

(No Model.)

J. S. BROWNELL.  
BELT FOR ORE CONCENTRATORS.

No. 501,557.

Patented July 18, 1893.

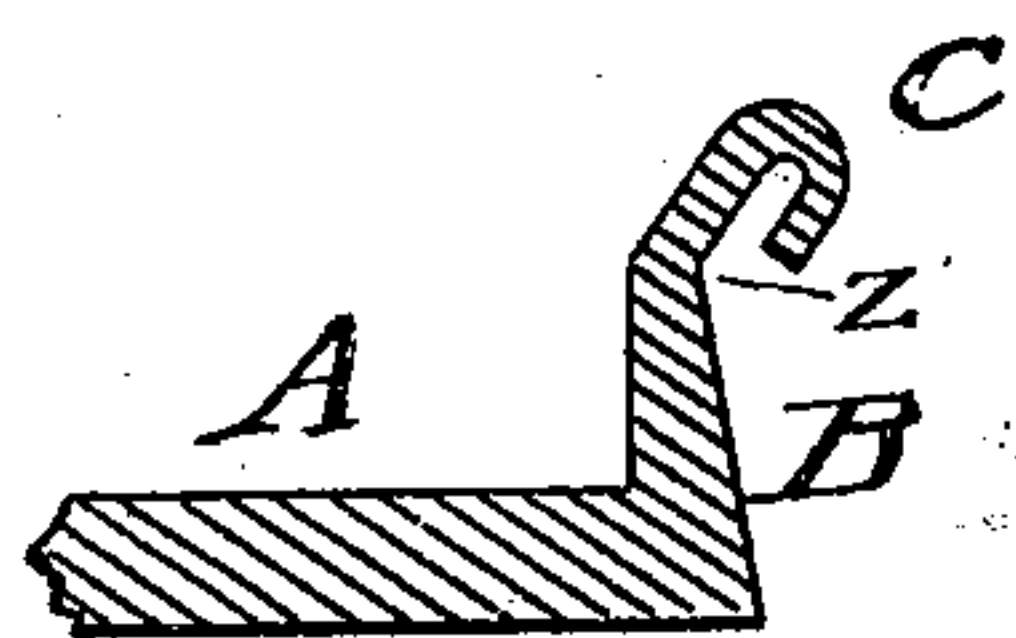
