No. 702,541. Patented June 17, 1902.

L. COHEN & J. GROSS.

ORE CONCENTRATOR.

(Application filed Sept. 11, 1901.)

(No Model.)

Fig. 1.

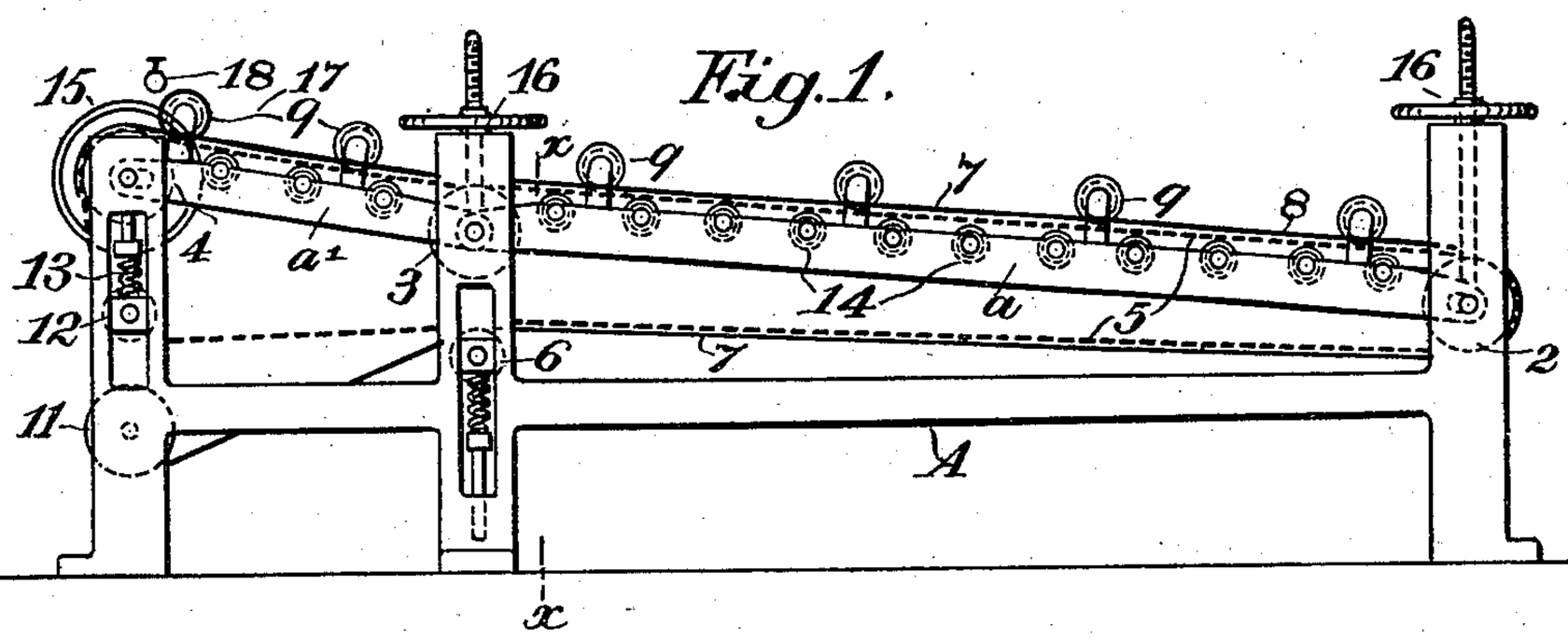


Fig. 2.

