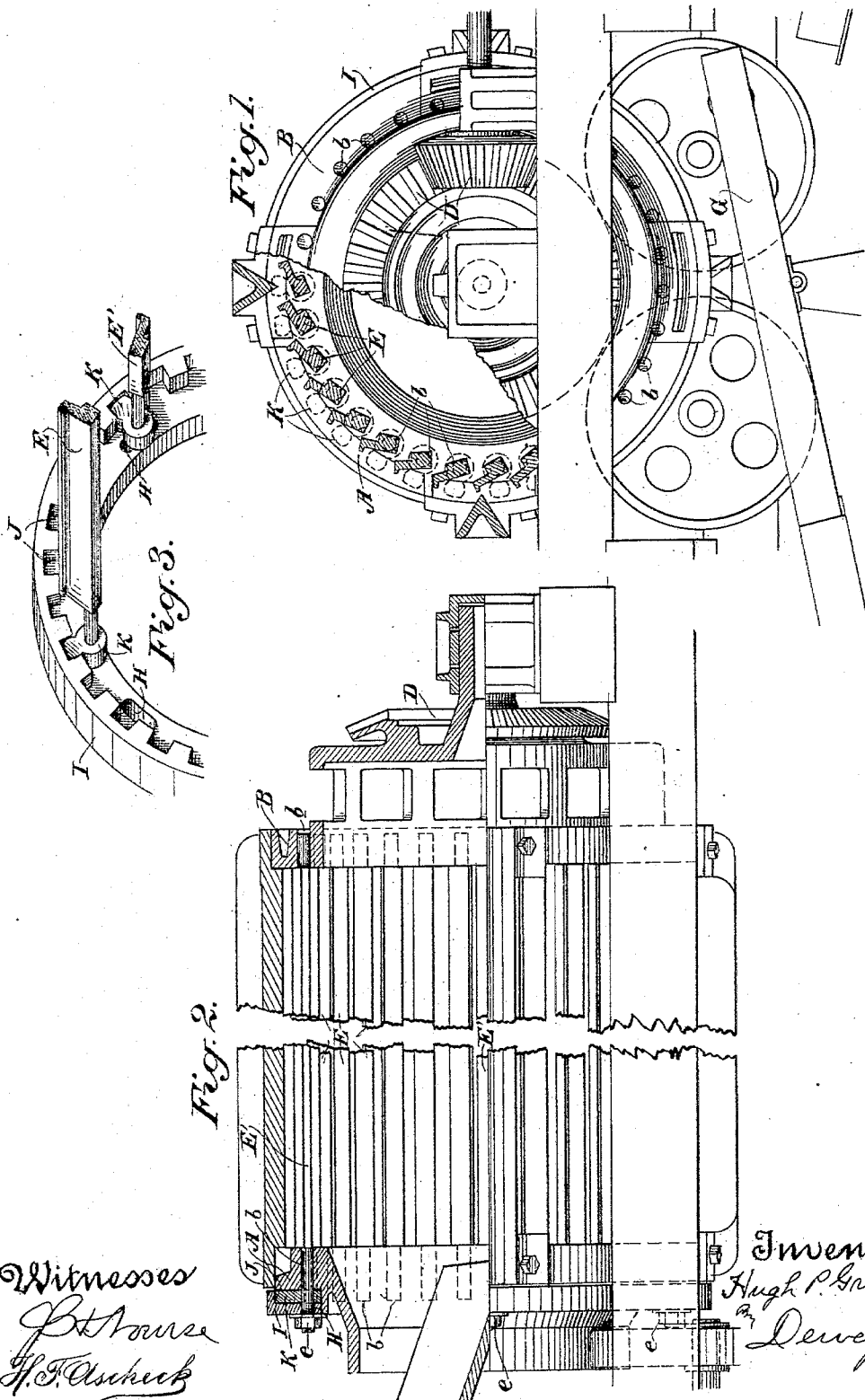


(No Model.)

H. P. GRUGIN.
ADJUSTABLE ROTARY SCREEN.

No. 546,447.

Patented Sept. 17, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

HUGH P. GRUGIN, OF BANNACK CITY, MONTANA.

ADJUSTABLE ROTARY SCREEN.

SPECIFICATION forming part of Letters Patent No. 546,447, dated September 17, 1895.

Application filed June 7, 1895. Serial No. 552,032. (No model.)