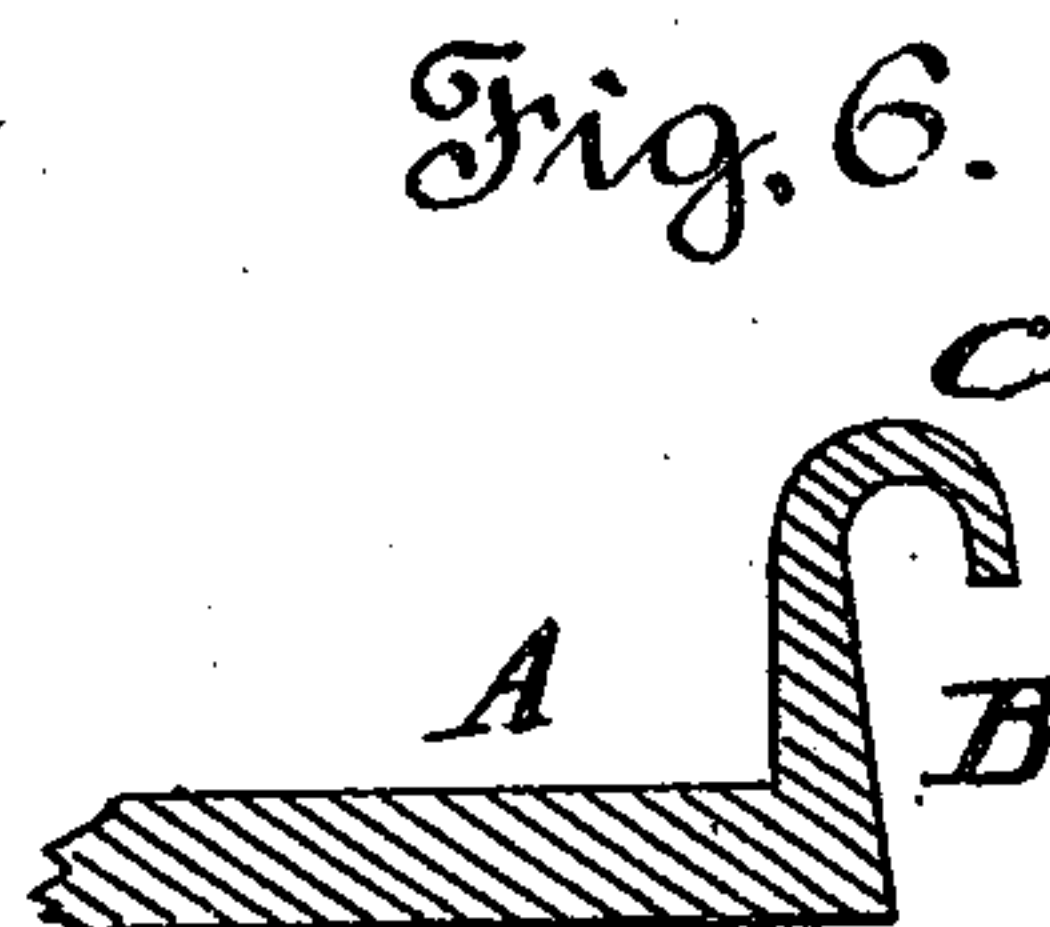
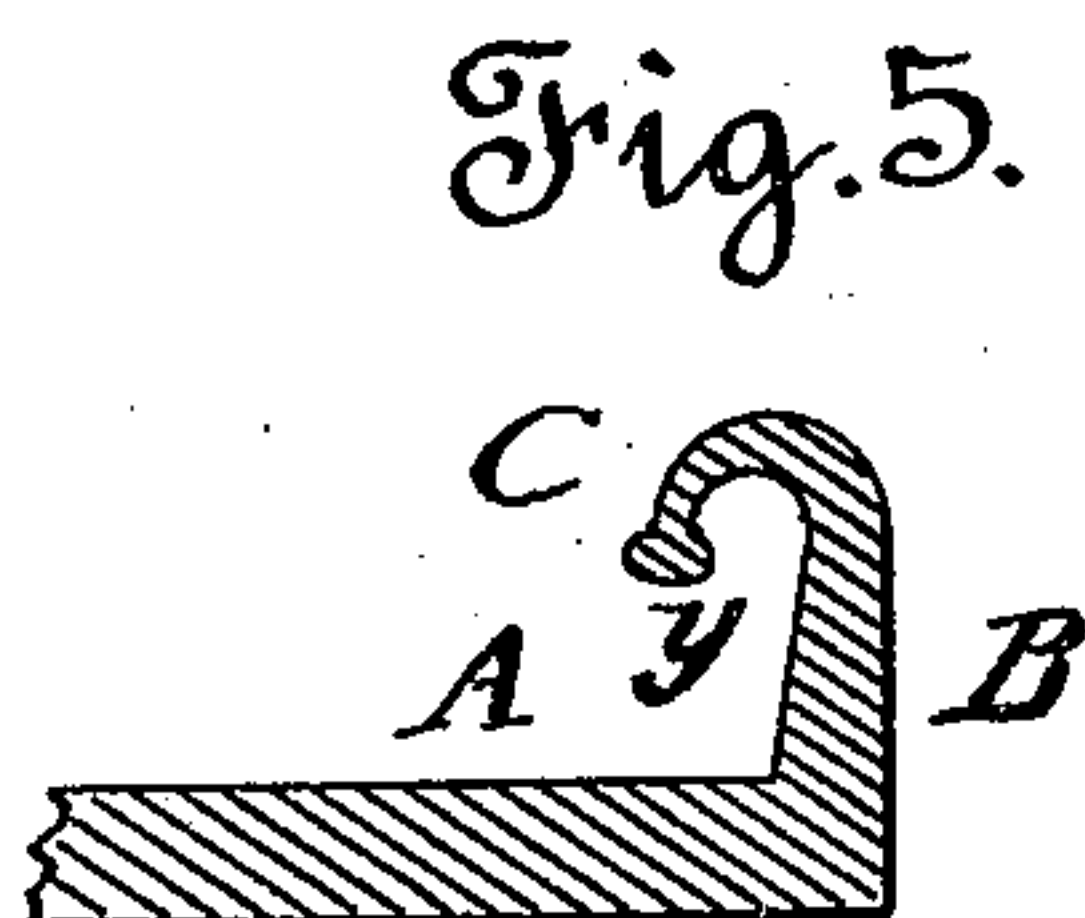
