May 27, 1930. P. LIEBERKNECHT 1,760,703

STRAIGHT KNITTING MACHINE

Filed Oct. 20, 1928

Fig. 1.

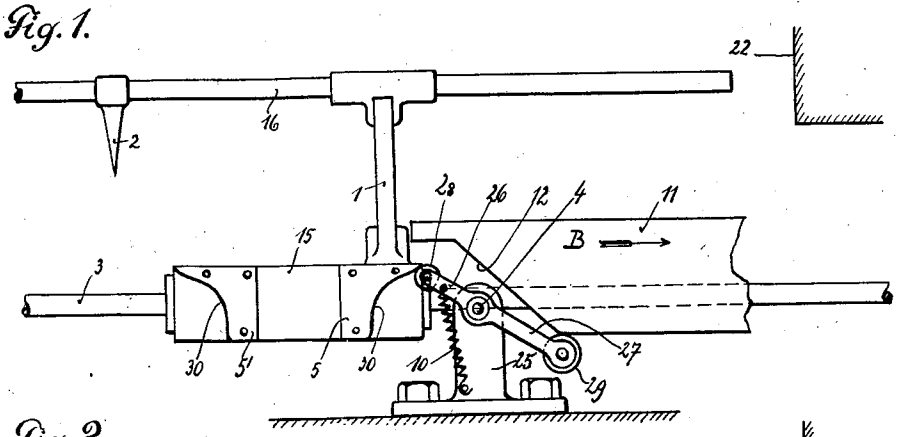


Fig. 2.

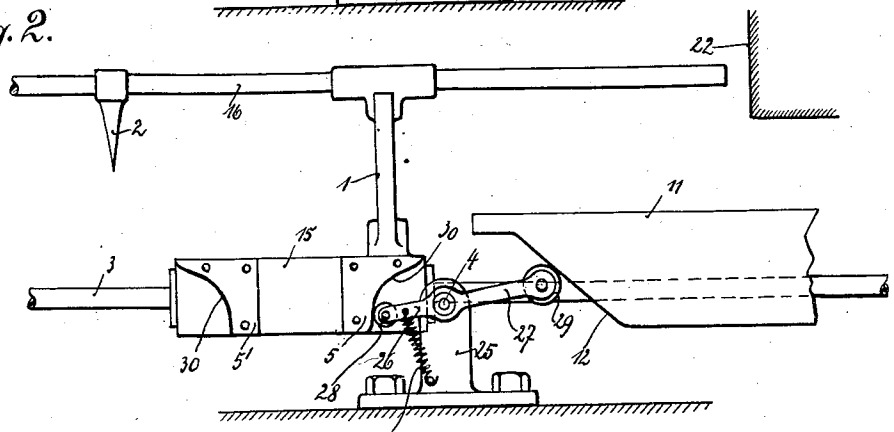
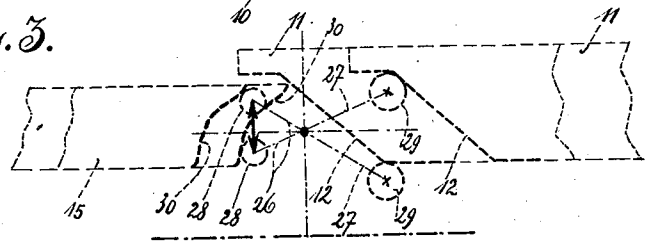


Fig. 3.



Inventor:
Paul Lieberknecht

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UNITED STATES PATENT OFFICE

PAUL LIEBERKNECHT, OF CHEMNITZ, GERMANY, ASSIGNOR TO MASCHINENFABRIK EINSIEDEL GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, OF CHEMNITZ, GERMANY

STRAIGHT-KNITTING MACHINE

Application filed October 20, 1928, Serial No. 313,889, and in Germany February 12, 1928.

This invention relates to a device for decelerating the friction box mounted on the slur bar of a straight-bar knitting machine before said box reaches the end of its travel, and the invention consists in the provision of a rigid abutment carrying a double-armed lever which takes the thrust of the box while performing a yielding movement, said lever being furnished at the ends with rollers co-operating with cams which are mounted, one on the box and the other on the slur bar and which control the yielding movement of the lever.

Fig. 1 of the accompanying drawings represents a view of the device and shows the position of the elements just before the device comes into action.

Fig. 2 is a view showing the device in operation, and

Fig. 3 is a diagrammatic view illustrating the relative displacements of the elements during the operation of the device.

The thread guides 2 of the machine are carried in known manner by a longitudinally reciprocated rod 16 the travel of which is limited at both ends by stops 22. The rod receives motion from the reciprocating slur bar 3 which is parallel to the rod and which acts on it through the medium of an arm 1 and a box 15, the latter being arranged to slide on the bar and to engage it by friction.

In order to decelerate the friction box 15 just before the rod 16 reaches the stop 22, and thus to reduce the shock, an abutment is provided in the form of a rigidly mounted bracket 25 carrying on a pivot pin 4 a double-armed lever 26, 27. A cam 11 is secured to the slur bar 3 so as to travel with the latter, and a plate 5 on the friction box has a cam face 30. A roller 28 on the arm 26 of the lever co-operates with the cam face 30, and a roller 29 on the arm 27 co-operates with the cam 11. A spring 10 controls the lever 27 and presses the roller 29 against the cam 11, the latter being long enough to remain in contact with the roller during the whole of the travel.

In Fig. 1 the friction box and the cam 11 are shown as travelling in the direction of the arrow B. On the cam face 30 reaching the roller 28, the roller 29 will be in position to travel up an inclined face 12 of the cam 11, and the arm will therefore be turned between the two cams. The cam face 12 is straight and causes a substantially uniform rocking movement of the lever, but the cam face 30 is curved and presents to the roller 28 first a portion which is but slightly inclined to the direction of the travel and then, as the lever turns, a portion which is substantially at right angles to the travel. The friction box will therefore be gradually decelerated and separated from the cam 11 which keeps on moving together with the slur bar. When the end of the rod 16 reaches the stop 22, its movement will be very slow, and the shock, if any, will be slight and harmless.

The friction box has a second cam plate 5′ which cooperates with a similar device at the other end of the travel.

I claim:

In a straight-bar knitting machine, the combination with a thread guide, a slur bar and a friction box mounted on the bar and connected to the guide, of a cam connected to the slur bar, a rigid abutment for the friction box, a double-armed lever pivoted to said abutment, a spring acting on said lever so as to hold one arm thereof in sliding engagement with the cam, and a cam on the friction box adapted to engage the other arm of the lever and cause the box to be displaced on the bar at the end of its travel, the cam on the box being adapted to turn the lever during the displacement, the cam on the bar being adapted to control the lever movement so as to effect a gradual stoppage of the friction box.

PAUL LIEBERKNECHT.