

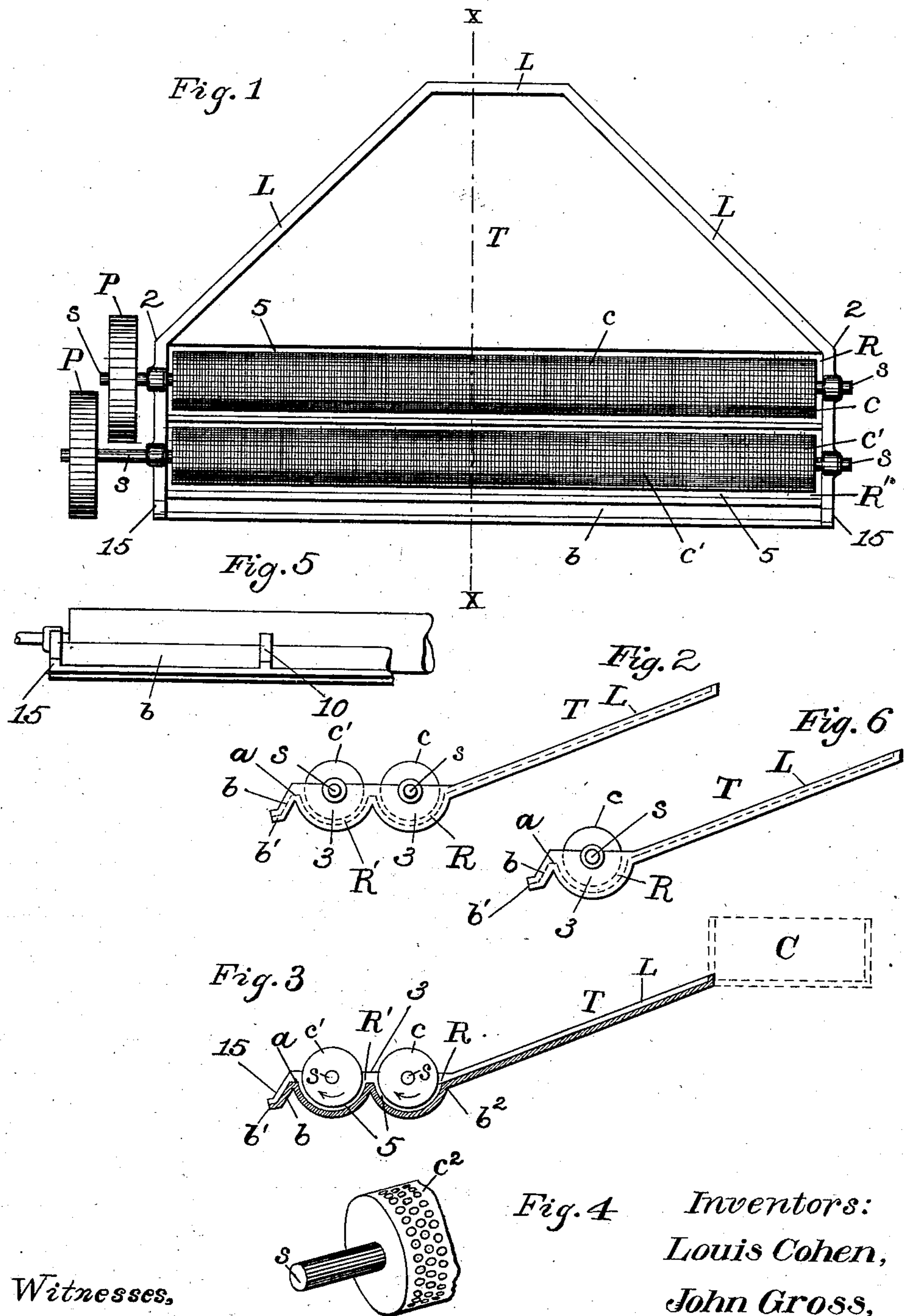
No. 725,932.

PATENTED APR. 21, 1903.

L. COHEN & J. GROSS.  
PULP DISTRIBUTER AND FEEDER.

APPLICATION FILED AUG. 2, 1902.

NO MODEL.



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# UNITED STATES PATENT OFFICE.

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## PULP DISTRIBUTER AND FEEDER.