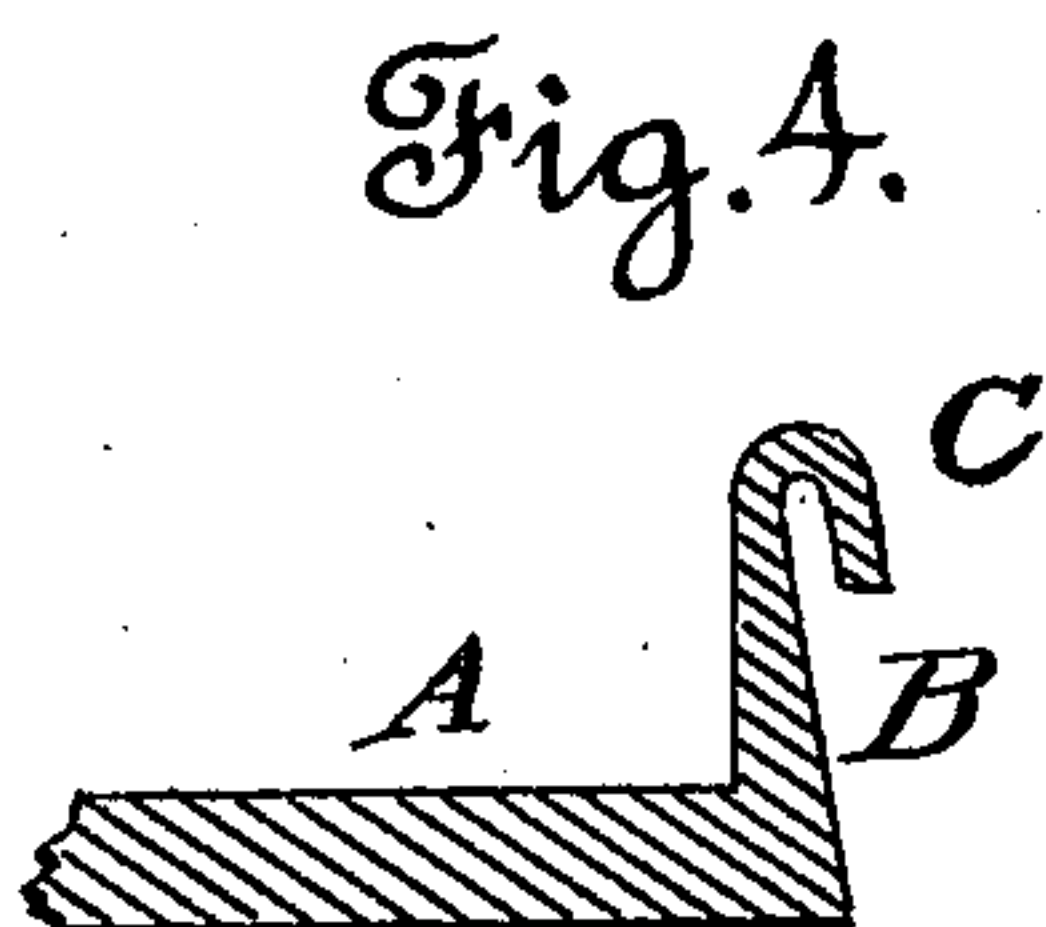
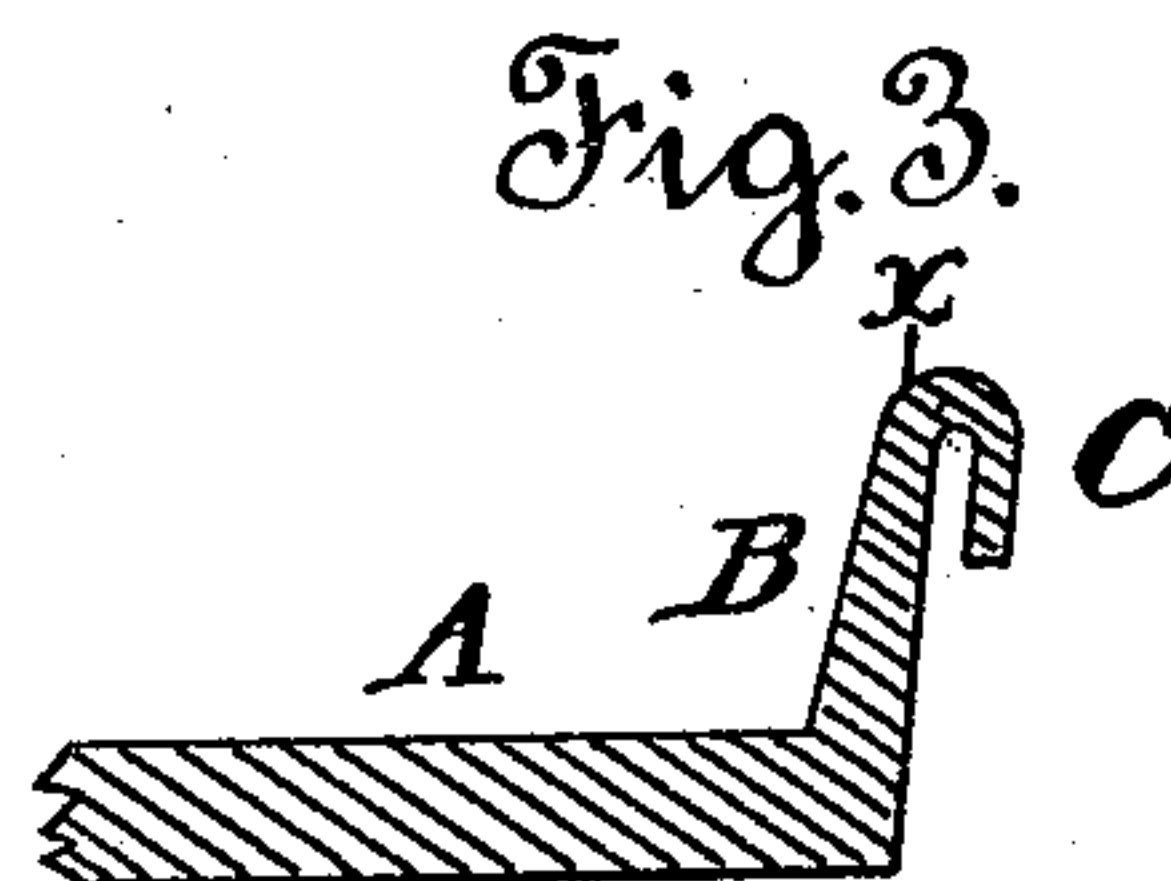
