To all whom it may concern:

Be it known that I, WALTER C. MERCER, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Sand and Gravel Cleaners, of which the following is a specification.

This invention relates to machines for washing material such as sand and gravel and has for its object to provide an improved machine of the kind, which will require a comparatively small quantity of water, and which will effectively clean the gravel.

The machine comprises a rotary cylinder provided with inner lifting flanges which elevate the material and drop the same onto an inclined wash board which is provided with transverse guides inclined toward the discharge end so that the material is progressively fed from one end of the cylinder to the other and is finally discharged into a chute. The wash water is supplied at the discharge end of the cylinder and flows through the same toward the feed end where it passes out carrying with it the dirt and the impurities. A water line is also provided for discharging water onto the wash board.

The invention is illustrated in the accompanying drawing in which—

Figure 1 is a side elevation of the machine, partly in section. Fig. 2 is an elevation, partly in section, of the feeding end of the machine. Fig. 3 is a detail in section of the cylinder on the line 3—3 of Fig. 1.

Referring specifically to the drawings, 6 indicates a cylinder or drum preferably constructed of metal and mounted horizontally to rotate on rollers 7. It is driven by a ring gear 8 thereon meshing with a pinion 9 driven by suitable bevel gear connections to a pulley 10. At the inlet end this cylinder has an annular flange 11, projecting inwardly, and at the outlet end has a similar flange 12, the former being of less height than the latter, so that the wash water flows from the outlet end of the cylinder toward the inlet end where it escapes over the flange 11 and into a discharge hopper 13, the direction of flow of water being therefore contrary to the direction of travel of the material to be washed, which is advantageous with respect to the cleaning action. The water is supplied into the outlet end of the cylinder by a water pipe 14. An overflow hopper 16 is located at the outlet end.

For the greater portion of its length the interior of the cylinder is provided with longitudinally extending angle irons or lifters 17, which extend parallel to each other and to the axis. The last foot or two of the cylinder is also provided with angle irons 18 but these are cupped or curved to more effectively lift the material and drop it into the discharge hopper 18, which projects into the outlet end of the cylinder. The feed hopper 20 projects into the inlet end.

Located within the cylinder is a wash board 21 which is mounted on angle irons 22 forming part of a frame which is pivotally supported at its opposite ends on standards 23 and 24. The pivotal mounting enables the wash board to be set at any desired angle, and it is held at adjustment by any suitable means such as adjustable links 25, connecting the frame and the legs of the standards 23.

Upon the wash board 21 are mounted a succession of angle irons 26, constituting guides to direct the flow of the material which is dropped on the table, toward the outlet end of the cylinder. These angle irons 26 are pivoted at one end, as indicated at 27, to the board, and at their other ends are connected to a rod 28 which may be shifted to vary the inclination of the guide irons by swinging the same on their pivots 27, to produce a slower or faster travel of the material through the machine. The wash board is supplied with water discharged through the jet slots 29 in a feed water pipe 30 which extends along within the cylinder adjacent to the upper edge of the wash board.

In operation, material fed into the cylinder through the hopper 20 is lifted by the flanged irons 17 and dropped onto the wash board where it is washed by the water discharged thereon from the pipe 30, and flows down the wash board between the guide irons 26, progressing toward the outlet end of the cylinder as it is repeatedly lifted and dropped, until the cleaned material is finally lifted by the flanged irons 18 and dropped into the discharge hopper 19. The hoppers 19 and 20 conveniently project between the beams 22 on which the wash board is mounted. The cylinder also receives a supply of water entering at the outlet end through the pipe 14, and this water, as well as the water which flows over the wash board, and the
accumulated dirt, etc., flow out over the flange 11 and into the discharge hopper 13, to waste. The clean sand and gravel is thus discharged at the outlet end of the cylinder and the dirty material at the other end. The last one or two of the guide irons on the wash board, which I have indicated at 26, are preferably fixed thereto, instead of being adjustable, so that the finished material will be advanced to the curved lifting blades 18 without delay.

What I claim as new is:

1. The combination of a revolving drum, a washing board extending lengthwise therein and inclined transversely, on which board material is dropped by the revolution of the drum, means to flow water across the board, and a water pipe extending within the drum along the upper edge of the board and provided with openings adapted to cause a flow of material from one end of the drum toward the other.

2. The combination of a revolving drum provided with internal lifters, a washing board extending lengthwise therein and adapted to receive material dropped by the lifters, said board being inclined transversely, a succession of guides on the board, inclined to direct the flow of material toward one end of the drum, and a water pipe extending lengthwise within the drum, along the upper edge of the board, and provided with jet openings arranged to discharge water onto the board.

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

WALTER C. MERCER.

Witnesses:

Geo. C. FITZHUGH,
R. R. SWATHWAY, Jr.