

C. S. PROSSER.
CONVEYER BELT.
APPLICATION FILED FEB. 4, 1905.

979,200.

Patented Dec. 20, 1910.

Fig. 1.

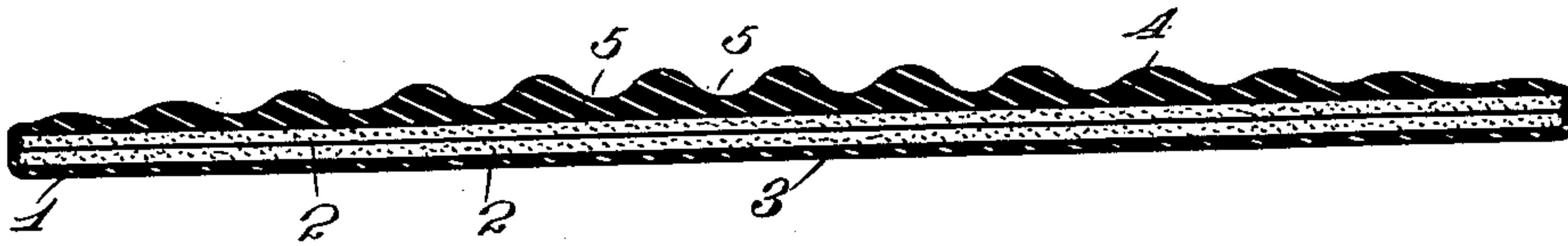


Fig. 2.



Fig. 3.