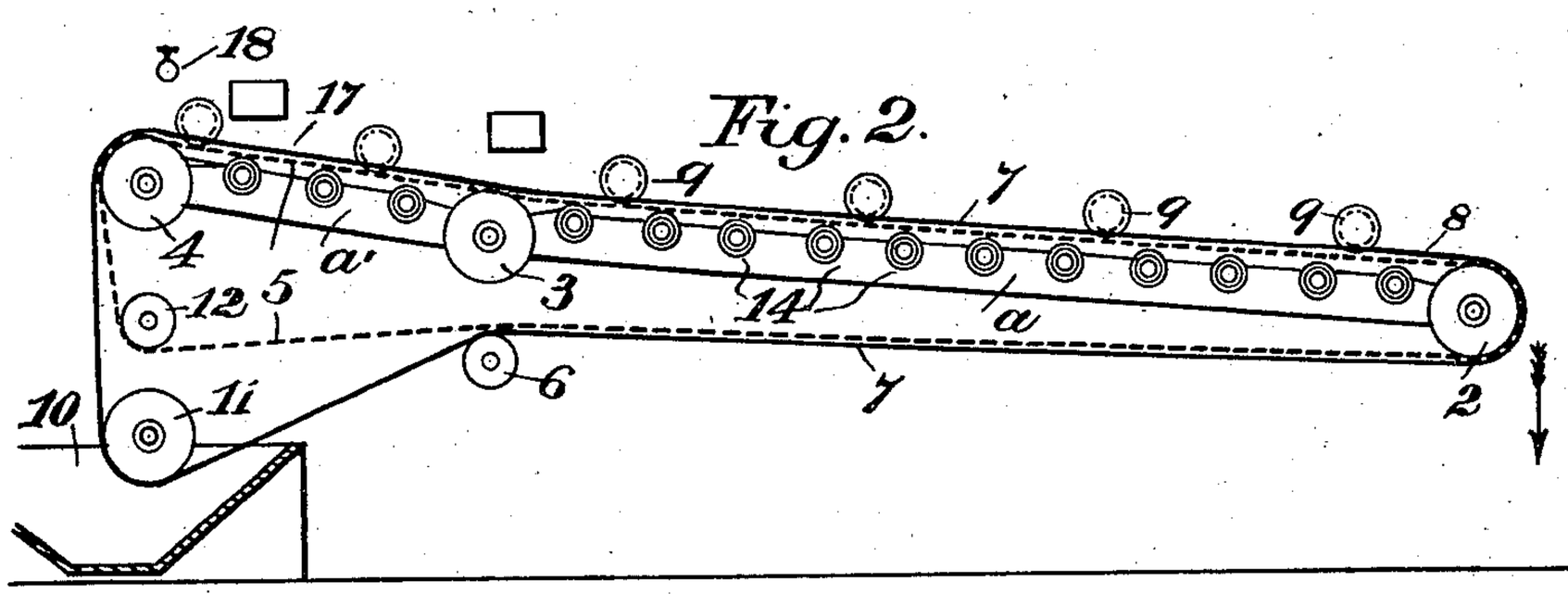


Fig. 3.

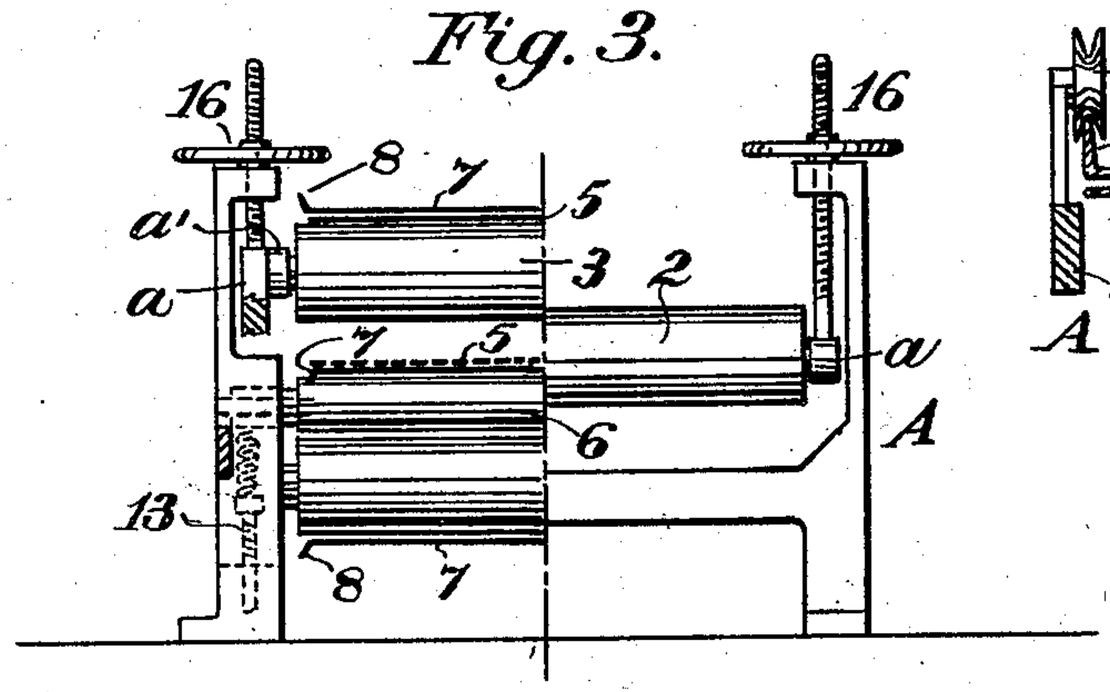
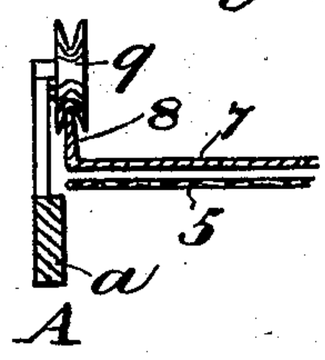


Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS COHEN AND JOHN GROSS, OF SOMBRERETE, MEXICO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 702,541, dated June 17, 1902.

Application filed September 11, 1901. Serial No. 75,097. (No model.)

To all whom it may concern:

Be it known that we, LOUIS COHEN and JOHN GROSS, citizens of the United States, residing at Sombrerete, Zacatecas, Mexico, have invented an Improvement in Ore-Concentrators; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to improvements in ore-concentrating tables.

