

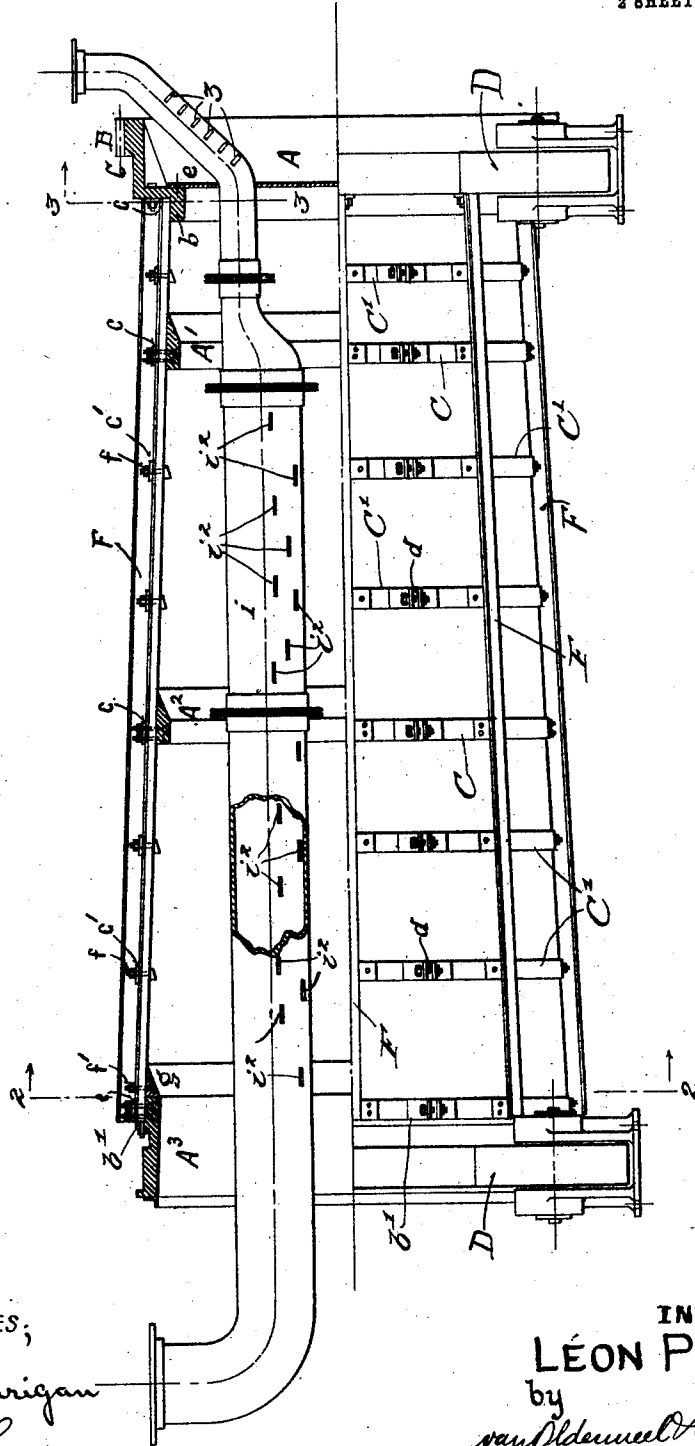
L. PERRET.
 REVOLVING SCREEN FOR WASHING, &c.
 APPLICATION FILED MAR. 21, 1908.

972,128.

Patented Oct. 4, 1910.

2 SHEETS-SHEET 1.

Fig. 1.



