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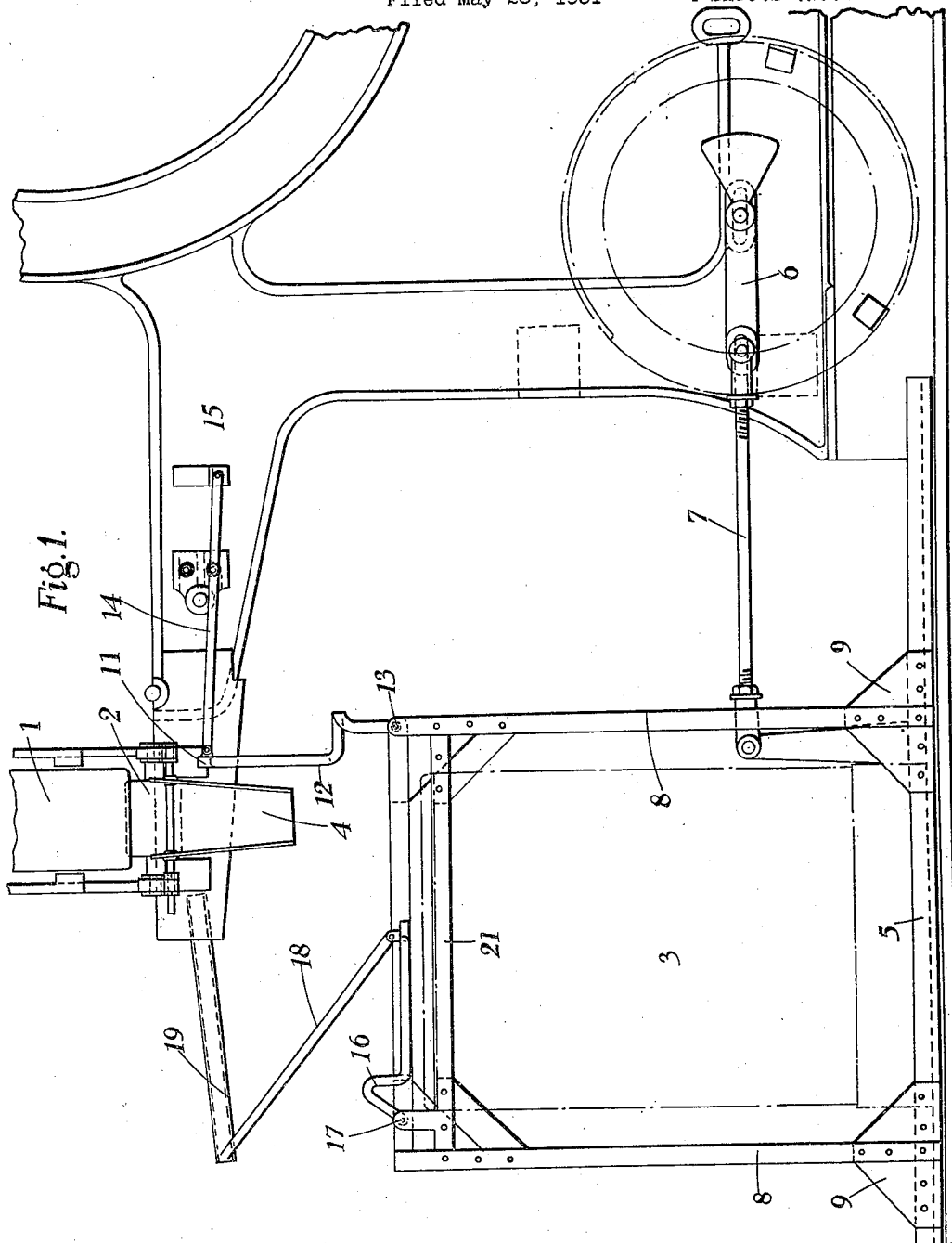
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1,858,945

