May 29, 1923.

A. ISHERWOOD

1,457,276

SPREADER CYLINDER AND THE LIKE

Filed June 20, 1922

2 Sheets-Sheet 1

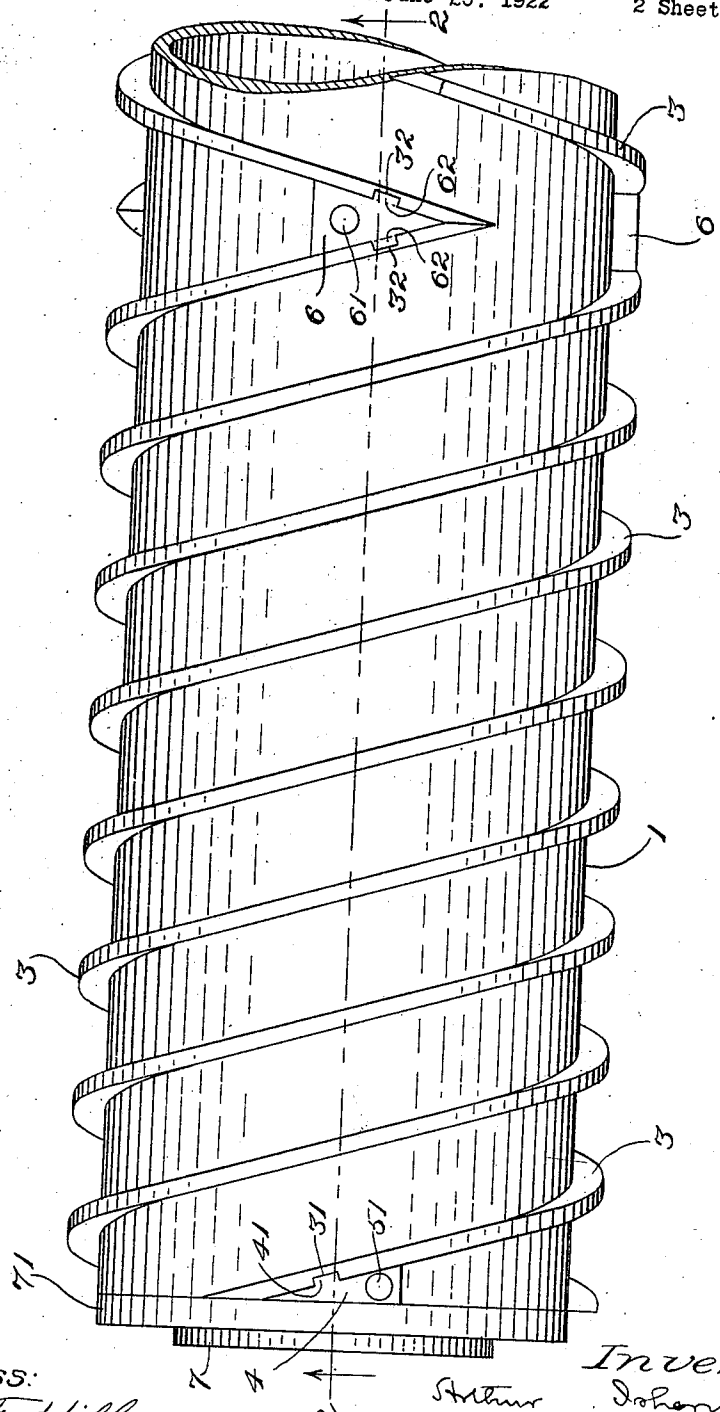


Fig. 1.