WITNESSES;

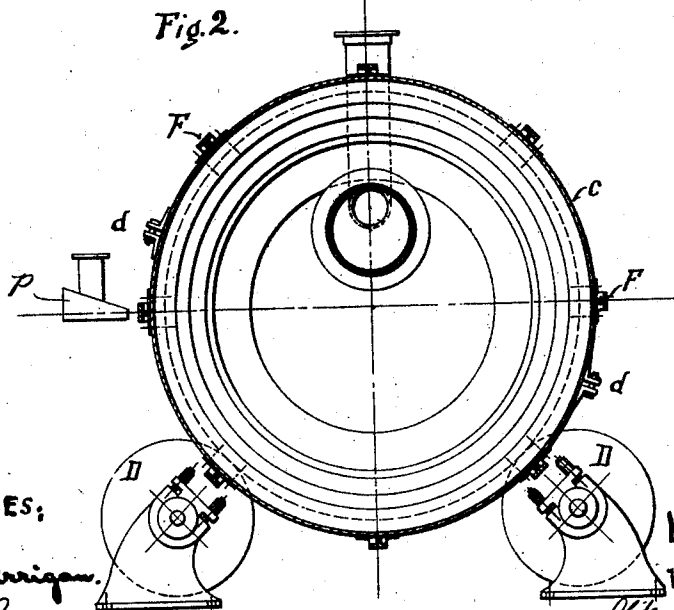
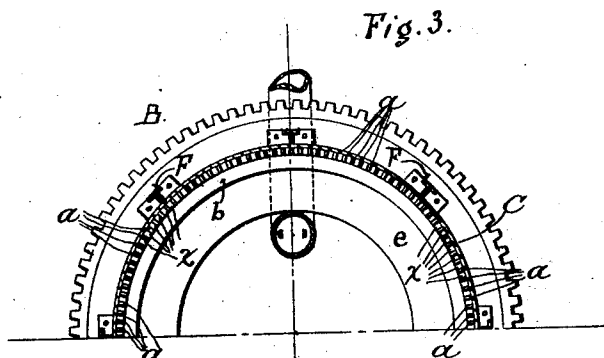
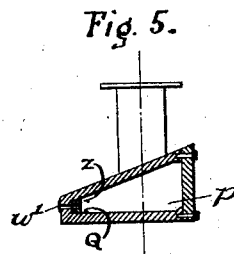
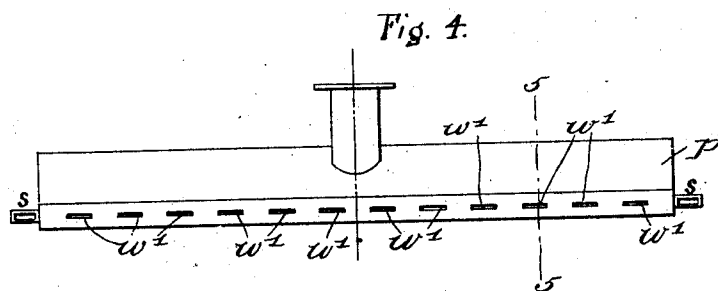
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WITNESSES:

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UNITED STATES PATENT OFFICE.

LÉON PERRET, OF PERM, RUSSIA.

REVOLVING SCREEN FOR WASHING, &c.

972,128.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed March 21, 1908. Serial No. 422,480.

To all whom it may concern:

Be it known that I, LÉON PERRET, a subject of the Emperor of Russia, and a resident of Perm, Russia, at the gold-mine of successors of the late Count P. Schouvaloff, have invented new and useful Improvements in Revolving Screens for Washing, &c., of which the following is a specification.

The new wash barrel or screen, for sands and ores containing precious and other metals, is intended for the treatment of large quantities of material. In view of this, it has a very strong and at the same time a very simple construction, making it possible to speedily and easily assemble and install it in place, in separate parts, which may be conveniently transported to any desired distance. A construction of the barrel is shown in the annexed drawings, wherein—

Figure 1 represents partly a side view and partly a longitudinal section of the same; Fig. 2 is a sectional view of the barrel on the line 2—2 of Fig. 1; Fig. 3 shows half the cross-section through the barrel at the line 3—3 in Fig. 1 looking in the direction of the small arrow adjacent said line; and showing the bars; Fig. 4 is a side view of the injecting device; Fig. 5 is a cross-section of it through the line 5—5 in Fig. 4.