DEVICE FOR PACKING SLIVER INTO CANS

Filed May 28, 1931

4 Sheets-Sheet 1



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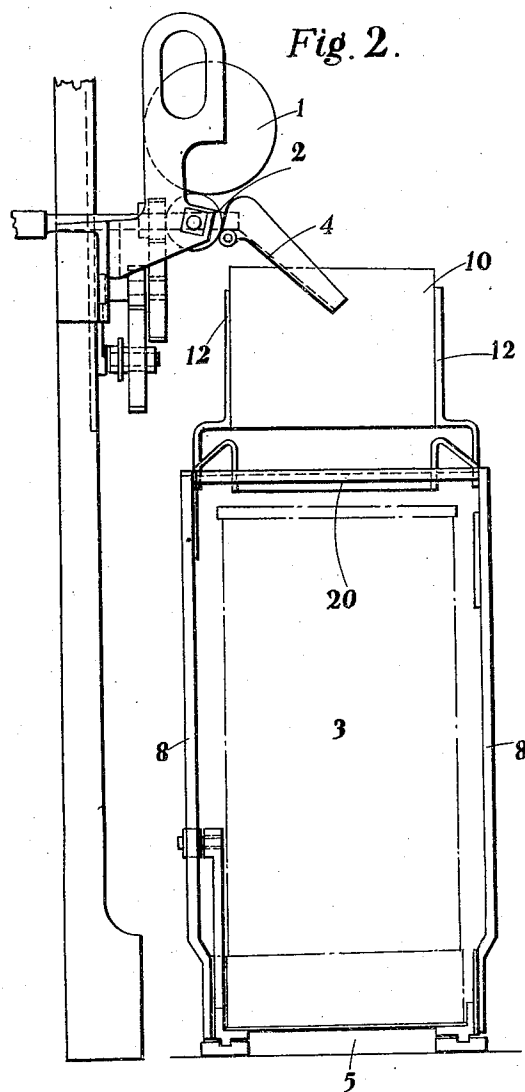
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4 Sheets-Sheet 2



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4 Sheets-Sheet 3

Fig. 3.

Fig. 4.

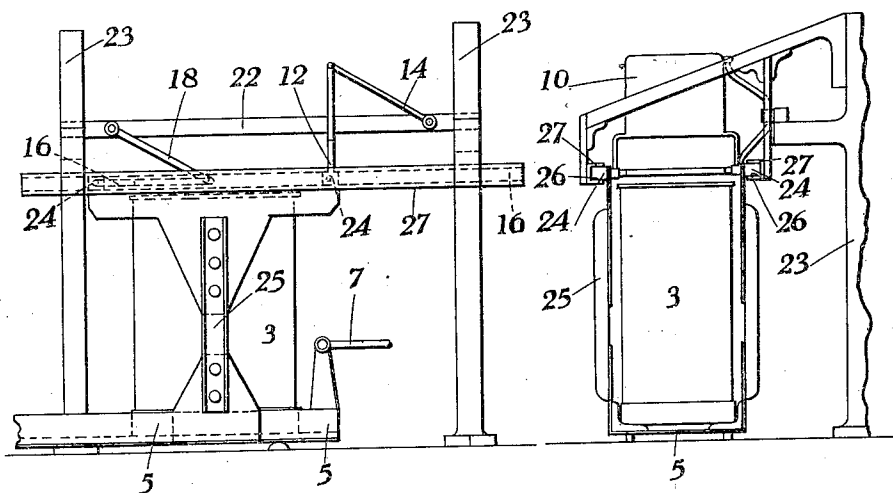
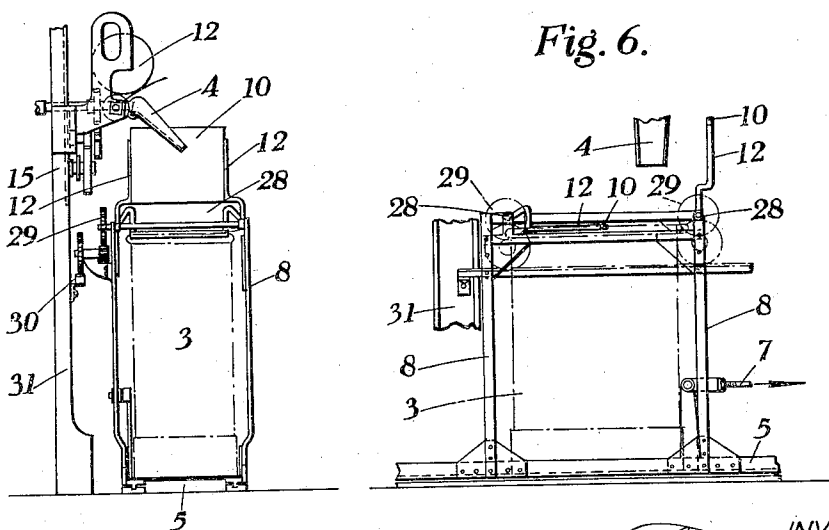


