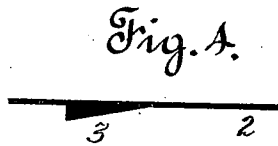
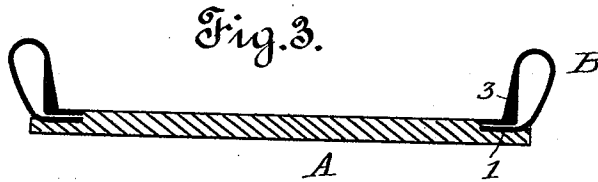
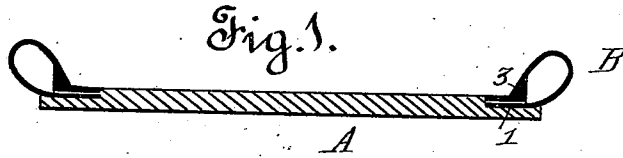


(No Model.)

H. J. SUMMERHAYES.  
BELT FOR ORE CONCENTRATORS.

No. 513,216.

Patented Jan. 23, 1894.



Witnesses.

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# UNITED STATES PATENT OFFICE.

HENRY J. SUMMERHAYES, OF SAN FRANCISCO, CALIFORNIA.

## BELT FOR ORE-CONCENTRATORS.

SPECIFICATION forming part of Letters Patent No. 513,216, dated January 23, 1894.

Application filed March 17, 1893. Serial No. 466,421. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY J. SUMMERHAYES, 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.

My invention relates to belts for ore concentrators of the class known as wet concentrators, in which the belt is carried by rollers in a direction opposite to the movement of a flow of water distributed over its surface. The pulverized ore is also distributed upon the belt, the water and ore forming the "pulp." The heavy particles which contain the precious metals sink and are carried with the belt, while the light and worthless material is separated and carried down by the water. In all the best forms of concentrators now used, the belt is given a lateral shake or vibration in addition to its longitudinal travel; and hence it is necessary to provide it with raised edges or flanges to retain the pulp upon the surface. These flanges are ordinarily molded to the edge of the belt so as to project at an angle to the plane of the belt's surface. In passing over the guide rollers at the ends of the belt frame, the edges of the flanges are exposed to severe strain, and frequently split and tear downward through the flange, rendering the whole belt, at least temporarily useless.

The particular features in which my invention consists, are fully hereinafter described and set forth in the claims following; and they are also fully shown in the accompanying drawings, in which—

Figures 1, 2, and 3, are all cross sections of a belt with flanges in place, the shape of the latter being different in each figure. Fig. 4, is an end view of the strip from which the flange is formed.

The best concentrator belts are a composite structure of rubber and canvas with rims or flanges molded to the edges so as to form integral parts of them. My invention is here supposed to be applied to such a belt, although if desired it can be used with belts made of other material.

A, represents the main body of the belt, of the usual construction, except that an offset 1, having a flat surface, extends continuously

B, represents the edge flange or rim which is formed from a flat strip 2, having a tapering thickened portion 3, which extends throughout its length. The thickness of the strip is such that when turned upon itself, as shown in Figs. 1, 2, and 3, the combined thicknesses of the abutting surfaces shall be equal to the depth of the offset 1, so that they shall lie flush with the upper surface of the belt itself. The parts of the flange immediately adjacent to the belt are secured to it and to each other in any suitable way, as by cementing or stitching; and the thickened part 3, which rises from the belt surface forms a sufficiently rigid wall to restrain and hold the curved part of the flange above this wall, is elastic enough to travel freely around the rollers; but, having no edge, it will tear with great difficulty and the only effect of the tension at those points is to slightly compress or flatten it. When the flange is in position, it forms a hollow air-tight tube extending continuously along each edge of the concentrator; and hence may be filled with air on the principle of the pneumatic tire. This gives it greater rigidity and more power of resistance to external strain; and it is only necessary to provide it with proper air valves into which air can be forced and compressed by an ordinary pump.

The flanges shown in Figs. 1, 2, and 3, differ from one another only in shape and size, and in the angle in which they are set to the plane of the belt. Other variations in these particulars may be required under different conditions in use, as will be readily seen by those skilled in the art of concentration.

Having described my invention, what I claim is—

In combination with an ore concentrator belt having a rabbeted edge, a tubular edge flange having an inner edge united to the belt with a thicker portion rising at an angle thereto and an outwardly curved thinner portion united at its outer edge to the belt below said inner portion, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 10th day of March, 1893.

HENRY J. SUMMERHAYES.

Witnesses:  
L. W. SEELY,  
JOHN COFFEE.