

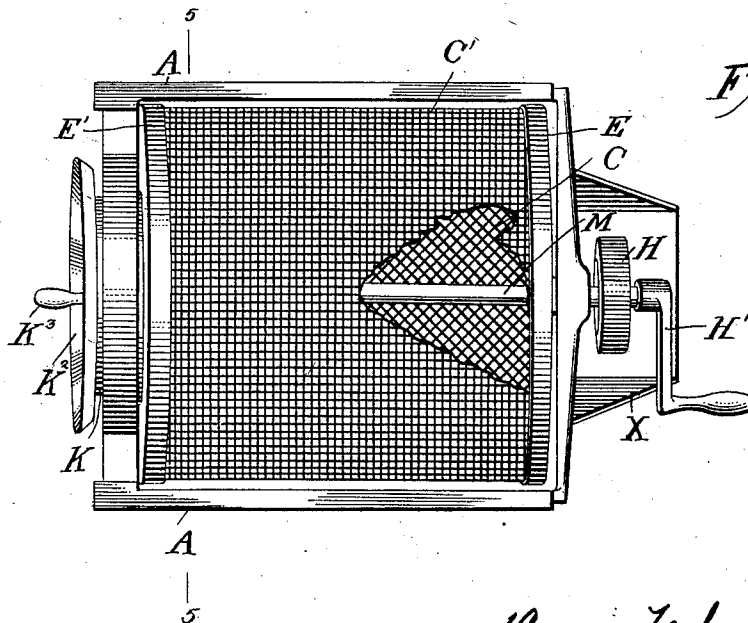
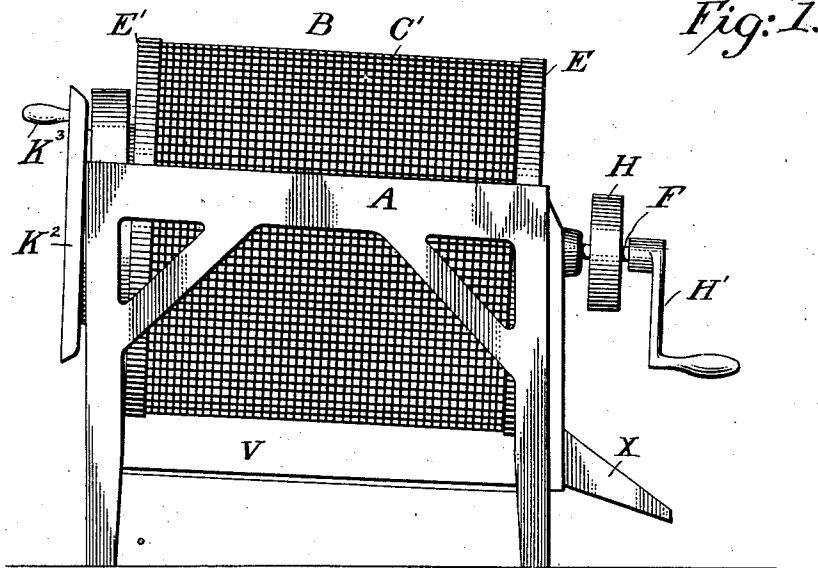
H. TSCHERNING.
SAND SIFTER.

APPLICATION FILED APR. 3, 1911.

1,037,371.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.



Witnesses
Joe F. Collins
R. Craig Greene

Inventor
Henry Tscherning
By *W. H. Lawrence*,
Attorney

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2 SHEETS—SHEET 2.

Fig. 4.