SPECIFICATION forming part of Letters Patent No. 725,932, dated April 21, 1903.

Application filed August 2, 1902. Serial No. 118,044. (No model.)

*To all whom it may concern:*

Be it known that we, LOUIS COHEN and JOHN GROSS, citizens of the United States, residing in Sombrerete, Estado de Zacatecas, México, have invented certain new and useful Improvements in Pulp Distributers and Feeders, of which the following is a specification.

This invention relates to distributing feed devices for pulp and similar material; and it consists, substantially, in the improvements hereinafter particularly described.

Though applicable to analogous purposes in the different arts, our invention is intended more especially for use in ore-reducing plants wherein finely-divided ore in solution is supplied to one or more machines or tables for the purpose of concentration or separation of the metals thereof. In such plants it is essential to a proper separation of metals from their ores that the pulpy mass be delivered to or spread upon the concentrating-table in an even and well-distributed manner, and it is usual in many instances to feed the mass to the table either in the form of a continuous sheet or stream or else in a plurality of sheets or streams, preferably, though not essentially, equidistant from each other. Various means have been hitherto devised and employed for thus feeding the ore pulp or mass to the concentrating or separating tables; but in the use thereof there has been a tendency to settling of the suspended material, (more especially at the point of delivery of the mass to the table,) resulting in unequal feed and irregular distribution of the mass over or upon the table, and consequently retarding or seriously interfering with the process of separation of the metals, besides being attended with other undesirable features.

The principal object of the present invention is to overcome the disadvantages and objections above pointed out and to provide distributing devices for feeding ore or other pulp to or upon a bed or table in an even and regular manner and without tendency to settling of the material of the mass in suspension either at the point of delivery of the mass to the table or upon the surface of the latter.

A further object is to provide distributing feed devices for the purpose named which

are simple in construction and organization and which are effective in operation and not liable to clog or get out of order.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of distributing feed devices embodying our improvements; and Fig. 2 is a side view thereof looking toward the left, the driving means for the feed rolls or cylinders being removed. Fig. 3 is a corresponding transverse sectional view on the line  $x x$  of Fig. 1. Fig. 4 is a perspective view in detail of a portion of feed roll or cylinder of modified form. Fig. 5 is a front view of another modification, and Fig. 6 is a side view of a still further modification.

Before proceeding with a more detailed description it may be stated that in carrying our invention into effect we provide pulp-distributing devices comprising, preferably, duplicate rolls or cylinders of special construction which are mounted in suitable troughs or receptacles therefor and which are operated to be rotated at suitable speeds in the manner and for the purpose hereinafter fully understood. The mass of pulp or other material is supplied to the rolls or cylinders in any suitable manner, but preferably by gravity, and the operation of said rolls or cylinders is such that the mass is agitated or stirred and carried forward to and upon the concentrating or separating table (not shown) in a manner entirely overcoming any tendency to settling of the material in suspension either at the point of delivery of the mass to the table or upon the surface of the latter. We may increase the number of rolls or cylinders in some instances, if desired, and our invention is also intended to comprehend or include the use of a single roll or cylinder for the purpose, although we prefer substantially the embodiment herein shown. The trough structure for the rolls or cylinders is also such that the thoroughly agitated or stirred mass may be delivered to the concentrating-table or other structure either in a single uniform continuous sheet or stream or in a plurality of such sheets or streams, as desired.

It is to be understood that variations may be made from the construction and organiza-



tion of elements herein illustrated and still come within the scope of our invention.

