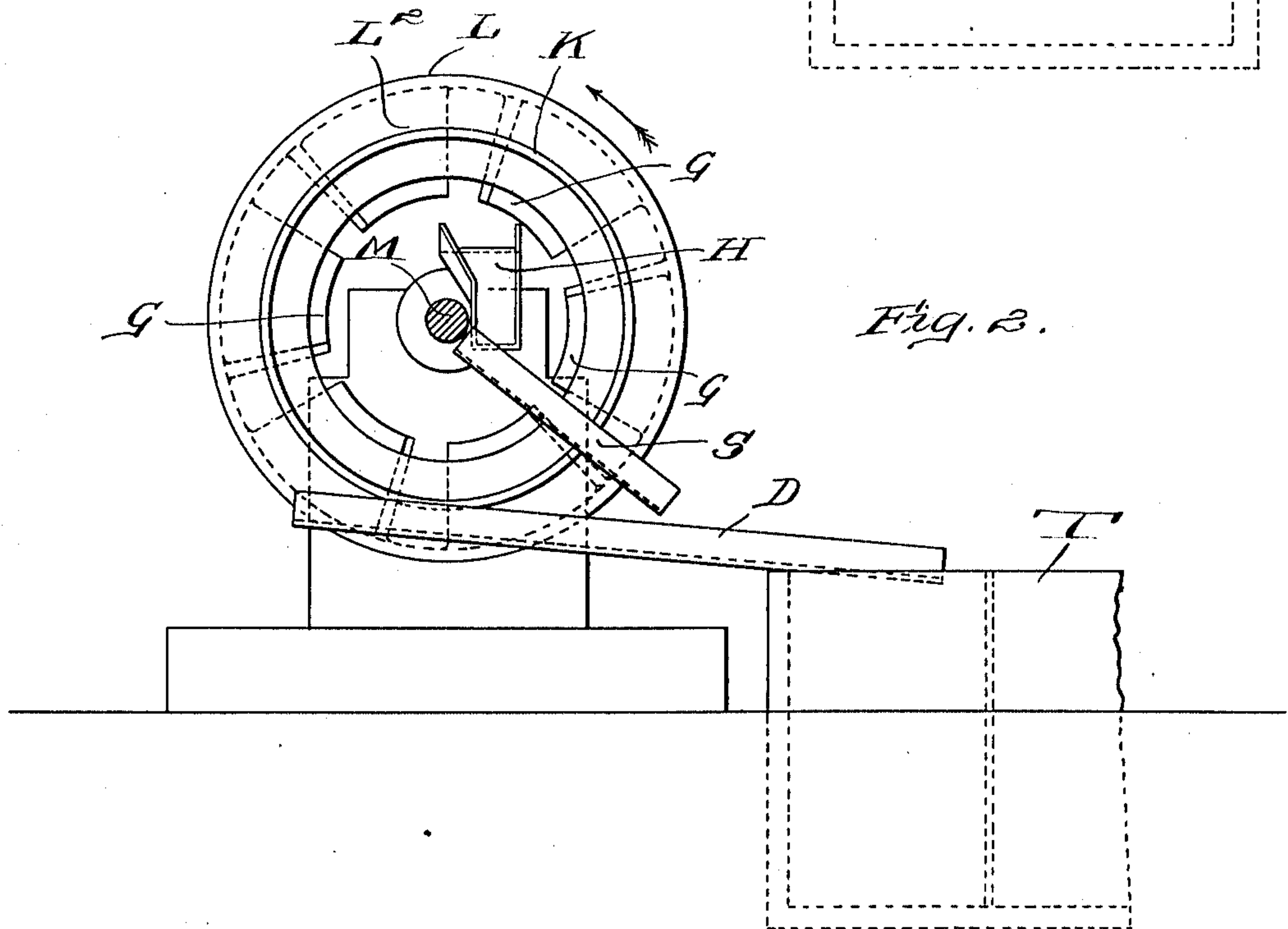
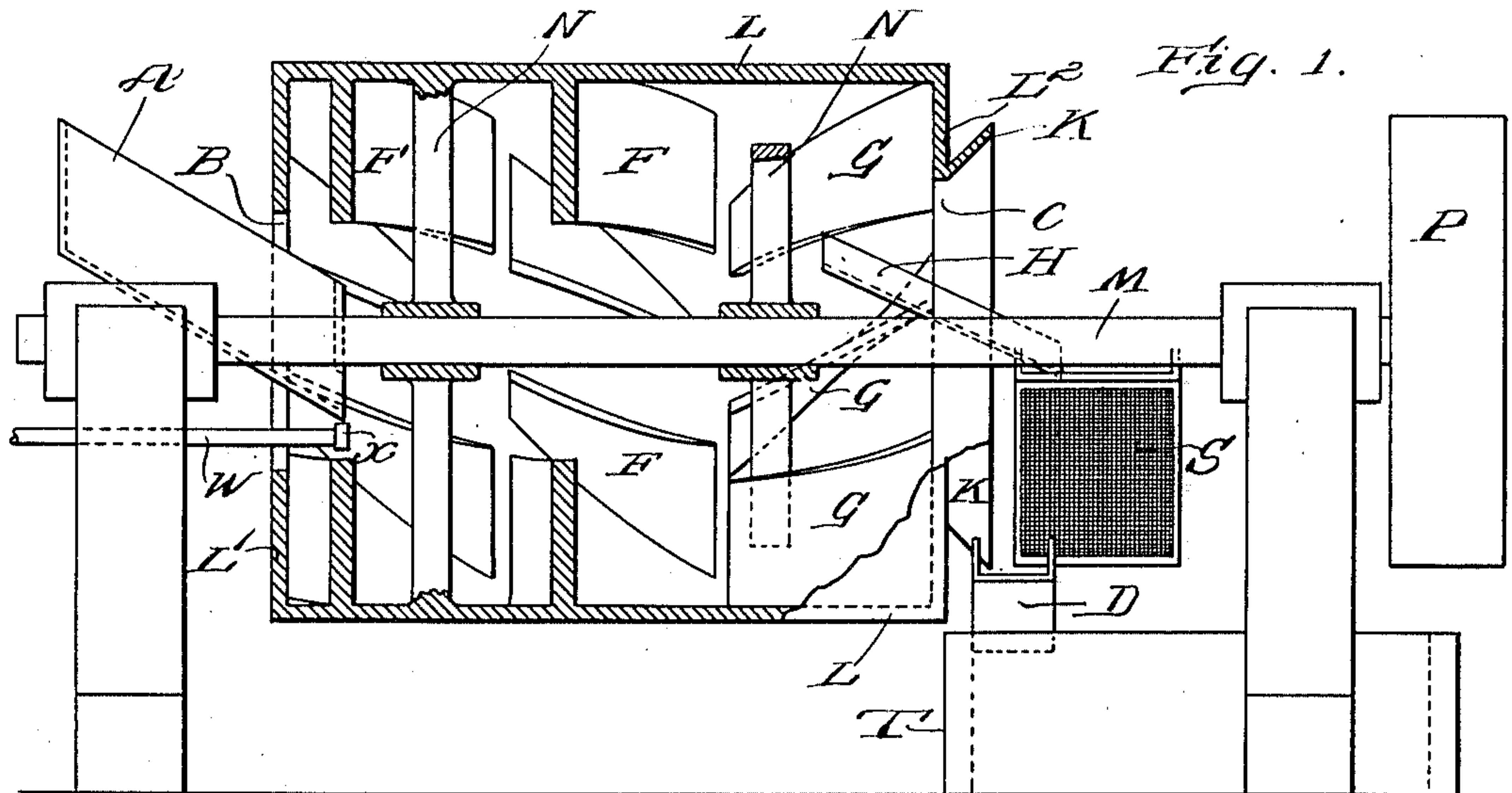


