(No Model.) 2 Sheets—Sheet 1.

T. A. EDISON.

ORE SCREENING APPARATUS.

No. 472,753. Patented Apr. 12, 1892.

Fig. 1.

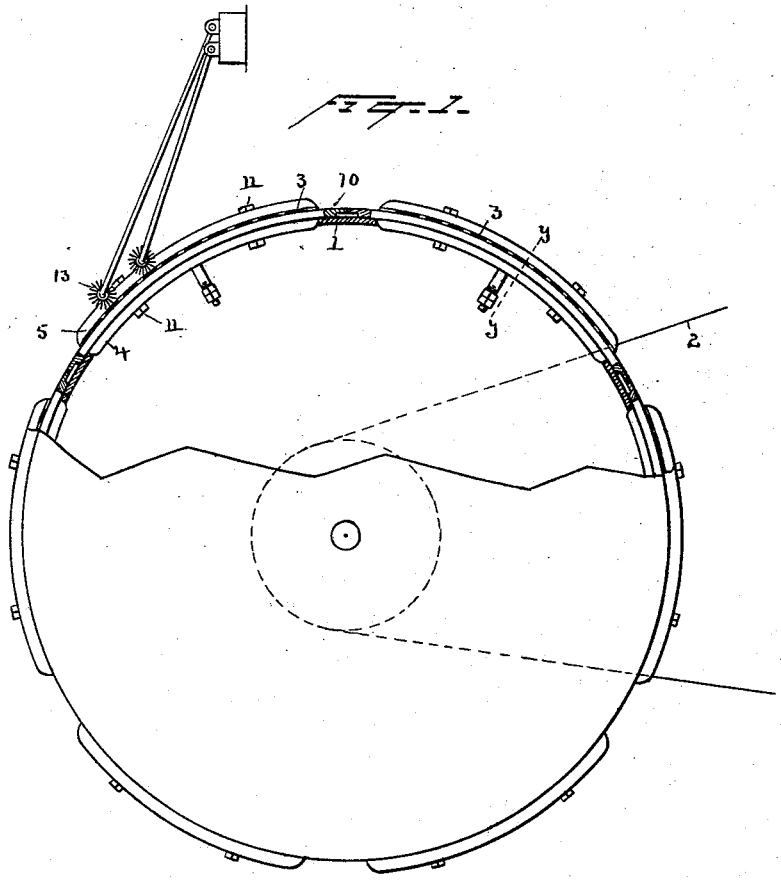
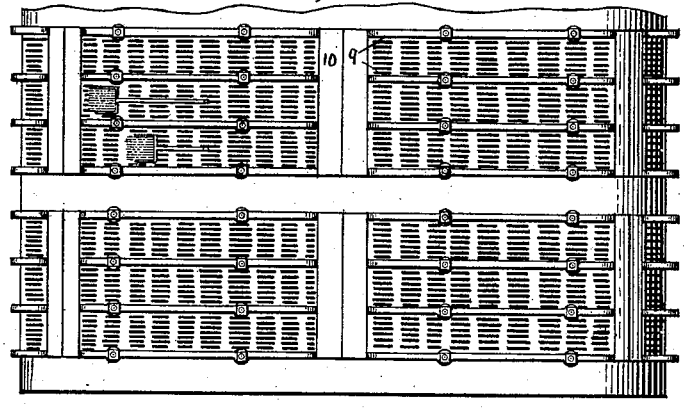


Fig. 2.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

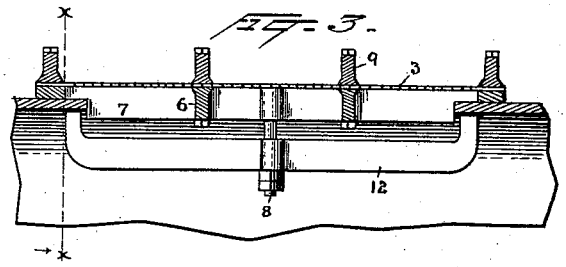


Fig. 4.

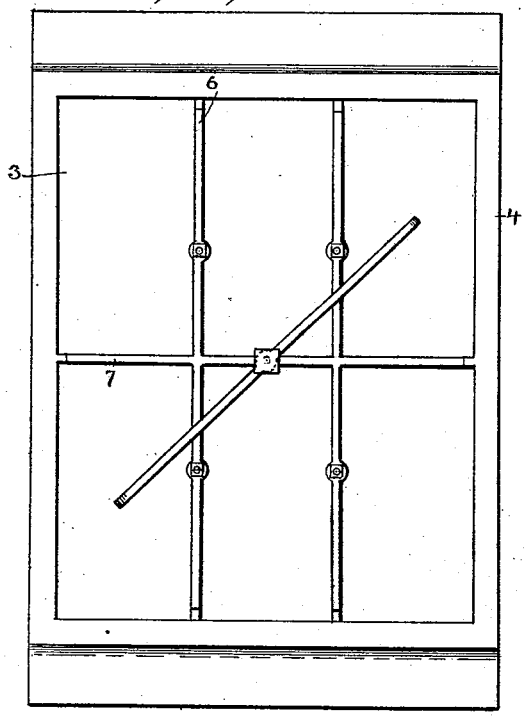
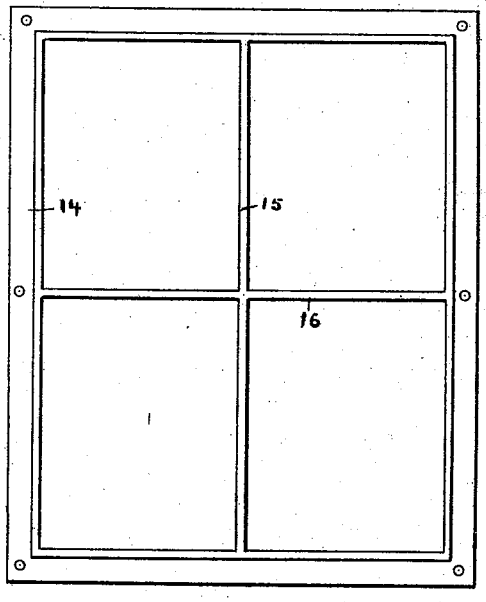


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

ORE-SCREENING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 472,753, dated April 12, 1892.