Fig. 5.

Fig. 6.



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4 Sheets-Sheet 4

Fig. 7.

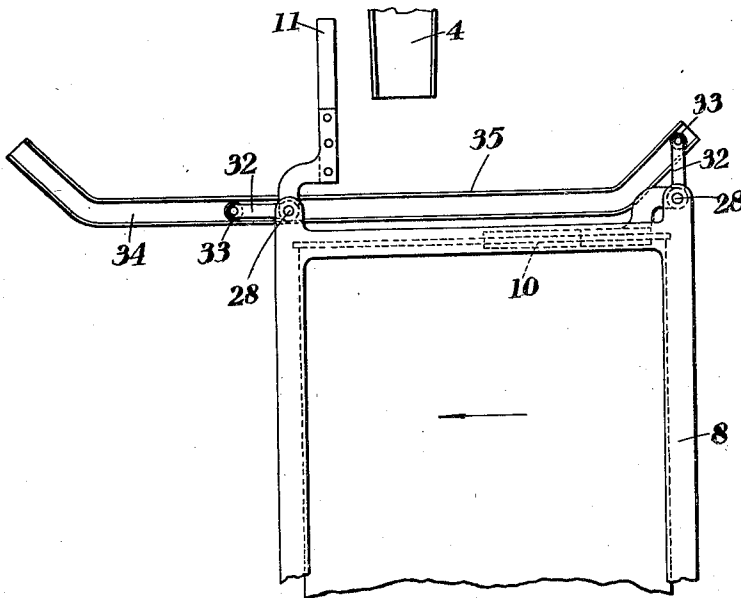
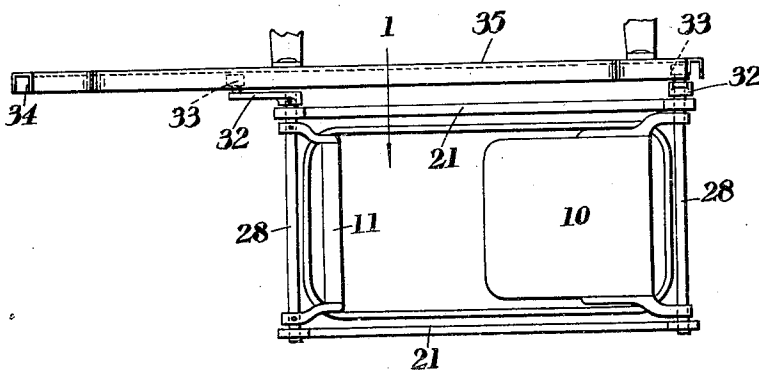


Fig. 8.



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## UNITED STATES PATENT OFFICE

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## DEVICE FOR PACKING SLIVER INTO CANS

Application filed May 28, 1931, Serial No. 540,735, and in Germany June 5, 1930.

This invention relates to the delivery of sliver from textile machines into cans and in particular to a device for packing such sliver into reciprocating cans.