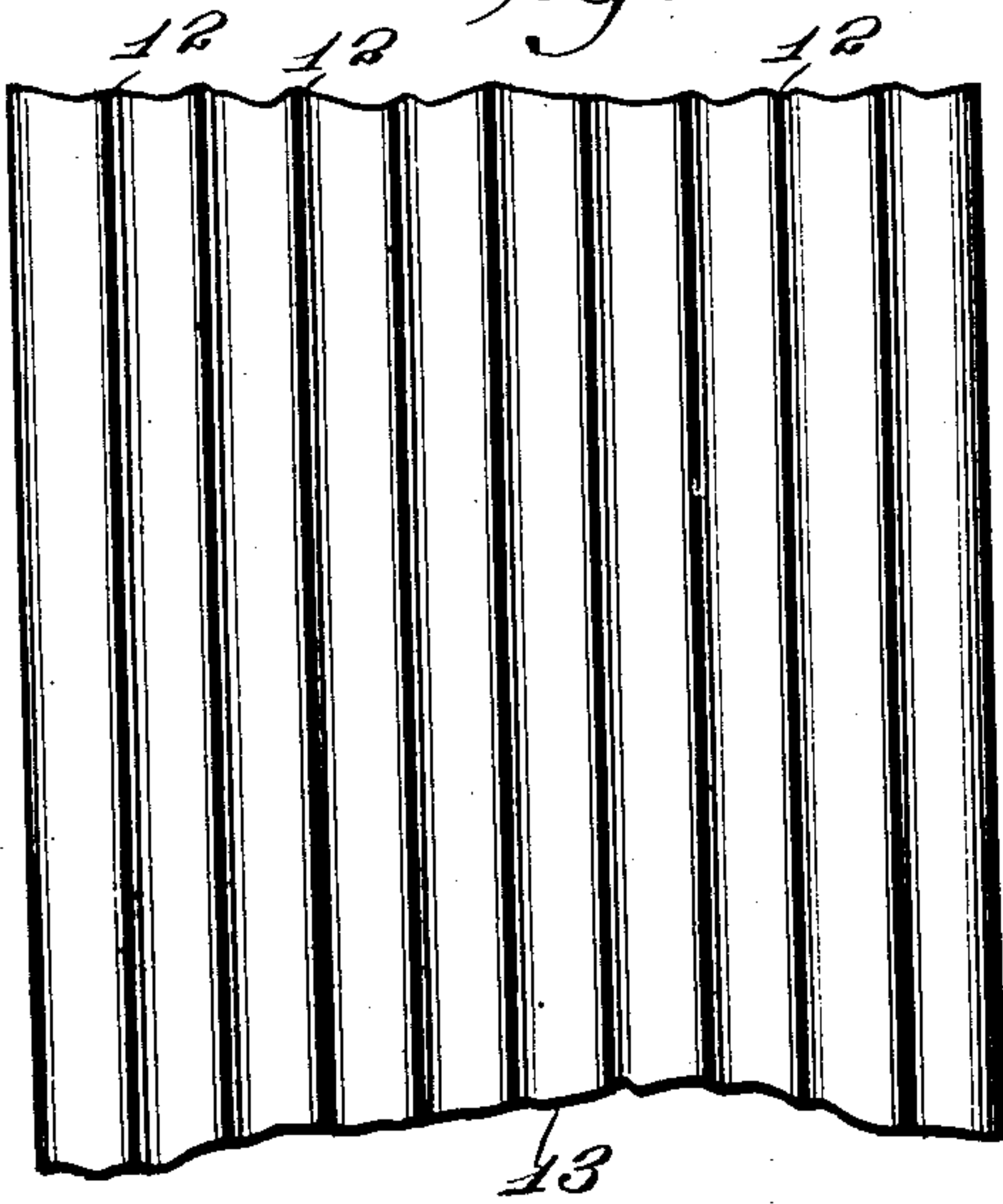
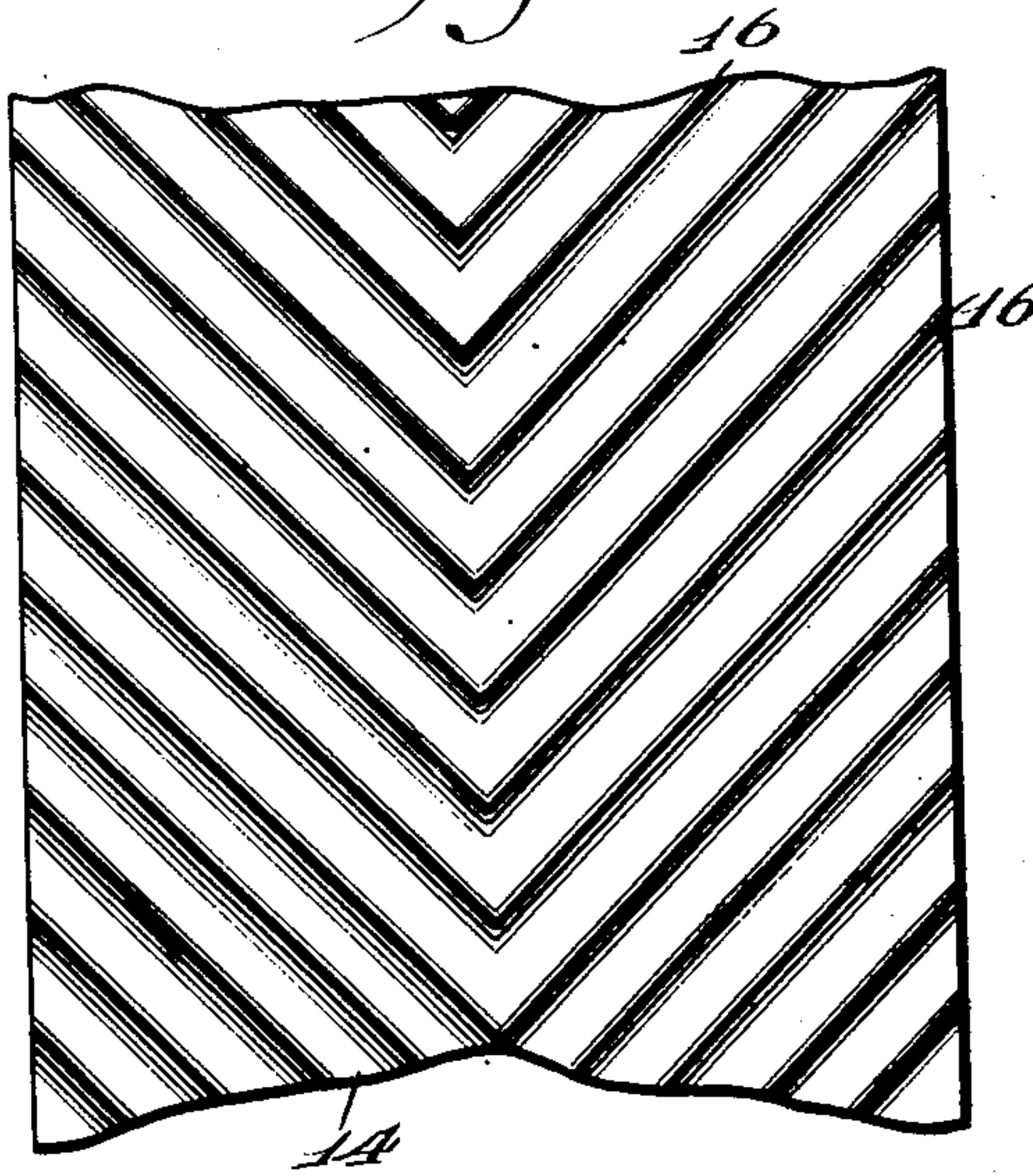


