

[72] Inventor **Karl Kohl Offenbacher Landstr. 20
Hainstadt (Main), Germany**
 [21] Appl. No. **857,528**
 [22] Filed **Sept. 12, 1969**
 [45] Patented **June 28, 1971**
 [32] Priority **Sept. 18, 1968**
 [33] **Germany**
 [31] **P 17 85 388**

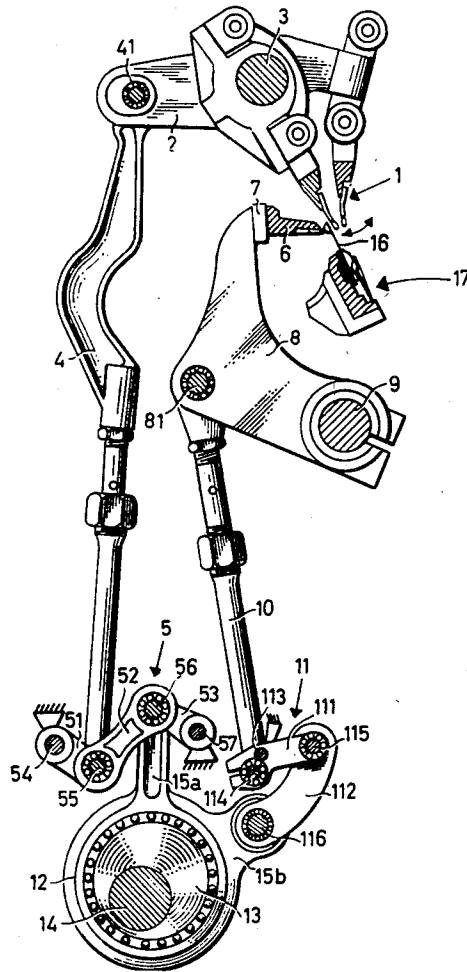
[56] References Cited			
UNITED STATES PATENTS			
2,636,365	4/1953	Vitek.....	66/86
2,984,998	5/1961	Liebrandt et al.	66/86
3,355,911	12/1967	Landgraf.....	66/86(UX)
3,355,912	12/1967	Wenrich.....	66/86
FOREIGN PATENTS			
802,809	6/1936	France	66/86

Primary Examiner—Robert R. Mackey
 Attorney—Kurt Kelman

[54] **COMBINED PRESSURE AND GUIDE BAR
 MECHANISM FOR A WARP KNITTING MACHINE**
 3 Claims, 1 Drawing Fig.

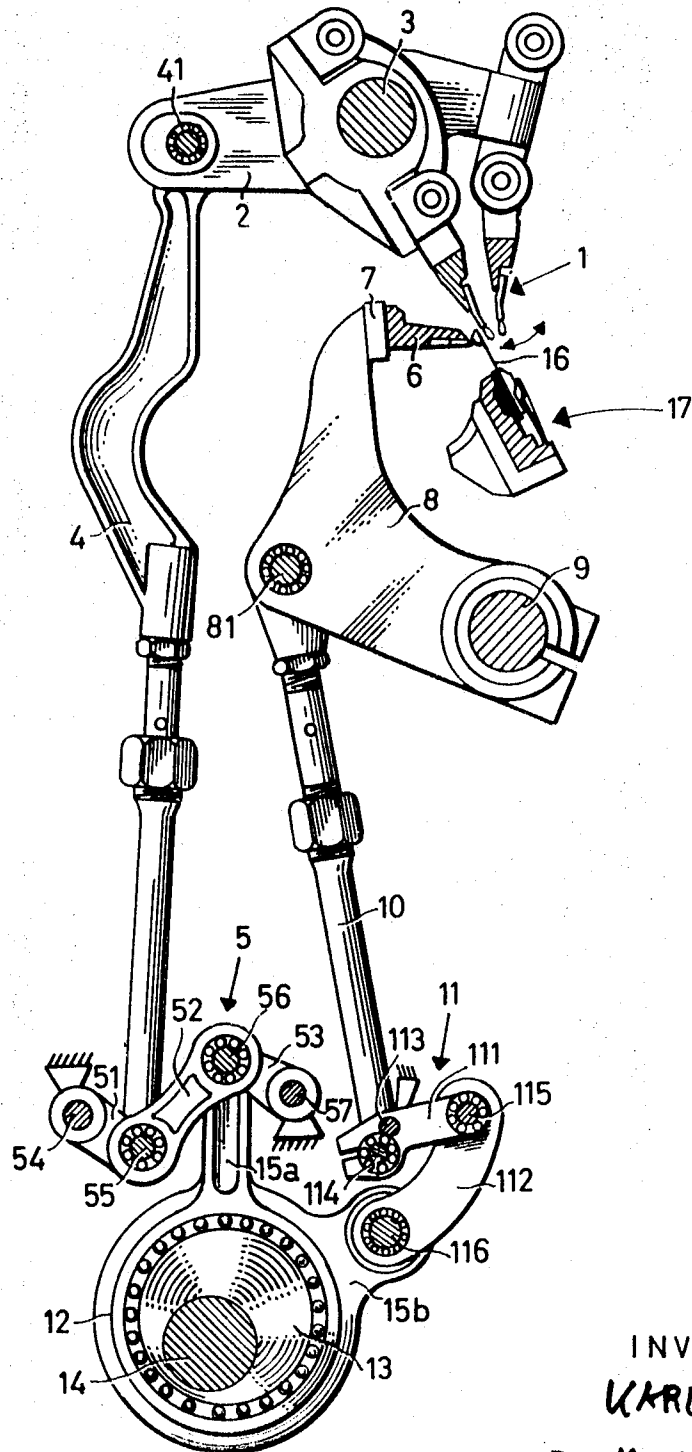
[52] U.S. Cl..... **66/86**
 [51] Int. Cl..... **D04b 27/00**
 [50] Field of Search..... **66/86**