To all whom it may concern:

Be it known that I, HUGH P. GRUGIN, a citizen of the United States, residing at Bannack City, Beaver Head county, State of Montana, have invented an Improvement in Adjustable Rotary Screens; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a revolving adjustable screen which is especially adapted for washing and screening auriferous gravel and for other similar purposes.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is an end view of my device, being part broken away to show the interior. Fig. 2 is a side elevation, the upper half being shown in section. Fig. 3 is a detail of the ring and screen bars.

A and B are two circular heads of any suitable or desired diameter, the head A having an opening made in it through which the dirt or material to be screened is fed, and both the heads being adapted to turn upon suitable supports or journals, so that when the apparatus is complete it is in the form of a horizontal cylinder, and it is rotated by means of beveled gearing, as shown at D, or by other suitable or convenient driving power. The screen-surface is formed of bars E, extending from one head to the other and having journals at the end, which are adapted to turn in the holes *b* in the heads into which said journals fit. At a sufficient number of points around the periphery certain of the bars E' have the ends screw-threaded, so that they pass through slots or openings H in an annular ring I. In the present case I have shown four of these bars, and by means of nuts and washers upon the outer ends they are clamped tightly to the heads, thus holding the heads A and B in proper relation to each other, and when the nuts *e* are loosened they allow the screen-bars E to turn freely in the journal holes or bearings.

It is an annular ring or flange, having depressions or pockets J made in it. Upon each of the shafts of the screen-bars E is fixed a crank or arm K, the outer end of which extends into

a corresponding pocket J in this flange. The flange I has slots H made in it, corresponding with the four holding-bars E', and these bars pass through the slots. Now by turning this flange slightly in either direction or as far as the length of these slots will allow it to move upon the holding-bars the crank-arms K will be turned and the screen-bars E will be correspondingly turned. These bars are so fixed with relation to each other that when in one position they fit closely and continuously around the periphery of the drum, thus closing it entirely; and when turned to the greatest distance in the opposite direction they are turned outwardly, as shown in Fig. 1, so as to leave the largest space that can be made between them when thus turned. Being turned to any intermediate points between the closed position and that of fullest opening will regulate the amount of screen-opening and the rapidity of discharge of the material which is being screened and size of the screenings.

The apparatus is especially useful for washing and screening auriferous gravel after it leaves an elevator or conveyer, and for this purpose water is introduced along with it into the cylinder. The water may be introduced through a hollow shaft or axle having perforations on the lower side which will allow it to pass down and mingle with the ore, or by other suitable means. A sluice-box G will be placed directly underneath, and, the bars being set to give the desired opening, the screen is revolved at any suitable or desired speed which is best suited to the amount of washing required and the nature and richness of the dirt. The coarse rock may be dumped from the end of the screen from time to time or it may be discharged continuously.

This device is especially useful in washing pay-dirt which has clay in large quantities and rapidly disposing of the separated dirt with a great saving in labor.

It will be manifest that the screen may be used as well in dry or hydraulic work in conjunction with elevators, steam-shovels, conveyers, and hoists of every kind. It is also particularly adapted for screening quartz, coal, railroad-ballast, coarse metal, &c., and in conjunction with crushers, for every variety of work.

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

1. A screen consisting of circular heads, 5 bars extending horizontally between the heads and provided with threaded ends and nuts for securing said heads together, other bars around the periphery journaled to turn loosely in the heads, having the intermediate 10 portion of each projecting to one side of the line of the journals so that the free edges will move about said journals, arms projecting from the journal shafts and an annular disk having pockets on its inner face into which 15 said arms project, said disk slotted at intervals to directly receive the ends of the holding bars whereby it is movable about the axis of the apparatus, so as to open or close the screen bars with relation to each other.
- 20 2. An improved screen consisting of circular heads supported to turn about a horizontal axis with openings for the admission of material to be screened, bars extending be-

tween said heads with nuts by which they are locked to the heads, screen bars also extend- 25 ing from one head to the other having journals formed upon the ends, near one edge, of each bar whereby the opposite edge is turnable so that the bars may close together or open to any desired degree, an annular ring 30 having slots through which the main holding bars pass, and pockets into which crank arms from the screen bars enter, whereby the turning of said rim in one direction or the other, will close or open the bars and form screen 35 openings of any desired size, a beveled gear on one of the heads and an engaging pinion by which it is driven, and a sluice placed directly beneath the cylinder.

In witness whereof I have hereunto set my 40 hand.

HUGH P. GRUGIN.

Witnesses:

H. C. YOUNG,

OR. F. BOWKER.