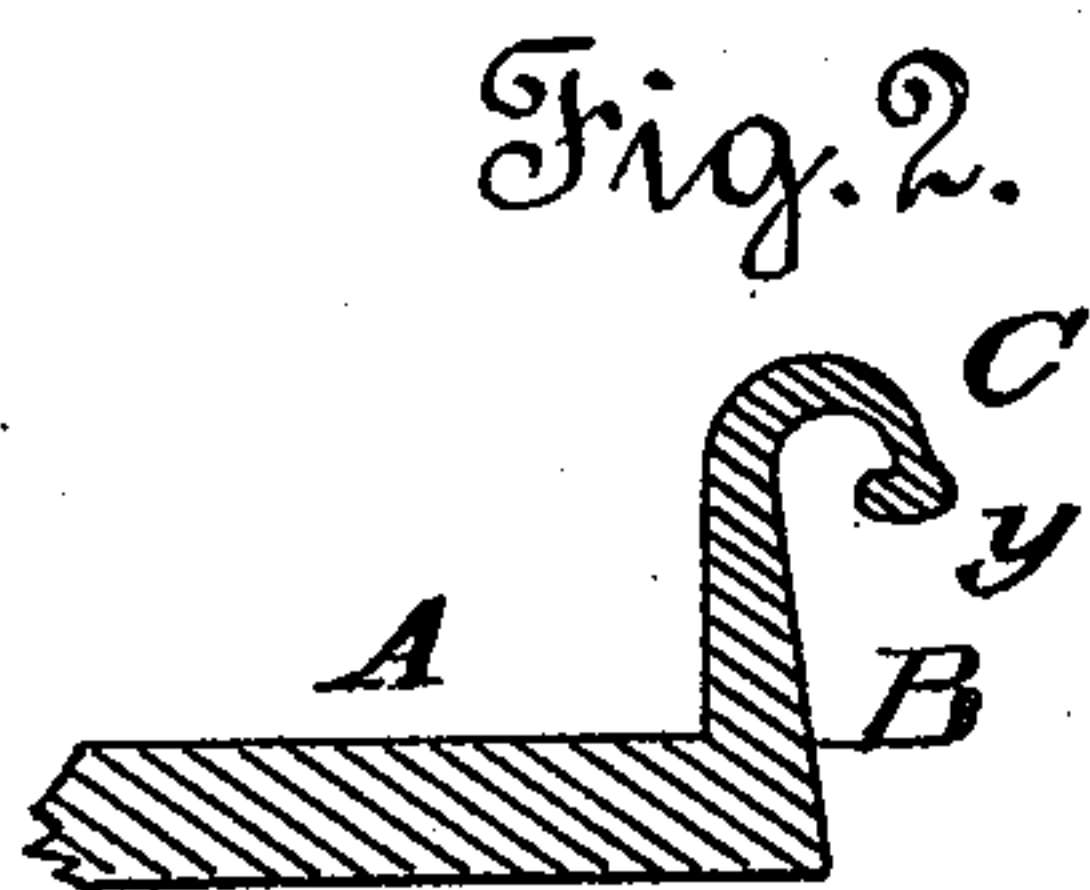
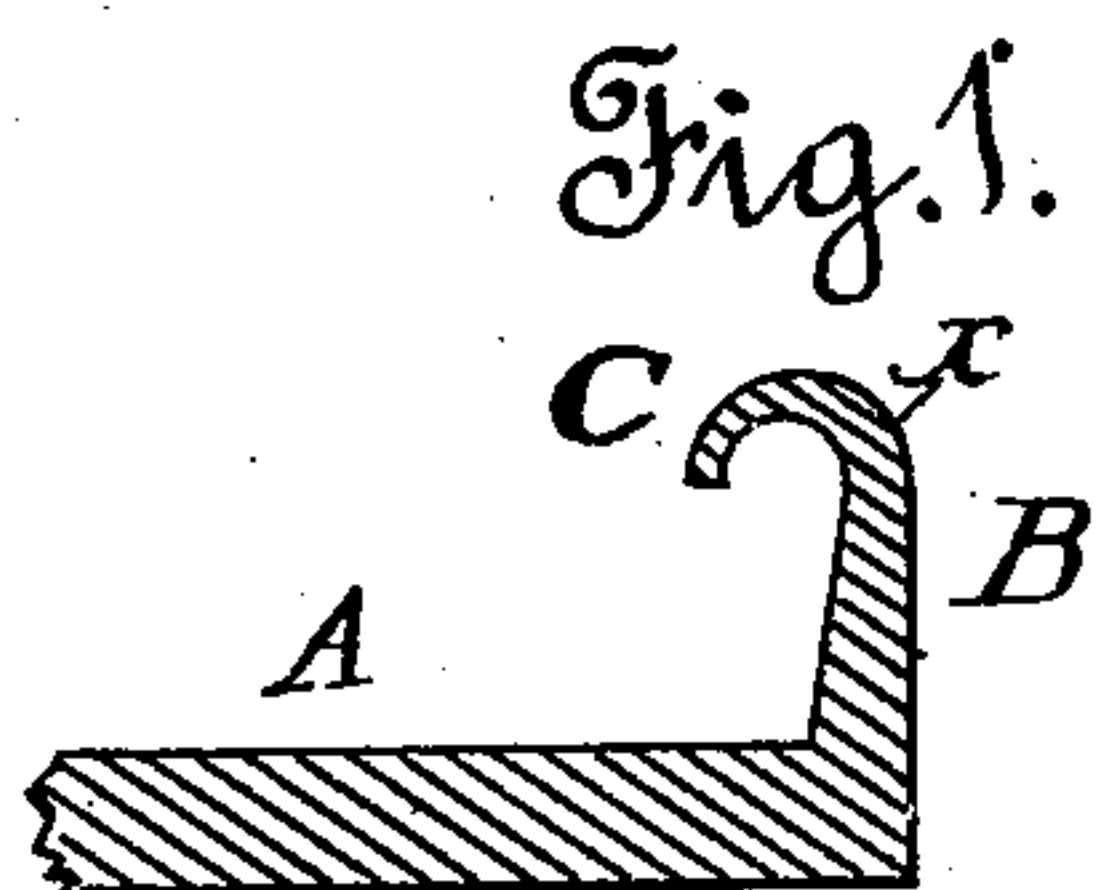