It consists, essentially, of two endless traveling surfaces or belts one within the other, the inner one serving as a support for the outer or concentrator belt, flexible bed-sections upon which these belts are carried and by which the belts are given a double incline, and means whereby these inclines may be varied.

It also comprises details which will be more fully set forth hereinafter.

Having reference to the accompanying drawings, Figure 1 is a longitudinal elevation of our invention. Fig. 2 is a similar view with the supporting-frame omitted. Fig. 3 is a part transverse section on the line $x\,x$, Fig. 1, and part end view. Fig. 4 is an enlarged transverse section view showing a sheave.

A represents a suitable framework having its upper longitudinal portion or bed made in two sections a and a', which are movable in relation to each other. The lower end of the longer section a pivots upon the shaft of a roller 2. The upper end of the section a' pivots upon the shaft of the roller 4, while the two sections are movably connected to the shaft of the roller 3. An endless surface or belt 5 passes over these rollers and over a roller 6. This belt may be of any suitable heavy texture, as burlap, and it is intended as a support and carriage for the concentrator-belt 7, which incloses it. The belt 7 is of suitable textile fabric, as canvas, and is provided with a marginal border or flange, as 8, which serves both as a guide to run in the grooves of the sheaves 9, carried upon the frame, and also to prevent slimes and water from flowing over the sides of the table. This outer belt lies upon the belt 5 and passes down into the concentrate box or tank 10 and around a roller 11. The tension of the belt 7 is regulated by a roller 12, whose journals rest upon an adjusting spring and screw 13. The adjustment of the roller 6 is effected by similar means. The supporting-belt 5 is in turn supported by a number of rollers 14, carried upon the sections and placed sufficiently close together to keep the surface taut. Motion is imparted to the belts through the power-pulley 15 upon the shaft of the roller 4. This, in fact, is the only motion given to the table. Between the rollers 2 and 3 and between 3 and 4 the table is given two separate longitudinal inclinations. This is accomplished by means of the pivoted sections a and a' and an adjusting mechanism 16, located in relation to the rollers 2 and 3. As here shown, this adjusting means consists of a pair of screws each supported in the frame A and operated by a hand-wheel and having their lower ends adapted to receive the shafts of the rollers. Thus it is possible to give any desired inclination or pitch to either one or the other, or both, of the sections and accordingly to their respective concentrating surfaces. This pitch, however, is always upward in the direction of travel and toward the head of the machine.

In operation the ore and slimes are fed onto the table at 17. The tailings or gangue passing downward with the flow of water and discharging at the lower end of the machine, while the concentrates or more valuable particles are carried on upward over the steeper incline and are discharged into the tank 10. Fresh water is fed on the table by suitable means, as a perforated pipe 18, near the head of the table, and this serves to wash thoroughly the concentrates and remove any remaining foreign matter. The double inclination of the table, as indicated by the position of the sections a and a' tends to give a clean and thorough separation of the concentrates and gangue. Moreover, the table is easily adjustable to meet the varying conditions of treatment that may arise between different runs of ore.

The device is extremely simple in construction and operation. As a result less repairs are needed than with most tables having more

than one motion, and there is a marked saving of time and material over the ordinary type of machine.

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

1. The combination in an ore-concentrator of a plurality of bed-sections and a single axis passing through the meeting ends of said sections and conjoining the sections whereby the pitch and inclination of the sections may be simultaneously varied, rollers upon the sections, endless concentrating surfaces supported upon said rollers and extending continuously over the bed-sections, and means for simultaneously moving the conjoined ends of the sections and varying the inclination of the sections in relation to each other.

2. The combination in an ore-concentrator, of a plurality of conjoined bed-sections, rollers upon these sections, a belt passing over said rollers and conforming to the pitch or inclination of said sections, a second belt lying upon and inclosing said first-named belt, and means whereby the pitch or inclination of said sections may be varied.

3. In an ore-concentrator, the combination of a plurality of alined bed-sections having rollers said sections having their meeting ends directly conjoined; a plurality of endless traveling belts, one within and supporting the other said belts passing over said bed-sections; and means whereby said belts and bed-sections may be moved in a vertical plane and a double inclination be given the continuous face of the concentrating surface.

4. In an ore-concentrator, the combination of two alined bed-sections having their adjacent ends pivotally connected, pivotal supports for their outer ends, one of said sections longer than the other, a traveling belt adapted to be supported upon and inclosed by said sections, and a second or concentrator belt supported upon and inclosing said first-named belt.

5. A concentrator consisting in combination of two horizontally-disposed bed-sections having their ends pivotally supported, means by which said sections may be moved so as to change their relative angles of inclination, rollers upon said sections, an endless belt supported upon said rollers and having its upper surface conforming to the inclination of said sections, a second belt supported upon and inclosing said first-named belt, means by which said belts are driven in unison, lateral guides upon the outer belt and sheaves having grooves in which said guides are adapted to travel.

In witness whereof we have hereunto set our hands.

LOUIS COHEN.
JOHN GROSS.

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