Witness:
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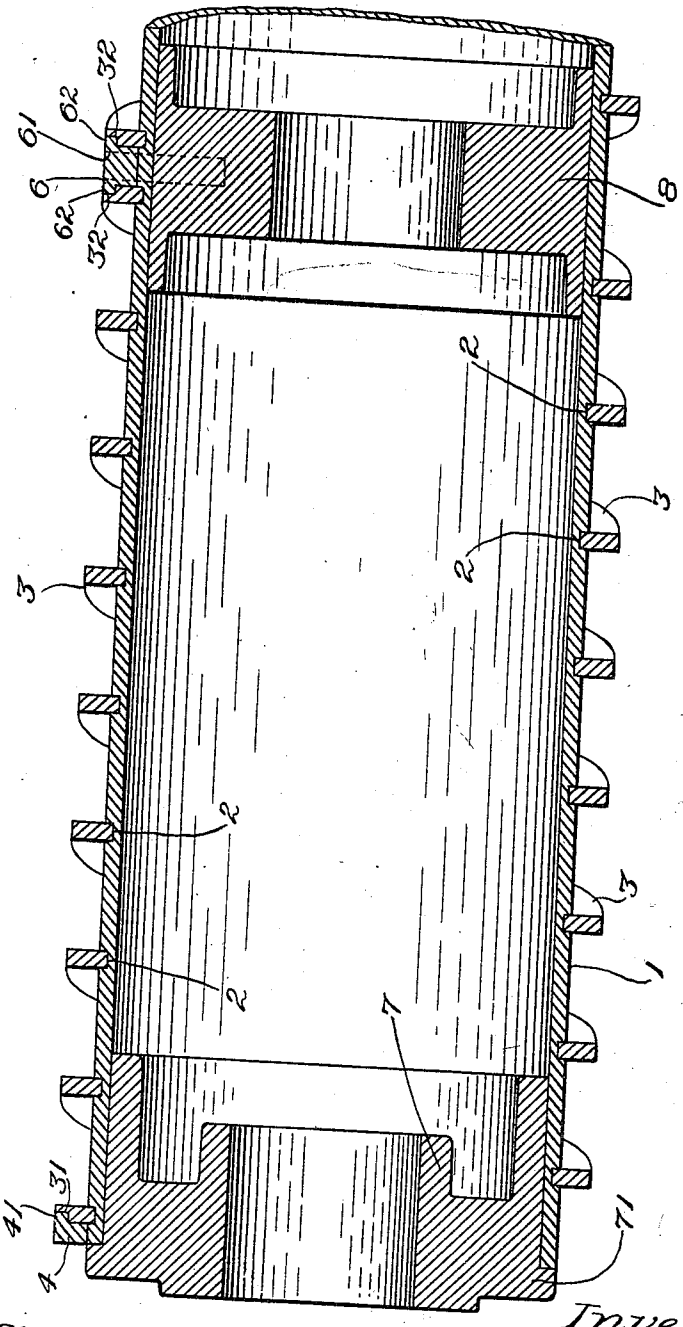
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2 Sheets-Sheet 2

Fig. 2.



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Patented May 29, 1923. 1,457,276

UNITED STATES PATENT OFFICE.

ARTHUR ISHERWOOD, OF READVILLE, MASSACHUSETTS, ASSIGNOR TO THOMAS LEYLAND & CO., INC., OF READVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SPREADER CYLINDER AND THE LIKE.

Application filed June 20, 1922. Serial No. 569,747.

To all whom it may concern:

Be it known that I, ARTHUR ISHERWOOD, a citizen of the United States, residing at Readville, Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Spreader Cylinders and the like, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has relation to the cylinders provided with helical ribs or blades, which are employed as cloth spreaders in cloth handling machines, and for other purposes in various machines which are used in different arts. A cylinder of the general class to which the invention is applicable comprises a cylindrical body and one or (usually) a plurality of ribs or blades at the periphery of said body extending helically longitudinally thereof.

The objects of the invention are to produce a cylinder of the class in question of improved construction enabling it to be made at reduced cost, simplifying the operations in connection with the application of the helical ribs or blades to the body, permitting a rib or blade to be removed and replaced expeditiously when required, and having also other practical advantages.

My invention consists, essentially, in a helically ribbed or bladed spreader cylinder, or the like, comprising a helically grooved body-portion, a pre-formed helical rib or blade adapted to screw upon said cylinder within the helical groove, its diametrical tension operating to keep it radially in the said groove, and means engaging the ends of the applied ribs or blades to prevent them from projecting so as to damage the material upon which the spreader cylinder operates. The means in question preferably is in the form of removable keys.

An illustrative embodiment of my invention is shown in the accompanying drawings, in which,—

Fig. 1 shows a sufficient portion of a spreader-roll constructed according to my invention for the proper understanding of the latter.

Fig. 2 is a sectional view on line 2, 2, of Fig. 1, showing the retaining means employed in connection with the ends of the ribs or blades.