Fig. 7.

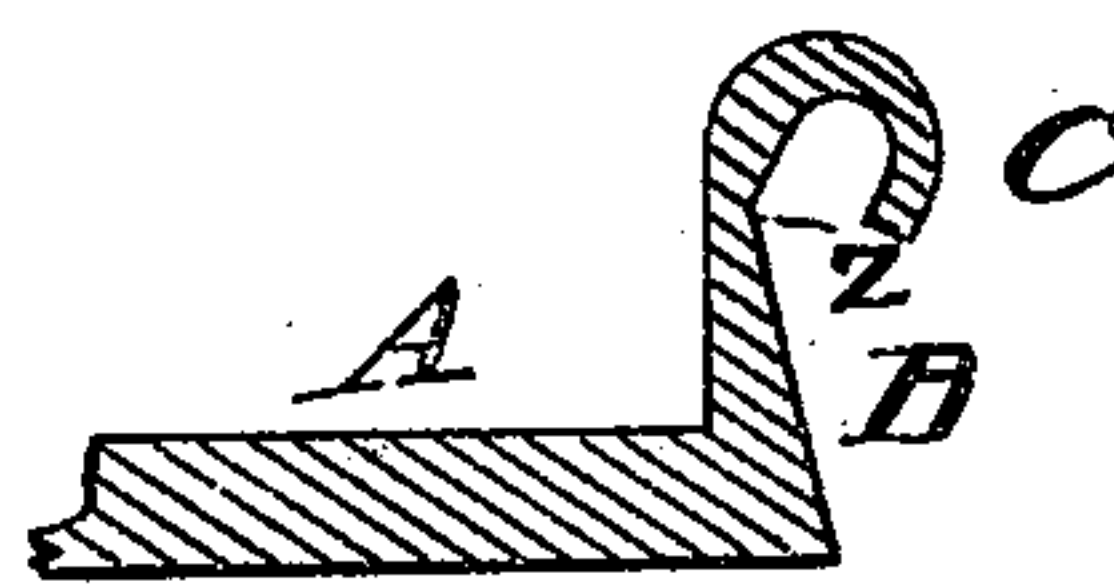


Fig. 8.

Witnesses.

*H. J. Monteverde.*

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# UNITED STATES PATENT OFFICE.

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## BELT FOR ORE-CONCENTRATORS.

SPECIFICATION forming part of Letters Patent No. 501,557, dated July 18, 1893.