S. A. CAPRON.
 APPARATUS FOR WASHING SAND AND LIKE MATERIAL.
 APPLICATION FILED MAY 19, 1909.

978,693.

Patented Dec. 13, 1910.



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UNITED STATES PATENT OFFICE.

SETH A. CAPRON, OF WESTFIELD, MASSACHUSETTS.

APPARATUS FOR WASHING SAND AND LIKE MATERIAL.

978,693.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed May 19, 1909. Serial No. 496,908.

To all whom it may concern:

Be it known that I, SETH A. CAPRON, a citizen of the United States, and resident of Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Apparatus for Washing Sand and Like Material, of which the following is a specification.

My invention relates to apparatus for cleansing and classifying solid material and is especially addressed to the cleansing of core sand after use in a foundry.

After once being used in the manufacture of castings, core sand should be cleansed and freed from impurities, bits of stone, scrap metal, and the like before it is again used for core purposes. The practice heretofore prevailing is to cleanse core sand by means of an air blast, and one object of my invention is to substitute a wet process which will be at least as effective and at the same time cheaper than the air process.

In the drawings hereto annexed,—Figure 1 is a vertical longitudinal elevation, partly in section, of an apparatus embodying my invention; and Fig. 2 is an end view in section at line 2—2 of Fig. 1.

L represents a cylindrical drum of sheet iron or other suitable material secured to the shaft M by means of spiders N and provided with end flanges at L' and L², the flange L' being deeper than the flange L². Circular openings at B and C are thus formed concentric with the shaft M. The shaft M with the drum L is mounted on bearings so that the drum is substantially horizontal and a pulley P or equivalent means for rotating the drum L is secured to the shaft M. The material to be cleansed, for instance, a mass of core sand containing dirt, stones, bits of scrap metal, or other foreign matter is introduced into the drum through the inclined hopper A which is secured to any suitable framework outside of the drum L and projects inward through the opening B at one side of the shaft M. Through the opening B there is also introduced a water pipe W which is preferably provided with a spray nozzle X wherewith to spray and scatter water upon the entering material.