The horizontally-disposed barrel-body consists of end rings A and A³, and of intermediate toothed hoops A¹ and A² (Fig. 1). The ring A is cast with three diameters or sections viz: (1) a section comprising a toothed wheel or gear whereby movement is transmitted to the barrel by means of a gear wheel—not shown (2) a smooth part C, whereby the barrel may be rotatably supported on the rollers D, and (3) a part b, having teeth, z, between the intervals of which the ends of strips a are inserted to form the surface of the barrel. An iron ring e, is fastened to the inner wall of the ring A, and prevents the sands escaping from the barrel. The ring A³ is also provided with a smooth hoop C, whereby the barrel rests on rollers D, and with a toothed ring, in the intervals between the teeth of which the other ends of the strips a are inserted. At their ends, these strips have a screw thread which passes through openings in a ring b¹, to which they are fastened by means of nuts. The toothed rings have a width of teeth which corresponds to the required distance (elongated slots or elongated longitudinally-extending openings, horizontally disposed of the bar-

rel-body) between the strips a of which the side walls of the barrel are composed, and the intervals between the teeth corresponding to the dimensions of the said strips a. On the outside the strips are drawn to place against the rings A¹ and A² by means of hoops C, consisting of two half rings drawn and adjusted by bolts d (Fig. 2). In order to prevent the strips from bending or coming apart between the rings, bolts f (Fig. 1) are inserted in the spaces (crevices) between the strips, and locked to hoops C¹ by means of nuts. The heads of the bolts are of trapezoidal section, and of such dimensions that the head of each bolt touches the heads of adjacent ones, and thus form a continuous ring on the inner surface of the barrel. Each bolt at the points between adjacent strips has completely filled the space between the strips. In order that the material being washed should not be detained in its progressive movement by the rings A¹, A², A³, projecting inside the barrel and with the object of protecting the latter from wear, the latter are tapered or provided with inclined edges, as by securing segmental rings g of triangular section by means of bolts f¹ (Fig. 1) on the side which faces the receiving end of the barrel or by casting the rings A² and A¹ with such tapered or inclined edges. These rings form an inclined surface, facilitating the unhindered movement of the species from one end of the barrel to the other.

It will be observed that the barrel, or screen, is larger at its exit end (that at which the larger ring, A³, is situated), tapering toward that end, and that the material to be treated is merely dumped or supplied through the ring e, and moves, by gravitation, toward the exit end as the result of rotation of said barrel.

As the strips, a of which the barrel is formed, may not, alone, give sufficient strength to the latter, eight ties F are passed over the strips a (Figs. 1, 2, and 3) in the form of T-beams having lugs, by means of which they are fastened, with the aid of bolts, to rings A, A¹, A² and A³ thus forming a system of frame-work which is sufficiently strong for transmitting the required force in the work of the barrel. A horizontally-disposed water-supply pipe, i, passes within and through the barrel and out of the receiving opening of the latter (where the pipe is contracted or of smaller diameter than at its re-

maintaining parts, in order that the cross-sectional area of the receiving opening of the barrel shall not be reduced), and this pipe, *i*, has, at intervals throughout its length, horizontally-disposed discharge openings, for directing wide sheets of water against the interior of the barrel-body for the washing of the material passing through the latter. At one portion—that near the entrance end of the barrel-body—said pipe is provided with slots, 3, for directing sheets of water perpendicularly against the material as it passes into the barrel-body.

Exterior irrigation is effected with the aid of sprinkling means (of which but one is shown in the drawings). For this purpose, I use a cast iron case *p* (Figs. 2, 4 and 5) of trapezoidal section, placed parallel to the barrel along its entire length. The wall of the case which is turned toward the barrel contains a series of rectangular horizontally-disposed openings *w*¹ (Figs. 4 and 5), the width of which is somewhat less than the width of the spaces between the barrel strips and which are spaced apart from one another, a distance equal to their length. A strip *q* is located inside the case, and slides between the front wall of the case. The strip *q* is shorter than the case to the extent of the length of an opening *w*¹ and has rectangular crevices of similar dimensions to those of the case. By any suitable means not shown in the drawings, the strip *q* opens or closes the openings in the case and thus regulates the width of the streams of water gushing out of the cases, or of the current of the irrigating water. The case is disposed in such a manner that streams of water should be directed radially to the longitudinal axis of the barrel, in view of which fact they get inside the same each time a crevice between the strips forming the barrel is opposite to the openings of the same.