Having reference to the drawings,—

The body 1 of the cylinder, in this instance formed as a tubular shell, has formed therein one or more pairs of grooves 2 extending helically or spirally in opposite directions from the middle of the length of the cylinder-body. In this instance there are three of the helical or spiral grooves, parallel with one another, in each half of the cylinder-body. The helical ribs or blades 3 are formed of thin strips of brass, or other suitable material, of rectangular cross-section, of a thickness suitable to enter snugly into the grooves 2, 2, in the cylinder-body 1. I form these strips, before applying them to the cylinder-body, into helices or spirals of the proper pitch to enter into the aforesaid grooves 2. Each is formed to make at least one complete turn around the cylinder-body, preferably a plurality of turns, and of an internal diameter slightly less than that of the cylinder-body as measured from the bottoms of the grooves 2, 2, so that when screwed into place in the grooves, to stand as illustrated in the drawings, they will of their inherent curvilinear set, or tension, hug the cylinder-body, and be held thereby in place upon the cylinder-body. As is obvious in the drawings, the grooves and ribs or blades of one longitudinal half of the cylinder are right-handed and those of the other half are left-handed, as usual. To make certain that the ends of the ribs or blades 3 shall not become sprung radially outward and project so as to damage the material which is being operated upon, and also for the purpose of locking the ribs or blades against longitudinal movement within the grooves, I provide retaining means in connection with the opposite ends of the respective ribs or blades. The said retaining means comprises keys 6 and 4 combined with the cylinder-body at mid-length thereof and at its ends, and engaging with the respective ends by means of lugs and recesses.

At the middle of the cylinder, where the ends of two opposite helical ribs or blades meet, the key is in the illustrated instance a triangular block 6 occupying the angle between the two meeting ends, secured to the cylinder-body and having oppositely projecting lugs 62, 62, which enter into recesses 32, 32, in the tops and adjacent sides of the

said meeting ends. At the extremities of the cylinder I employ in this instance retaining means constituted by triangular keys 4 which are combined with the cylinder-body, and each provided with a lug 41 occupying a recess 31 in the top and side of the corresponding rib or blade 3.

In usual practice, I combine the keys 6 and 4 with the cylinder-body by attaching them thereto after the application of the ribs or blades to the said body. I have effected the attachment by soldering the keys to the cylinder-body, and have insured against dislodgment of the keys by means of pins 61 and 51 extending through the keys and the shell of the cylinder-body and into or through the bushings 8 and 7, Fig. 2, inside the intermediate and end-portions of the cylinder-body, by means of which the cylinder is mounted upon its supporting shaft (not shown). The end-bushing 7 shown in the drawings is provided with a radial flange 71 which abuts against the corresponding end of the tubular shell of the cylinder-body.

What is claimed as the invention is,—

1. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body and a pre-formed helical blade making at least one complete turn around said body, of a diameter to fit with tension closely around the cylinder in the helical groove, with fastenings engaging the ends of the helical blade to hold the ends from lifting out of the groove.

2. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body, and one or more pre-formed helical blades, making at least one complete turn around said body, proportioned diametrically to fit closely around the cylinder in the helical groove or grooves and retained therein by the inherent curvilinear set of the blade or blades.

3. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body, and one or more pre-formed helical blades making at least one complete turn around said body, proportioned diametrically to fit closely around the cylinder in the helical groove or grooves, and retained therein by the inherent curvilinear set of the blade or blades, and means to secure said blade or blades against movement lengthwise of the said groove or grooves.

4. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body-portion, and a pre-formed helical blade making at least one complete turn around said body, which screws into place upon said cylinder by engagement within the helical groove.

5. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body-portion, and a pre-formed helical blade making at least one complete turn around said body, which screws into place upon said cylinder by engagement within the helical groove, and means to secure said helical blade against unscrewing.

6. A helically ribbed or bladed spreader cylinder or the like comprising a helically grooved body, a helical blade seated in the helical groove, and a key combined with said body and engaging with said helical blade by means of a lug on one thereof occupying a recess in the other so as thereby to hold the blade from radial and longitudinal displacement.

7. A helically ribbed or bladed spreader cylinder or the like comprising a body having right-hand and left-hand helical grooves extending in opposite directions from a meeting point, helical blades seated in the said grooves, and a key combined with said body within the angle formed by the meeting ends of said blades, and engaging with said meeting ends by means of lugs and recesses to hold the blades from radial and longitudinal displacement.

8. A helically ribbed or bladed spreader cylinder or the like, comprising a helically grooved body, a helical blade seated in the helical groove, and keys respectively combined with said body at the opposite ends of the said helical blade, each key engaging with the corresponding end by means of a lug on one thereof occupying a recess in the other.

9. A helically ribbed or bladed spreader cylinder or the like comprising a body having right-hand and left-hand helical grooves extending in opposite directions from a meeting point, helical blades seated in the said grooves, a key combined with said body within the angle formed by the meeting ends of said blades, and engaging with said meeting ends by means of lugs and recesses, and keys combined with said body at the outer ends of said blades and engaging with said outer ends by means of like lugs and recesses.

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

ARTHUR ISHERWOOD.

Witnesses:

CHAS. F. RANDALL,

ELLEN O. SPRING.