Application filed October 1, 1891. Serial No. 407,459. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Ore-Screening Apparatus, (Case 939,) of which the following is a specification.

The present invention relates to apparatus for screening ores or for separating any fine material from coarser material with which it is mixed.

The main objects are to provide improved means for connecting the screen-plates to a cylinder provided with openings, over which said plates are mounted, means for strengthening the screens, and means for keeping the surface free from accumulations of dust.

In the accompanying drawings, Figure 1 is an end view of a screening-cylinder with my improvement applied thereto, the ends of the cylinder being broken away at its upper side on a line corresponding to *x x* of Fig. 3. Fig. 2 is a plan of a short section of the cylinder. Fig. 3 is a section on line *y y* of Fig. 1. Fig. 4 is an inverted plan of the screen and its supporting-frame, and Fig. 5 is a view of a modified form of strengthening-frame.

1 is a cylinder adapted to be rotated by any suitable means—for example, belt 2. In the walls of the cylinder are several openings arranged in line with each other circumferentially. Six of these openings are provided in the cylinder illustrated, and each of them is covered by a perforated screen 3, which is preferably of thin metal with holes stamped or cut therein, the holes being preferably in the form of slits, as indicated in the drawings. Heretofore the screen-plates have been secured over the openings in the screening-cylinder by being bolted to the cylinder itself. This required a large number of bolts, besides requiring a screen of considerable thickness, and even then the construction was too weak to withstand the strain put upon it, and the screen had to be replaced frequently and at a good deal of trouble. I provide means for connecting the screen to the cylinder and at the same time strengthening the screen, consisting of a frame adapted to fit over the screen and to be secured to the cylinder. The preferred form of frame consists of an inner section 4 and an outer section 5. The former is provided with longitudinal and tranverse cross-ribs 6 7 and with a projecting bolt 8. The upper section is provided with longitudinal ribs 9, that has ribs extending across the frame in the direction of the circumference of the cylinder, but not with cross-ribs, although at the end of each section is a flat cross-bar 10. The two sections of the frame are secured over the screen by bolts 11, and the whole frame is secured to the cylinder by means of the turn-buckle 12 on the bolt 8, the ends of the buckle being adapted, when the buckle is turned, to bear against the inside of the cylinder, as shown in Fig. 3. When the parts assume the position shown in Fig. 3 and the nuts on the bolt 8 are screwed home, the screen is firmly secured in position. It is not essential that a single turn-buckle should be relied on, nor that the single buckle should extend entirely across the opening, since all that is necessary is to have the supporting-frame and means quickly and easily operated for securing the frame, and hence the screen, to the cylinder. The frames are shown of such size that when they are all in place they entirely encircle the cylinder, as shown in Fig. 1. This adds to the rigidity of the cylinder. Since the openings in the cylinder are in line with each other, and since all of the frames are duplicates of each other, the ribs will form straight channels around the surface of the cylinder.

In screening ores much trouble is experienced by the clogging up of the screen-perforations. To overcome this, I mount roller-brushes 13, preferably of quite stiff wire, so that they rest in the channels described. As the screening-cylinder is rotated the brushes ride along on the surface, and the wires, springing into the perforations or slits, loosen any particles which may project through the perforations in the screen from the inside, but which are too large to pass entirely through.

A portion of the advantages set forth in connection with the screening-frame may be obtained by using the simple form of frame shown in Fig. 5. In this case the perforated screens will be placed directly on the cylinder over the openings and the frames 14 placed over them and bolted by a small number of

bolts to the cylinder. This frame is provided with both longitudinal and transverse ribs 15 16, which may serve to sufficiently strengthen the screens in some cases, since practically all strain put upon the latter is from the inside. With this form of frame the cleaning-brushes are usually omitted, since the cross-ribs would interfere with them.

I claim—

1. The combination, in an apparatus for screening, of a rotatable cylinder having openings in one or more circumferential lines, screens over the openings, frames comprising outer and inner sections, the former having longitudinal strengthening-ribs and the latter having ribs, and means for securing the frames and screens to the cylinder, the screens and brushes bearing on the cylinder between the ribs, substantially as described.

2. The combination, in an apparatus for screening, of a rotatable cylinder having openings in one or more circumferential lines, screens over the openings, outer frames with longitudinal strengthening-ribs, and inner frames with transverse ribs for securing and strengthening the screens, said screens meeting end to end, and brushes bearing on the cylinder between the longitudinal ribs, substantially as described.

3. The combination, with the cylinder or body having an opening, of a perforated screen, the inner and outer frame-sections, between which the screen is held, means for securing the sections of the frame together, and means consisting of a turn-buckle supported by a bolt or stud on the frame for securing the frame to the cylinder, substantially as described.

This specification signed and witnessed this 28th day of August, 1891.

THOS. A. EDISON.

Witnesses:

CHARLES M. CATLIN,

JOHN F. RANDOLPH.