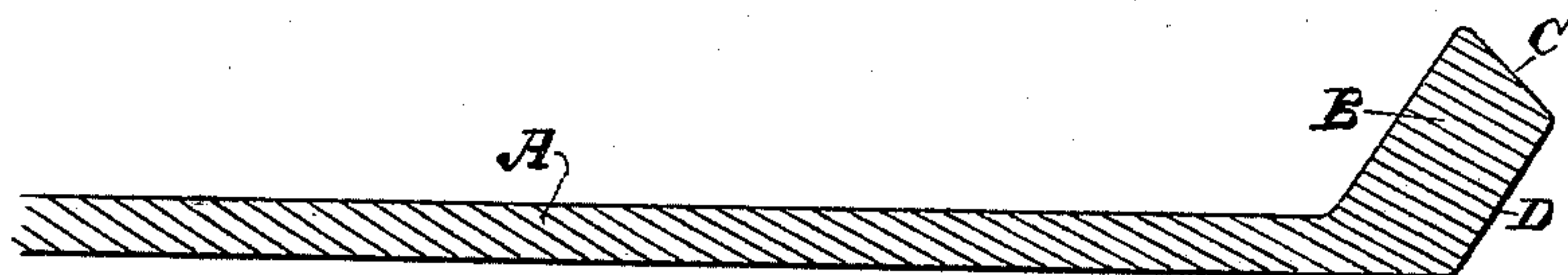


(No Model.)

G. GATES.
CONCENTRATOR BELT.

No. 584,501.

Patented June 15, 1897.



Witnesses,
J. H. House
J. F. Aschbeck

Inventor
George Gates
By Denny & Co., atty.

UNITED STATES PATENT OFFICE.

GEORGE GATES, OF JACKSON, CALIFORNIA.

CONCENTRATOR-BELT.

SPECIFICATION forming part of Letters Patent No. 584,501, dated June 15, 1897.

Application filed March 30, 1896. Serial No. 585,372. (No model.)

To all whom it may concern:

Be it known that I, GEORGE GATES, a citizen of the United States, residing at Jackson, county of Amador, State of California, have
5 invented an Improvement in Concentrator-Belts; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved concentrating-belt which is especially applicable for the concentration and saving of fine sulfurets and heavy valuable metals from pulverized ores or gangue in which they are contained.

15 It consists in certain details of construction which will be more fully explained by reference to the accompanying drawing, in which the figure is a transverse section of a portion of the belt.

20 These belts are made of various materials. In my present construction I have shown the belt made of rubber with cloth embedded in it in the process of manufacture.

These belts are made of any suitable length
25 and width and are adapted to travel over drums or rollers at opposite ends of the apparatus, the belts being endless and caused to move in one direction by any suitable mechanism, so that the upper surface of the belt
30 is constantly traveling while the material to be concentrated is delivered upon it with a sufficient quantity of water, and the agitation of the moving belt is such as to separate and concentrate the heavier particles.

35 In order to prevent the material from discharging over the side edges of the belt during its travel from the upper to the lower end, it is customary to apply raised flanges upon each side of the belt. These flanges have
40 been made in various forms, and a difficulty which arises from many of the forms adopted is on account of the constant stretching caused by the passage of the belt around the rollers and the return to the normal condition when
45 the belt is again moving in a straight line, this constant stretching and relaxation causing cracks and breaks which soon ruin the flanges and necessitate a new belt.

50 In a patent issued to me April 18, 1893, No. 495,795, I have shown a belt having a flange which in cross-section presents an irregular four-sided polygon, with the base resting upon

the edge of the belt, an inclined side extending upwardly and outwardly from the inner edge and forming at the apex an acute angle, 55 with a shorter incline extending downwardly and outwardly therefrom, while the outer edge of the flange stands at right angles with the belt. My present invention is designed as an improvement upon the construction 60 shown in that patent.

In my improvement, A is the belt, made in any usual or well-known manner, but preferably with a body of cloth or fibrous material incased in rubber upon upper and lower 65 sides. The flanges upon each side of the belt are constructed with an inclined side B, extending upwardly and outwardly from the surface of the belt, forming an obtuse angle at the junction of the flange and belt. From 70 the upper edge or apex a short inclined side C extends downward and outwardly, forming with the side B an acute angle at the apex. From the lower and outer edge of the side C the third side D of the polygonal flange extends 75 downwardly and inwardly approximately parallel with the inner inclined side B, and the lower edge of this side forms a junction with the bottom of the belt at a point approximately vertically in line beneath the 80 apex formed by the sides B and C. By reason of this construction the apex or thinner portion of the belt between the inclined surfaces B and C will, when subjected to the tension and stretching caused by its passing 85 around the pulleys, not only stretch freely without much lessening the height or changing the form of the flange, but will act as a compressing-band for the portion of the flange beneath, and will also yield and move out- 90 wardly a little by reason of the tension upon it, without, however, at any time greatly lessening the depth of the flange or turning it to such an extent as to allow the material to flow over the flanges when thus extended. 95 The instant that the belt assumes its straight position again the relaxation allows the flange to assume its normal position.

Having thus described my invention, what I claim as new, and desire to secure by Letters 100 Patent, is—

An improved concentrator-belt having flanges along its sides, said flanges being of substantially the same thickness throughout

and having inner and outer walls both extending upwardly and outwardly from the body of the belt and joined at their upper limits by short inclined walls which form with
5 said inner and outer walls, acute angles, whereby the apex formed by each short wall and inner inclined wall is approximately vertically in line with a point on the belt where

the base of the outer inclined wall meets the horizontal bottom line of the belt. 10

In witness whereof I have hereunto set my hand.

GEORGE GATES.

Witnesses:

S. H. NOURSE,

WM. F. BOOTH.