Fig. 4.



Witnesses
Dexter Norton
Richard Wöbel

Charles S. Prosser Inventor
by *Ernest Hopkinson*
his attorney

UNITED STATES PATENT OFFICE.

CHARLES S. PROSSER, OF NEW YORK, N. Y., ASSIGNOR TO PEERLESS RUBBER MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CONVEYER-BELT.

979,200.

Specification of Letters Patent.

Patented Dec. 20, 1910.

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To all whom it may concern:

Be it known that I, CHARLES S. PROSSER, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented a new and useful Conveyer-Belt, of which the following is a specification.

This invention relates to conveyer belts, and it has for its object the prolongation of the life of conveyer belts and the reduction of the initial cost of such belts.

In the accompanying drawings forming part of this specification, I have illustrated several slightly different forms of belt constructed in accord with the present invention, but it is to be understood that still other forms of belts embodying the invention may be produced and various changes in the details of construction may be made without departing from the spirit of the invention or exceeding the scope thereof, which is hereinafter defined in the appended claims.

In the drawings, in which corresponding parts are designated by similar characters of reference, Figure 1 is a somewhat diagrammatic view in transverse section through a belt embodying the present invention. Fig. 2 is a diagrammatic view of another form of belt embodying the present invention. Fig. 3 is a fragmentary view of a belt constructed in accord with the present invention. Fig. 4 is a fragmentary view of another form of belt embodying the present invention.

As is well known to all persons skilled in the construction and use of belt conveyers, it is common to provide such conveyers with means, ordinarily idler pulleys, which are adapted to trough or cup the belt in order to increase its carrying capacity. It is also well known to persons skilled in the art that the bulk of the material carried by a belt is deposited at or near the middle of the belt, and that consequently such conveyer belts wear more rapidly in the middle than at the edges. On account of this increased tendency to wear near the middle, belts have been provided in the central portion of the carrying surface with a thicker protective cover or coating to increase their durability, and such belts have attained a wide use. As the material of which the carrying surface of conveyer belts is ordinarily made contains a large percentage of rubber, the

provision of a cover or coating of any considerable thickness upon the surface of the conveyer belt is quite expensive, and it is a desideratum of great importance to obtain the durability which may be secured by means of such a thick cover at a lower cost.

In almost all cases in which conveyers are used to transfer loose materials, the materials transported contain a considerable percentage of fine particles, and a considerable percentage of larger lumps, it being very seldom that all the materials carried by a conveyer are made up of particles of substantially uniform size. The feeding of the materials to the conveyer is ordinarily accomplished by means of a chute through which the materials are generally moved by gravity alone, and the materials impinge upon the belt at an angle which is determined by the inclination of the chute and the inclination at which the belt is traveling. In all cases the inclination of the feed chute should, if possible, be such that the horizontal movement of the materials at the time they strike the carrying surface of the belt is equal to the rate of horizontal travel of the belt itself, as the wearing effect of such materials upon the belt is reduced to a minimum when this relation maintains.