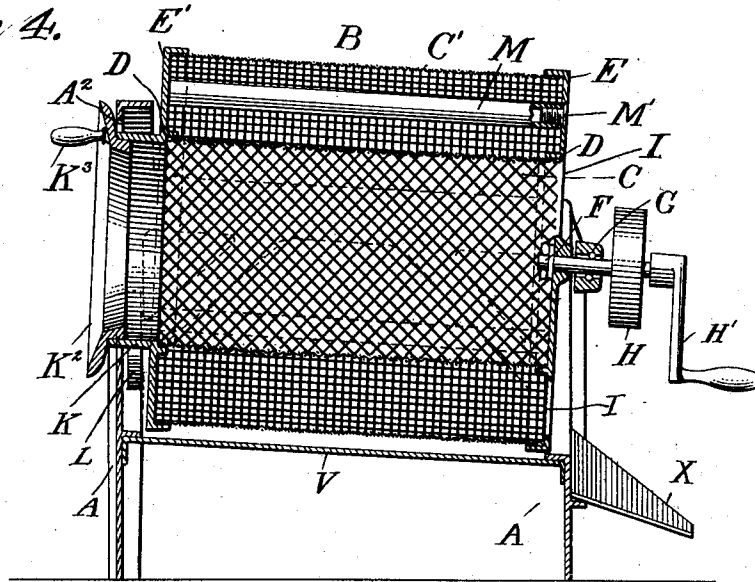


Fig. 2.

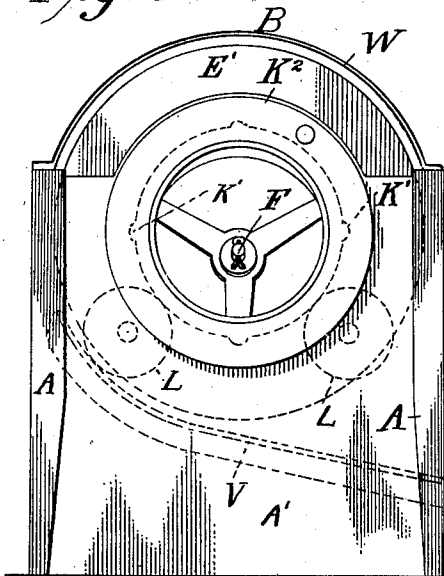
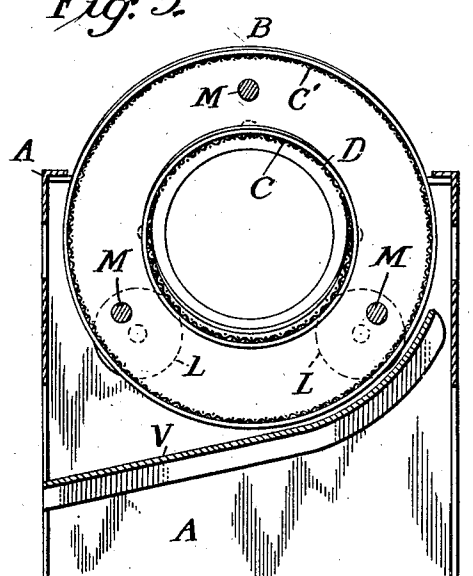


Fig. 5.



Witnesses
J. F. Collins
R. Craig Greene

Inventor
H. Tscherning
By Wallace C. Cunniff
Attorney

UNITED STATES PATENT OFFICE.

HENRY TSCHERNING, OF FREEPORT, ILLINOIS, ASSIGNOR TO ARCADE MANUFACTURING COMPANY, OF FREEPORT, ILLINOIS, A CORPORATION OF ILLINOIS.

SAND-SIFTER.

1,037,371.

Specification of Letters Patent.

Patented Sept. 3, 1912.

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To all whom it may concern:

Be it known that I, HENRY TSCHERNING, a citizen of the United States, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Sand-Sifters, of which the following is a specification, reference being had therein to the accompanying drawing.

The object of this invention is to provide simple, compact and inexpensive apparatus operable by power, by one man, or by two men for rapidly sifting sand, particularly such sand as is used for molds suitable for casting metal. With these ends in view inclined, concentric, spaced, tubular screens are revolubly mounted in a suitable frame and arranged to receive at the higher end and in the inner screen, material to be sifted, and to discharge the finer material laterally, while the portions which fail to pass the screens are allowed to escape at the lower ends of the several screens, which are successively finer in passing from within outward.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus. Fig. 2 is an end view of the same. Fig. 3 is a plan view. Fig. 4 is an axial vertical section. Fig. 5 is a section on the line 5—5, Fig. 3.

In these views, A represents a suitable frame and B a rotary screening or sifting drum revolubly mounted therein with its axis slightly inclined to a horizontal plane. This drum includes an inner tubular screen, C, preferably of woven wire, having its ends held by flanges D upon drum ends E, E', respectively, and also includes a similar and similarly held screen C' concentric with the first but having smaller meshes or openings. For illustration, but two screens are shown, but more may be used.