Application filed January 28, 1893. Serial No. 459,949. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. BROWNELL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Belts for Ore-Concentrators; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to improvements in belts for ore concentrators. These belts are usually made of rubber, or canvas, and are mounted upon and moved by rollers to which motion is imparted mechanically. In order to retain the mixture of pulverized ore and water, ordinarily called the "pulp," upon the belt, it is customary to form the edges of the belt into flanges. These flanges are usually of one of two kinds; either a straight vertical flange projecting at right angles to the plane of the belt surface, or, a flange projecting inward at an acute angle to that plane. As the belt is mounted in the frame of the concentrator so as to have a continuous movement above and below the supporting rollers, it follows that at each end of the frame, it is exposed to great strain while passing around the rollers at the ends. If the belt were flat, it could easily withstand the strain, which would then be distributed over the whole surface; but with the projecting flanges the greatest strain is at the edge. Should the rubber be defective at any point it will commence to crack, and then tear or split vertically down through the flange.

The object of my invention is to construct a belt having side flanges made in such a form that the greater part of this strain is taken away from the edge, and is compelled to act against the solid rubber; or in other words, to form a flange the edge of which will be relieved from strain to a great extent.

With this object in view my invention consists in a belt having edge flanges, or raised rims, which are turned over upon themselves, either inward toward the surface, or outward away from it. The flange itself may be formed either at a right angle or any other angle to the plane of the belt.

The invention also consists in a belt having a flange provided at its edge with a bead of

greater thickness than the part of the belt adjacent to it.

I have illustrated my invention in the accompanying sheet of drawings, in which—

Figure 1, shows a broken cross section of a concentrator belt so as to indicate only one edge, the other edge being assumed to be identical. Figs. 2 to 8 inclusive represent slightly modified forms.

In all the figures A, represents the belt and B, the flange or raised rim extending continuously around the edge. The angle of the flange may be varied from a right angle to any obtuse angle so long as the flange performs its function of keeping the pulp upon the surface. The edge of the flange is turned over or lapped upon itself as shown at C in all the figures.

In Figs. 2, 3, 4, 6, 7, and 8, the edge of the flange is turned outward, and in Figs. 1, and 5, is turned inward. The result is the same in both cases. When the belt is in use in the concentrator and the part traveling over the end rollers is exposed to strain, such strain will be greatest at the highest part of the flange—that is, if we take the center of the guide roller and suppose a radius from that point to a point on the flange farthest distant from the center, the strain or tendency to stretch will be greater at that point than at any intermediate point on the radius. This point is indicated at  $x$  in the drawings, where there is solid rubber; while the effect of the strain upon the edge, is simply to draw it in toward the main part of the flange. The strain is thus mainly brought upon the point best able to resist it, while the edge, which is the weakest point, is to a great extent relieved.

I have shown in Figs. 2, and 5, that the edge of the flange may be thickened or formed with a bead  $y$ . The flange of the belt may also be creased as shown at  $z$  in Figs. 7, and 8, which assists the tendency of the turned over edge to draw in toward the body of the flange when passing around the guide roller.

I have not considered it necessary to describe or show any part of an ore concentrator, or any means for moving the belt. It is sufficient to say that the belt is adapted to all kinds of wet concentrators, the manner of



applying and operating it being well understood by all those skilled in the art.

In this specification I have referred to the belt as being made of rubber, simply because  
5 the best concentrators are provided with belts of that material. The material however forms no part of my invention, as the belt may be made of canvas or of any material which can be used for concentrator belts.

10 What I claim is—

1. A belt for ore concentrators having continuous side flanges, the edges of which are turned over so as to overlap the main body of the flanges.

15 2. A belt for ore concentrators consisting of a plane surface having a flange at each side

projecting at an angle to the surface, the edge of each flange being turned over so as to overlap the main part of the flange.

3. A rubber belt for ore concentrators hav- 20 ing side flanges turned over so that their edges overlap the main portion of the flanges, and having a continuous bead formed along the edge of each flange.

In testimony whereof I have affixed my sig- 25 nature, in presence of two witnesses, this 18th day of January, 1893.

JAMES S. BROWNELL.

Witnesses:

L. W. SEELY,

M. R. BRYAN.