5 According to the invention the novel device for packing sliver into reciprocating cans consists of two plates disposed above the mouth of the can and swung alternately up and down in phase with the reciprocations of the can so as to press the sliver into the can without interrupting the feed. The effective length of each plate—that is to say, the length of plate which makes contact with the sliver on each packing stroke—is preferably 15 half the length of the can, but it may also be greater. The packing device may be actuated by any suitable means and for this purpose the plates are conveniently hinged at one end to a part fixed relatively to the platform 20 carrying the cans and are connected at the other end to a fixed part of the machine through a hinged linkage and in order that filled cans may be removed and replaced by empty ones without disturbing the packing 25 mechanism the plates may conveniently be hinged at a point above the mouth of the can.

In order that the invention may be thoroughly understood, a form of construction in accordance therewith will not be described by way of example with reference to the accompanying drawings, in which:—

35 Figure 1 is an elevation of a device for packing the sliver delivered from a carding machine into a reciprocated can, and

Figure 2 is an end view of Figure 1.

40 Figures 3 and 4 are views corresponding to Figures 1 and 2, illustrating a modification of the invention;

Figures 5 and 6 are respectively a front and a side elevation of a further modification, and

45 Figures 7 and 8 are respectively a front elevation and plan of yet another modification.

50 The sliver is delivered from the carding machine through the rollers 1, 2 and is laid in zigzag formation in the can 3 by the oscillated funnel 4, while the can 3 is reciprocated on its platform 5 by the crank 6 and connecting rod 7.

In Figures 1 and 2 the can 3 is mounted on the platform 5 within an angle iron framework 8, which is fixed to the platform 5 by means of the gussets 9, and therefore, reciprocates with it. The packing of the sliver in the can 3 is performed by two plates 10 and 11. The plate 10 is of the same width as the can 3 and is half as long and is mounted in two carrying arms 12 hinged at the points 13 to the framework 8 and bent as shown in the drawings. The plate 10 is also hinged to one end of a rod 14, the other end of which is hinged to the standard 15. The plate 11 is of the same shape and dimensions as the plate 10 and is carried in a similar way by the carrying arms 16. The latter are hinged to the framework at the points 17 and the plate 11 is hinged to one end of a rod 18, the other end of which is hinged to an arm 19 fixed to the machine.

In the position shown in the drawings, the crank 6 and connecting rod 7 are at the outer dead centre position and the plate 11 lies horizontally slightly above the mouth of the can 3, while the plate 10 is in a vertical position. As the crank 6 rotates the platform 5, can 3 and framework 8 move to the right and as the outer ends of the rods 14 and 17 are hinged to fixed parts, the plates 10 and 11 are swung, the one anti-clockwise, and the other clockwise, about the hinges 13 and 17 respectively, until when the inner dead centre position is reached the positions of the plates 10 and 11 have been reversed—that is to say, the plate 10 then lies horizontally slightly above the mouth of the can 3 and the plate 11 is in a vertical position. On continued rotation of the crank 6, the direction of movement of the platform 5 is reversed and, of course, the plates 10 and 11 are swung in the opposite senses.

The sliver delivered from the funnel 4 is piled in the can 3 and, being loosely packed, projects beyond the mouth of the can 3. When, therefore, the plates 10 and 11 are swung into their horizontal position they press the sliver down and owing to the positive way in which they are actuated they are

able to exert a considerable pressure. In this way the sliver is progressively packed into the can 3 without in any way interfering with the feed because the plate 10 or 11, which at any instant is nearest to the funnel 4, is in a more or less raised position.

The bars 20 of the framework 8 are higher than the can 3, so that the latter when it is full can be easily withdrawn and be replaced by an empty one and on this account the carrying arms 12 and 16 are bent to the shape shown so that they may descend relatively near to the mouth of the can 3 and when there assume a horizontal position.

The carrying arms 12 and 16 are steel sections, so that they have a certain amount of springiness which is, of course, necessary if good packing is to be obtained, especially when the can is absolutely full.

There are, of course, many alternative ways of actuating the packing plates 10 and 11 and some further examples are illustrated in Figures 3-8.