When belt conveyers are in operation under proper conditions, the wear of the belt is almost wholly due to the impact of the materials against the belt, and it is obvious that the injury done by the materials in striking against the belt will be entirely due to the coarser and heavier particles or masses.

The present invention is based upon the foregoing considerations, and by taking account of those considerations it is possible to produce a belt having a carrying surface so constructed that a maximum amount of durability may be obtained with the use of a given quantity of protective material upon the carrying surface of the belt; and by properly feeding the materials to be carried to a belt constructed in the manner hereinafter described, the wear upon the carrying surface may be very greatly reduced, if the belt is used under proper conditions.

Referring to the drawings, 1 designates a belt which is made up of a plurality of plies 2 of any suitable material, such as cotton duck, and provided upon its back with a thin coating 3 of rubber or other material. The plies 2 are united in any suitable man-

ner, and the carrying surface 4 of the belt which is composed of rubber or any other suitable material is formed in ribs which are quite low adjacent to the margins of the belt, but which increase in height toward the middle of the belt. These ribs are arranged sufficiently close together to prevent large and heavy masses of material from reaching the bottoms of the depressions 5 between the ribs when such masses of material fall upon the belt. By forming the carrying surface of the belt in this way it is possible to produce a belt having a thickness of protective material in the middle of the belt of, say, one-half an inch from the uppermost ply of fabric to the crest of a rib without using any more protective material than would be required to give a uniform thickness over the entire carrying surface of a quarter of an inch or less. As the ribs on the carrying surface lie preferably close together, the heavier masses of material fed to the belt must necessarily strike the ribs in practically all cases and cause little or no wear on the surface of the belt between the ribs. Consequently, the belt will wear almost as slowly as if it had a cover over its entire carrying surface of a thickness equal to that of one of the highest ribs. This increased durability will also be obtained without materially increasing the stiffness or interfering with the tendency of the belt to take a trough shape when running over suitable supports.

In Fig. 2 the belt 6 is formed of two plies of fabric 7 having their edges folded over, as shown at 8 and 9. The lower ply is somewhat narrower than the upper and consequently when the edges are folded over, as shown, the edges of the upper ply lie nearer to the median line of the belt than those of the lower ply. The belt is provided with a covering 10 on the back, as usual, and the carrying surface is formed in ribs, all of which have their crests lying in substantially the same horizontal plane, but the depressions or channels 11 between the ribs gradually decrease toward the middle of the belt

so that the ribs in the middle are actually higher above the bottoms of the channels or depressions than near the margins of the belt. In this form of belt, as in that already described, the quantity of material required for producing a cover substantially equal in effect to one of uniform thickness over the entire carrying surface is greatly reduced and there is no reduction of flexibility of the belt.

For belts which are designed for use in carrying materials horizontally only or at very slight inclinations, ribs 12 extending longitudinally of the belt may be employed, as shown on the belt 13 in Fig. 3. If, however, the belt is designed for operation at a tolerably sharp incline, it will be found desirable to arrange the ribs as shown in Fig. 4, in which the belt 14 is shown as provided with ribs 16 which diverge from the median line of the belt and which are higher in the middle of the belt than at the margins.

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

1. A conveyer belt having on its carrying face ribs separated by grooves or depressions that decrease gradually in depth from the middle portion of the belt toward its edges, said ribs extending at an angle to the transverse width of the belt.

2. A conveyer belt having on its carrying face ribs separated by grooves or depressions that decrease gradually in depth from the middle portion of the belt toward its edges, said ribs extending at an angle to the transverse width of the belt and consisting of symmetrical parts forming an angle with each other on each side of the central portion of the belt.

In testimony whereof, I affix my signature in presence of two witnesses.

CHARLES S. PROSSER.

Witnesses:

BAXTER MORTON,
H. RICHARD WÖBSE.