Specific reference being had to the accompanying drawings by the designating characters thereon, R and R', Figs. 1, 2, and 3, represent two troughs or receptacles which are preferably substantially semicylindrical in cross-section and the adjacent or inner edges of which unite in the formation of, preferably, a single structure, as shown, the edge *a* of said structure being formed or provided with an inclined apron *b*, the lower edge of which is turned outwardly, as indicated at *b'*, so as to enable the structure to be disposed in proper relation to the edge of an ore-concentrating table or other surface, as is apparent. Leading upwardly from the edge *b'* of said structure is an inclined plane or table T, adjacent to the upper end or edge of which may be placed a suitable tank or reservoir C for ore or other pulp, (see dotted lines, Fig. 3,) said plane or table being preferably of gradually-decreasing width upwardly (see Fig. 1) and provided at the edges thereof with raised flanges L, which serve to prevent any of the pulp or mass from flowing off during the operation of our improved devices. Said flanges intersect at 2 2, Fig. 1, with the end sections 3 3 of the said troughs R R', which end sections are preferably of height somewhat in excess of the depth of the troughs, as shown, thus also to prevent any of the pulp or other material from overflowing at the ends of the troughs in the passage of the mass into the troughs from the table. The said end sections 3 3 of the troughs are constructed with bearings, in which are supported the journals of rotatable shafts *s s*, on which are mounted the cylinders or rolls *c c'*, which operate in the troughs, said rolls or cylinders being of diameter sufficient to extend considerably above the edges of the troughs, yet having clearances or spaces 5 5 between the surfaces thereof and the inner surfaces of the troughs, substantially as indicated at Fig. 3. Each of the said rolls or cylinders is hollow and constructed of any suitable foraminated material—as wire-gauze of suitable mesh, (indicated at Fig. 1,) for instance—or instead of such material we may employ rolls or cylinders of perforated sheet metal, as indicated at *c'* in Fig. 4. The ends of the rolls or cylinders are closed, as shown, and the shafts thereof are provided at one end with pulleys P P, to which driving-belts (not shown) from any suitable source may be connected for rotating the rolls or cylinders in the direction of flow of the pulp mass on the table T, as indicated by the arrow in Fig. 3, or the desired rotary motion may be communicated to the rolls or cylinders in any other suitable way, as is apparent.

If it is desired to feed or deliver the pulp mass to or upon the concentrating or separating table in a single uniform or undivided sheet or stream, the discharge-apron *b* is made continuous or undivided, as shown in

Figs. 1 to 3, inclusive; but when it is desired to separate such mass into a plurality of such sheets or streams the outer surface of said discharge-apron is divided at any desired intervals, substantially as indicated at 10, Fig. 5. In either case the ends of the said discharge-apron are provided with wing portions 15 to prevent running off of any part of the pulp mass at such points. As shown at Fig. 6, we may employ a single roll and trough, if desired.

In the operation of our improved distributing feed devices the mass of ore-pulp is caused to gravitate down the inclined plane or table to the troughs, it being of course understood that motion is imparted to the rolls or cylinders to revolve them at the desired rate of speed or with sufficient power to stir up or turn over the mass simultaneously with the action of said rolls or cylinders in feeding the mass to the surface of the concentrating or separating table through the medium of the feed-apron, as already described. During this operation the troughs are kept continually filled with the pulp and the mass also flows or passes into and through the open sides of the rolls or cylinders in such manner as to thoroughly obviate or overcome any tendency of settling of the solid parts thereof. It will thus be seen that by means of our improvements many inconveniences and irregularities are overcome in the processes of concentrating or separating the ores, and attention is called to the fact that our improved devices are equally as well adapted for feeding paper or wood pulp or other similar material.

According to the capacity of feed desired we may employ any number of foraminated feed rolls or cylinders, together with an equal number of troughs or receptacles therefor, and in virtue of the ends of said rolls or cylinders being closed it is evident that none of the pulp or material can flow or pass out at those points. The clearance-spaces between the rolls or cylinders and the adjacent or inner surfaces of the troughs or receptacles therefor permit quantities of the pulp mass to be urged forwardly continuously by the action of said rolls or cylinders, the weight of the material on the table above the troughs also assisting to this end, and it is apparent that our improved feed devices operate effectively and with reliability.

Having thus described our invention, what we claim is—

1. A distributing feed device for ore-pulp or similar material containing one or more rotatable rolls consisting of a cylindrical hollow body having closed end portions, and a perforated or foraminated curved bounding-surface.

2. In a distributing feed device for ore-pulp or similar material, the combination with a trapezoidiform feed-table and rotatable rolls located at the longer of the parallel sides thereof, and consisting of a cylindrical hollow



body having closed end portions and a foraminated curved bounding-surface.

3. In a distributing feed device for ore-pulp or similar material, the combination with an  
5 inclined trapezoidiform feed-table and one or more rotatable rolls located at the longer of the parallel sides thereof and consisting of a

cylindrical hollow body having closed ends, and a foraminated curved bounding-surface.

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