In Figures 3 and 4, the can 3 is carried on the platform 5 which is reciprocated as in the previous case. The outer ends of the rods 14 and 18 are pivoted to a horizontal bar 22 supported by the two columns 23 and the outer ends of the carrying arms 12 and 16 are pivoted not to a framework fixed to the platform, but to slide blocks 24. The sliding blocks 24 are formed as lateral projections from two built-up standards 25 fixed one to each side of the platform 5 and between which the can 3 is placed during the filling operation. The sliding blocks project into corresponding slideways 26 formed in two horizontal bars 27 fixed to the columns 23 as clearly seen in Figure 4. As the platform 5 is reciprocated, the slide blocks 24 are, of course, moved in the slideways 26 and the packing plates 10 and 11 are swung up and down in phase with the platform 5.

A further modification is shown in Figures 5 and 6 in which a framework 8 such as is used in the construction shown in Figures 1 and 2 is used but the arms 12 and 16, instead of being pivoted as in those figures, are fixed on rods 28 journaled in the framework 8 and extended backwards beyond it. A gear wheel 29 is fixed to the end of each of these rods 28 which meshes with a horizontal rack 30 carried by the standard 15 and a column 31. The diameter of the wheels 29 is so chosen that the wheel 29 and, therefore, the packing plate 10 or 11 fixed to it is turned through an angle of 90° every half stroke of the platform 5. This arrangement has the advantage that the rods 14 and 18 can be dispensed with and leads to a general simplification of the arrangement above the can.

Figures 7 and 8 are fragmentary views showing respectively in elevation a plan and further example of construction. Here as

in Figures 5 and 6, the packing plates 10 and 11 are fixed on rods 28 and the connecting links 14 and 18 are dispensed with. Instead of the wheel 29, however, the rods 28 are each provided with a short arm 32 fixed to it and carrying a roller 33 at its free end which engages in a guideway 34 formed in a horizontal bar 35. This bar 35 is carried by the standard 15 and the column 31 and, as seen in the drawings, has upwardly sloping ends so that when the rollers 33 reach these sloping portions the short arms 32 are caused to swing and thus to bring the packing plates 10 and 11 alternately into and out of the horizontal position.

In all the arrangements described it will be appreciated that the power for actuating the plates need not be derived from the platform 5, but may if desired be derived quite independently, for example, from a separate crank and connecting rod mechanism.

Many other variations are possible in addition to the above and although the invention has been illustrated in its application to an arrangement having a platform carrying a single can, it is equally applicable to arrangements wherein the platform carries more than one can and wherein filled cans are automatically exchanged for empty ones.

I claim:

1. A packing device for a moving sliver can, comprising a member supporting said can and moving with it, a packer mounted on said member and means for moving said packer into and out of the mouth of said can.
2. A packing device for a moving sliver can comprising a stationary bearing, a member moving with said can, a plurality of packers pivotally mounted on said member and rigid members pivotally connected to said packers and to said stationary bearing.
3. A packing device for a moving sliver can comprising a stationary guide, a member moving with said can, a plurality of packers pivotally mounted on said member, a plurality of slidable members mounted in said stationary guide and means for swinging said packers into and out of the mouth of the can.
4. A packing device for a moving sliver can comprising a stationary bearing, a member moving with said can, a plurality of packers pivotally mounted on said member and means carried by said stationary bearing for alternately swinging said packers into and out of a substantially horizontal position.
5. A packing device for a moving sliver can, comprising a stationary bearing, a rigid structure adapted to move with said can, an articulated structure having one element pivotally connected to said rigid structure and another element pivotally connected to said stationary bearing and means for moving

said can and said rigid structure so that one element of said articulated structure is swung alternately into and out of the mouth of said can.

5 6. A packing device for a moving sliver can comprising a stationary bearing, a fixed guide, a member adapted to slide in said guide, an articulated structure having one element pivotally connected to said member  
10 and another element pivotally connected to said stationary bearing and means for moving said member in said guide so as to swing one element of said articulated structure into and out of the mouth of said can.

15 7. A packing device for a moving sliver can comprising a stationary bearing, a fixed guide, a plurality of members adapted to slide in said guide, a packer pivotally connected to each of said members, a rigid connection pivotally connected at one end to one of said packers and at the other to said stationary bearing and means for sliding said members in said guide, the movement of said members bearing such a relationship to the  
20 movement of said can that each packer is alternately swung into and out of the mouth of said can.