On the interior of the drum L, I provide a series of agitating flanges. The flanges F are arranged angularly or spirally so that as the drum L is rotated in the direction of the arrow in Fig. 2, the flanges F not only

scoop up the solid material from the bottom of the drum, but also propel it toward the delivery opening C. The propelling angle of the flanges F may be varied within reasonable limits and may be very slight as the constant agitation of the material together with the flow of water from the feed end to the discharge end of the drum will carry the material toward the discharge end even though the propelling angle of the flanges F be not very steep. For ordinary practice I recommend a drum about 30" in diameter with flanges, as F, projecting inward about four inches from the shell of the drum and set at an angle of about 30° to the axis of the drum. Preferably, also, I provide several sets of agitating flanges and make one set staggered with another as indicated in Fig. 1.

At or near the discharge end of the drum, I arrange agitating flanges projecting from the interior of the drum as at G. These flanges are set at a retarding angle so that their tendency is to move the solid material back from the discharge end of the drum. The flanges G thus prevent the heavy materials from piling up near the discharge end of the drum in such manner as to fall out with the lighter materials and water through the discharge cone at K which surrounds the lip of the opening C. The angle at which the flanges G are set is such that the heavy materials on being carried up by the flanges are spilled into the discharge chute H which is secured to an external framework and projects outward through the opening C delivering the material upon an inclined screen S. Water and light material suspended therein flows out through the opening C and over the discharge cone K into a trough D through which it flows to a settling tank T.

The operation of the washing machine is as follows: Water being introduced through the pipe W and core sand with admixed impurities being introduced through the hopper A, the solid and liquid contents of the drum are thoroughly agitated by the agitating flanges F, the sand and other heavy materials being carried up and spilled again into the water and at the same time being moved by the successive action of these flanges toward the outlet end of the drum. Such light materials as float upon or are suspended in the water, are carried with the

water over the lip of the cone K to the trough D and flow to the settling tank, whereas sand and other heavy materials while agitated are prevented from forming
 5 a mass of mud at the discharge end of the drum by the operation of the flanges G which, as above described, are set at a retarding angle so that they tend to move the heavy material away from the discharge
 10 opening C. These heavy materials having thus been washed and freed from dust and light dirt of all kinds, are carried up by the flanges G and spilled upon the discharge chute H which conducts them to the inclined
 15 screen S. This screen is of proper mesh to allow the washed sand to pass through it but to retain and deliver at the end of the screen all larger particles such as stones and scraps of metal. Suitable receptacles, not
 20 shown, may be placed beneath and at the end of the screen S to catch the separated materials.

An apparatus constructed as above described has a large operative capacity and
 25 will clean and separate core sand and the like more economically than any of the methods known to me which have been in vogue.

What I claim and desire to secure by Letters Patent is:

30 1. In a machine for washing sand and like materials, the combination with a rotatable drum having its ends closed save for central feed and discharge openings; of flanges
 35 provided interiorly of said drum, the flanges adjacent the feed opening being inclined forwardly in the direction of rotation of said drum, and the flanges adjacent the discharge opening being inclined oppositely to
 40 said first-named flanges, so as to prevent the material being washed from piling up near the corresponding end of the drum and means for constantly conveying material

from the drum as it is raised by the flanges adjacent the discharge opening. 45

2. In a machine for washing sand and like materials, the combination with a rotatable drum having its ends closed save for central feed and discharge openings; of flanges provided on the interior wall of said drum, the
 50 flanges adjacent the feed opening being inclined forwardly in the direction of rotation of said drum, and the flanges adjacent the discharge opening being inclined oppositely to the first-named flanges, so as to
 55 prevent the material being washed from piling up near the corresponding end of the drum and means for constantly conveying material from the drum as it is raised by the flanges adjacent the discharge opening. 60

3. In a machine for washing sand and like materials, the combination with a drum rotatable on a horizontal axis, said drum having its ends closed save for central feed and discharge openings; of means for supplying
 65 the drum with water and material through the feed opening; flanges provided on the interior wall of the drum, the flanges adjacent the feed opening being inclined forwardly in the direction of rotation of said
 70 drum, and the flanges adjacent the discharge opening being inclined oppositely to the first-named flanges, so as to prevent the material being washed from piling up near the corresponding end of the drum; and a discharge
 75 chute projecting from said discharge opening and being so disposed as to have material delivered thereto by the internal flanges adjacent the discharge opening and to constantly discharge said material. 80

Signed by me at Westfield, Massachusetts, this 15 day of May 1909.

SETH A. CAPRON.

Witnesses:

LEWIS C. PARKER,
 FLORENCE I. SMITH.