It will be noted that the pipe, *i*, is disposed above the axis of rotation of the barrel-body, and that the discharge openings of the exterior casing are also above said axis.

By reason of the arrangement of the openings, in a horizontal direction and longitudinally of the barrel-body, and of the discharge openings in the outer casing so that the latter openings shall also be horizontally disposed, the water is supplied in wide and thin sheets, the water from the pipe *i* being directed immediately against the material undergoing treatment, aiding the latter to pass through the slots or steps in the barrel-body, while the external sheets of water wash this material from said barrel-body.

The advantages of the proposed construction of a washing barrel are as follows:

1. Owing to the construction described above, the dimensions of the barrels may be modified according to the standard adopted practically in each locality, this being at-

tained by a corresponding change of the dimensions of the toothed wheels without departing from upon the arrangement and construction in general.

2. The barrels are made of steel or iron plates of standard dimensions and therefore it is not necessary to have special material made to order for them, with the exception of the cast rings, which hardly wear at all and can therefore last a long time.

3. The steel plates when worn out are very easily replaced by new ones and the old strips may be used up for sundry jobs (forgings), this fact being a very important one in industry in view of the places where material can be bought being far away; the sifters (plates) of the barrels used at present cannot be put to any use at all when worn out.

4. Owing to the fact of the barrel being composed of strips, its interior surface is rough as the rib of one strip stands out somewhat from the rib of the following one. Pebbles and lumps of species, on being raised in the direction of the rotation of the barrel get caught between these ribs and on coming down along the surface of the barrel they roll, rub one against another and place new surfaces under the streams of water.

5. The sifting surface of the barrel is as great as it is possible to have it, while the required strength of the construction is also maintained.

6. The replacing of all separate parts of the barrel is accomplished easily.

7. The irrigation inside as well as outside is altogether uniform along the entire length of the barrel. By making use of a number of openings in the central pipe and their varying dimensions it is always possible to obtain the quantity of water required in each given case, according to the nature and quantity of the species being washed.

8. The irrigation may be regulated for any desired moment of washing.

9. The pressure of the washing water is utilized fully for mellowing the species being washed, which undergoes the action of the water from both sides.

10. Owing to interior and exterior irrigation, the crevices between the strips do not get stopped up, so that the barrel retains its sifting surface to the full extent during the whole time of its action.

11. In view of the fact that the barrel of the improved construction consists of separate parts, which are easily taken apart, it is very convenient for transport.

What I claim is:

1. In a wash-barrel, a horizontally-disposed barrel-body having elongated horizontally-disposed openings in its walls, a water-supplying means within said barrel comprising a pipe having elongated horizontally-disposed water-discharge openings, and water-

supplying means outside of said barrel and comprising a casing having elongated horizontally-disposed water-discharge openings, the elongated water discharges and the opposed openings of the casing, being so related as to aline in the path of water discharge, substantially as described and for the purpose of directing wide sheets of water upon the contents of the barrel from both the inside and outside thereof.

2. In a wash-barrel, a horizontally-disposed barrel-body composed of notched end-rings one of which is provided with gear teeth, and of metallic strips extending lengthwise of the body and with longitudinally-extending elongated spaces between said strips, said strips being secured within the notches of the end rings, a gear wheel engaging the toothed end ring aforesaid, and means for

rotating said gear wheel, in combination with a water-supply pipe passing longitudinally through the interior of said barrel-body and having elongated horizontally-disposed water-discharge openings, and with a water-supply casing exterior of and disposed longitudinally of the barrel and having elongated horizontally-disposed openings directed toward said barrel said elongated water discharges and the opposed openings of the casing being so related as to aline in the path of the water discharge.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

LÉON PERRET.

Witnesses:

H. A. LOVIAGUINE,
E. WAHSCHIEDT.