(No Model.)

R. R. WATTERS.

SCREENING DEVICE.

No. 436,049. Patented Sept. 9, 1890.

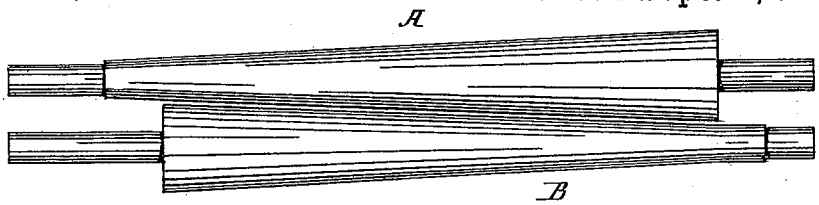


Fig. 1

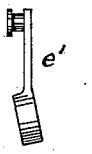


Fig. 5.

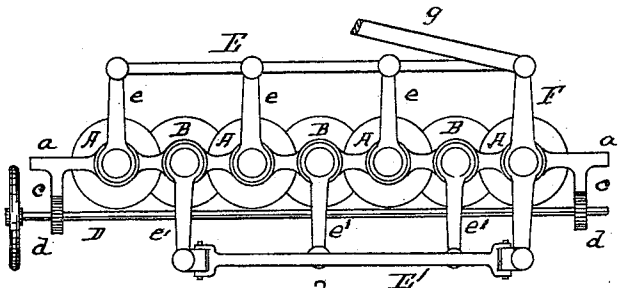


Fig. 3.

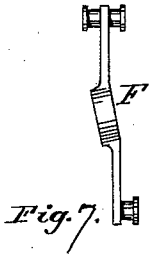


Fig. 7.



Fig. 6.

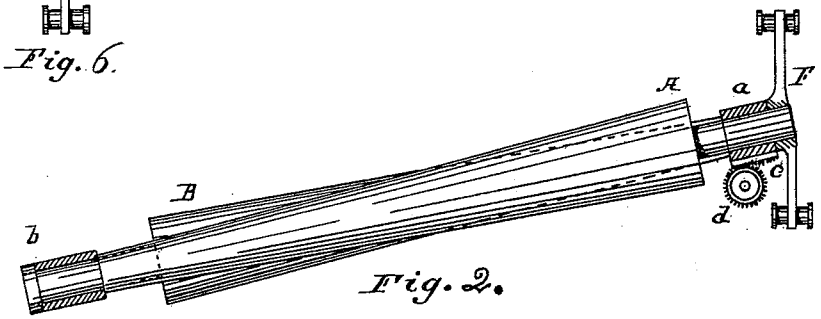


Fig. 2.

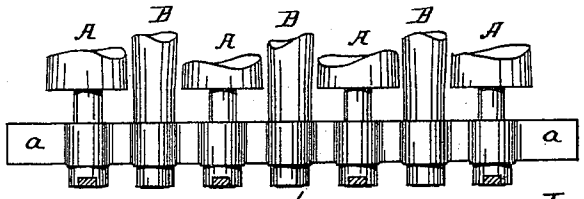


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

RAMA R. WATTERS, OF AKRON, OHIO.

SCREENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 436,049, dated September 9, 1890.

Application filed February 11, 1887. Serial No. 227,227. (No model.)

To all whom it may concern:

Be it known that I, RAMA R. WATTERS, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a new and useful Improvement in Screening Devices, of which the following is a specification.

My invention has relation to improvements in that class of screening devices designed for separating particles of similar size from a common mass, in which the screen consists of a series of rolls mounted side by side, with their axes parallel and arranged to be reciprocally and simultaneously rocked in the same direction, the space between the adjacent rolls constituting the grading outlet, and provided with mechanism by which the size of said outlet may be regulated.

The object of my invention is to present a new and improved form and arrangement of rolls, to provide improved devices for regulating the space between adjacent rolls, and generally to simplify the construction and increase the efficiency of the machine.

To the aforesaid ends my invention consists in the peculiar and novel construction and combination of parts hereinafter described, and then specifically pointed out in the claims, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a plan of two adjacent rolls of my improved machine; Fig. 2, a horizontal elevation of the same, showing details of a part of adjusting mechanism; Fig. 3, an elevation of the machine, showing the rocking and a part of adjusting mechanism; Fig. 4, a plan of one of the adjustable bearings with the ends of the rolls journaled therein, and Figs. 5, 6, and 7, details of rocking mechanism hereinafter described.

The screen consists of a series of alternate conical rolls A B of similar size and shape, each roll having journals projecting from either end, and longer at one end, preferably the larger, than at the other. These rolls are mounted side by side, with their axes parallel and in the same plane, in parallel sets of bearings *a b*, the large and small ends of adjacent rolls alternating, and the rolls horizontally inclined in one direction.

The bearings *a b* can be supported on any suitable frame in the position indicated, and the bearing *a* is arranged to be moved in the line of the axes of the rolls by racks *c* and pinions *d* on the shaft D, operated by a hand-wheel, as shown.

The short journals on the smaller ends of the rolls are so fastened in their bearings that they cannot slide lengthwise therein, while the longer journals are not so fastened. Hence by moving the bearing *a* to and from the bearing *b* the rolls B will be moved with and by it simultaneously in the same direction, thereby changing the spaces between the faces of adjacent rolls.

On the end of one of the journals of one of the rolls A, preferably an end one of the series, is a double crank-arm F, and on the ends of the journals of the other rolls A are crank-arms *e*, and on the ends of journals of the rolls B crank-arms *e'*. The upper end of the crank-arm F is united with the arms *e* by the connecting-rod E, and its lower end with the arms *e'* by a similar rod E'. To the upper end of the crank-arm F is attached a pitman *g*, connected at the other end with a crank or equivalent device, by which it is longitudinally reciprocated, thereby communicating a simultaneous rocking motion to the rolls A and B.

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

1. In a screening device of the class designated, the combination of a series of similar conical rolls with parallel axes, the larger and smaller ends of adjacent rolls alternating, one set of alternate rolls arranged to be simultaneously moved in the line of their axes, substantially as shown and described, and for the purpose specified.

2. In a screening device of the class designated, the combination of a series of similar conical rolls with parallel axes, the larger and smaller ends of adjacent rolls alternating, mounted in parallel bearings, one whereof is arranged to be reciprocally moved in the plane and lengthwise of the axes of said rolls, the journals of alternate rolls being fastened against longitudinal movement in opposite bearings, substantially as shown and described, and for the purpose specified.

3. The combination of the rolls A B, alternately disposed with parallel axes, and large and small ends of adjacent rolls alternating, mounted in bearings *a b*, the former arranged to be moved in the plane of the axes of said rolls, the journals on one end of alternate rolls fastened in opposite bearings against longitudinal movement, and means, as racks *c* and pinions *d*, for moving said bearing *a*, substantially as shown and described.

4. The combination, with the rolls A B, mounted in bearings *a b*, of the double crank-arm F, crank-arms *e* and *e'*, and connecting-rods E and E', to rock said rolls A and B in unison the same direction, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of January, 1887.

RAMA R. WATTERS.

Witnesses:
C. P. HUMPHREY,
O. P. SPERRA.