8. A packing device for a moving sliver can comprising a member moving with said can, a stationary bearing, a plurality of packers mounted on said member and means connecting said packers to said stationary bearing so that the movement of said can causes said packers to be swung alternately into and  
25 out of the mouth of said can.

9. A packing device for a moving sliver can comprising a member moving with said can, a plurality of packers pivotally mounted on said member and gearing including a fixed gear so that the movement of said can causes said packers to be swung alternately into and out of the mouth of said can.  
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10. A packing device for a moving sliver can comprising a stationary bearing a plurality of packers mounted to move with said can and a driving train including a rack connecting said packers to said stationary bearing, said driving train being actuated by the movement of said can so as to bring said packers alternately into and out of the mouth of said can.  
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11. A sliver piling apparatus comprising in combination a stationary bearing, a reciprocatory platform adapted to carry sliver cans, a plurality of packers movable with said platform and means for connecting said packers to said stationary bearing so that the reciprocations of said platform are converted into partial rotations of said packers bringing them alternately into and out of a substantially horizontal position.  
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12. A sliver piling apparatus comprising in combination a stationary bearing, a reciprocatory platform adapted to carry sliver cans, a rigid structure integral with said  
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platform, a linkage pivoted at one end to said structure and at the other to said stationary bearing and formed of two elements, a packer carried by the element of said linkage, pivoted to said structure, a driving connection for converting the reciprocations of said platform into partial rotations of said packers. 70

13. A sliver piling apparatus comprising in combination a reciprocatory platform adapted to carry sliver cans, a rigid structure carried by said platform, a linkage pivoted at one end of said structure at a level higher than that of the mouth of said cans to be carried by said platform and consisting of two elements, a packing member mounted on the element of said linkage which is pivoted to said structure and adapted to be moved by the reciprocations of said platform into and out of the mouth of one of said cans. 75

14. A sliver piling apparatus comprising in combination a stationary bearing, a reciprocatory platform adapted to carry sliver cans, a rotatable member carried transversely of said platform and moving therewith, a packer fixed to said rotatable member, a gear fixed to said rotatable element and a complementary gear carried by said stationary bearing and meshing with said first-mentioned gear, the ratio between said gears being such as to cause said packer to be swung alternately into and out of a substantially horizontal position. 80

15. A sliver piling apparatus comprising in combination a reciprocatory platform adapted to carry sliver cans, packing members pivotally carried by said platform and means for swinging said packing members into and out of a substantially horizontal position, the movement of said packing members bearing a definite timed relationship to that of said platform. 85

16. Apparatus for delivering and packing slivers from a textile preparing machine into a can, comprising in combination a stationary bearing, a platform carrying the can and reciprocated beneath the delivery end of the machine, a framework carried by said platform including two oppositely disposed members transverse to said platform, two rods pivoted to said stationary bearing at a level above that of said framework, a packing plate pivoted at one end of one of said transverse members of said framework at a level above that of the can and at the other to one of said rods, a further packing plate mounted similarly to said first-mentioned packing plate on the opposite transverse member of said framework and the other of said rods and set at right angles to said first-mentioned packing plate, the lengths of said rods being so chosen that on reciprocation of said platform said packing plates are alternately swung into and out of the mouth of the can being filled. 90  
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17. A packing device for a moving sliver  
can comprising a member moving with said  
can, a stationary bearing, a packer attached  
to said bearing and means for connecting  
5 said packer to said member so that said  
packer is moved into and out of said can as  
a consequence of the movement of said mem-  
ber.

18. A packing device for a moving sliver  
10 can comprising a member supporting said  
can and moving with it, a stationary bearing,  
a packer, a linkage connecting said packer  
to said bearing and means connecting said  
packer to said member so that said packer is  
15 moved alternately into and out of said can  
as a consequence of the movement of said can.

In witness whereof I hereunto subscribe  
my name this 15th day of April, A. D. 1931.

WERNER THIERFELDER.

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