The drum end E is provided with a central outwardly projecting shaft F revolubly mounted in roller bearings at G, which permit slight swinging of the shaft, and is preferably provided with both a belt pulley H and a detachable hand crank H', so that the shaft may be rotated by hand or power as desired. The body of this end piece is cut away to form openings I, the outermost points of the walls or edges thus formed being substantially flush with the inner faces of the screens, in order that material failing to pass through the screens may be discharged freely at this lower end of the drum

where, if desired, a spout X, Fig. 1, may be placed to receive it. The opposite drum end is an annular plate having its central opening approximately equal in diameter to the inner flange D and having its center in the axis of the screens. This plate is provided with a cylindrical neck K closely surrounding the central opening, projecting outward, and bearing at intervals rounded projections K' all in approximately the same plane. The neck terminates in a flange K², forming a sort of funnel which facilitates throwing material through the opening into the interior of the inner screen. This neck lies in a slightly larger opening, A², in the end of the frame where it is supported by spaced rollers L rotatably mounted upon the frame in the plane of the projections on the neck. These projections are merely a convenient means for making the neck non-circular in cross section at this point so that in rotating it will be jarred by suddenly rising and falling. The ends of the drum are held together in any suitable way, as by rods M parallel to the axis, and screws M' passing through the ends into the ends of the rods, as shown. Preferably, that portion of the frame supporting the charging end of the drum is a continuous sheet A' serving to prevent material dropped in charging from passing beneath the machine. The sifted material falling from the screen is delivered at one side of the machine by a spout V, and in some cases the machine is provided with a cover W, shown in Fig. 2. The flange K² is provided with a handle K³ by which the drum may be conveniently rotated by an operator at the charging end of the machine.

In operation, the material is shoveled into the inner screen through the neck and is agitated by the rotation of the drum and also jarred every time one of the projections on the neck passes one of the rollers, whereby clogging is practically prevented. The finer material passes rapidly through the inner screen while lumps and coarser parts which are not disintegrated by attrition and jarring gradually pass down the incline and are discharged at the lower end of the drum. In the next screen, the screened material received from the first screen is treated in like manner, the finest portion passing through while the coarser parts are, as before discharged at the lower end

of the drum where they will not become mixed with the fine portion laterally discharged. The inner screen thus serves to throw out the coarsest portions of the material and also to feed the next and finer screen with practical uniformity thus avoiding choking or clogging, and in fact, when the drum is rotated by power or by a man at the discharge end of the machine, material may be continuously sifted as rapidly as it can be conveniently shoveled in by one man. And when only one man is available, that man may charge the inner screen while it is at rest and may then rotate the drum without going to the opposite end of the machine, and may thus sift as many charges as may be desired.

What I claim is:—

1. In a sand sifter, the combination with a supporting frame, of an inclined screen drum revolvably mounted in the frame and including concentric unattached screen cylinders held in position between rigidly and detachably connected parallel end plates each provided with concentric annular ribs fitting and forming the ends of said cylinders, respectively, the upper end plate being provided with a receiving opening registering with the inner cylinder and the lower end plate being provided with discharge openings just within the ribs, respectively.

2. A rotary screen drum comprising an upper end plate having an external central tubular neck and internal spaced ribs concentric with the neck, a lower end plate provided with annular ribs corresponding

with those of the upper plate and discharge openings within the ribs, respectively, and further having concentric removable screen cylinders extending from the upper plate to the lower plate and held in form by said ribs, and means for detachably locking the plates at a fixed distance apart, whereby different screen cylinders of like diameters may be readily interchanged.

3. In a sand sifter, the combination with a supporting frame, of an inclined rotary screen mounted in the frame and consisting of a peripherally perforated lower end plate provided with an axial external stub-shaft mounted in bearings permitting lateral swinging of the shaft and with annular screen-receiving ribs on its inner face, an annular upper end plate having a projecting neck around its inner margin supported in a bearing permitting it to rise and fall within short limits and further having upon its inner face ribs corresponding respectively to the ribs upon the companion plate, removable cylindrical screening members formed and held by said sets of ribs, respectively, rods between the concentric screens detachably fixing the end plates with respect to each other, a handle for rotating the shaft, and a handle at the other end of the frame for rotating the neck.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY TSCHERNING.

Witnesses:

T. W. MERNN, Jr.,
OSCAR R. SEITZ.