ABSTRACT: The drive shaft of a warp knitting machine carries an eccentric having two connecting rods fixed on its strap member. Linkages respectively connect the connecting rods with the push-rod on the guide-bar swing lever and with the push-rod on the presser arm.



PATENTED JUN 28 1971

3,587,252



INVENTOR:
KARL KOHL
By *Kaufman*
AGENT

COMBINED PRESSURE AND GUIDE BAR MECHANISM FOR A WARP KNITTING MACHINE

This invention relates to warp knitting machines, and particularly to the mechanisms which move the knitting implements of the machine in timed sequence.

The maximum operating speed of a knitting machine is determined to a significant extent by the weight of the machine elements which move but do not rotate about an axis through their center of gravity during machine operation. It has therefore been proposed to drive the needle bar and the swinging guide-bar suspension by means of a single crank arrangement on the main drive shaft of the machine. The known arrangement is relatively simple because of the close correlation and conformity of the needle movements and the swinging motion of the guide bars.

It was not possible prior to the instant invention to extend these teachings to other knitting implements, particularly the needle presser and the guide bars because of the basic difference in the motion cycles of these implements. The object of the invention is the provision of a motion transmitting train which permits the needle presser and the guide bar suspension to be operated jointly in a manner at least as simple as the known mechanism for the needle bar and the guide bar suspension.

According to the instant invention, a disc member is mounted on the drive shaft of the knitting machine for rotation therewith about the drive shaft axis. An annular strap member is mounted on the disc member for rotation about an eccentric axis parallel to the shaft axis and spaced from the same. Two connecting rods project from the strap member in respective, angularly offset directions away from the eccentric axis. A set of pivots is associated with each connecting rod. It secures a linkage to the frame and connects the linkage to the associated connecting rod and to the push rod which operates the pivotally mounted carriers for the guide rails and for the presser.

Other features, additional objects and many of the attendant advantage of this invention will readily be appreciated as the same becomes between understood by reference to the following detailed description of a preferred embodiment when considered in connection with the appended drawing.

The sole FIG. of the drawing shows a warp knitting machine equipped with the motion transmitting mechanism of the invention in fragmentary partly sectional side elevation.

Only as much of an otherwise conventional warp knitting machine has been shown as is needed for an understanding of this invention.

The swinging suspension for the guide bars 1 includes a guide-bar swing lever 2 mounted on a rocking shaft 3 which is journaled in the usual manner in the stationary machine frame, not itself shown. The swinging motion of the several levers 2 of which only one is seen in the drawing is caused by generally longitudinal and approximately vertical movement of a push-rod 4 whose top end is hinged to the lever by a pivot 41.

A linkage 5 consisting of three link members 51, 52, 53 connected to each other and to the machine frame by pivots 54, 55, 56, 57 transmits movement from a connecting rod 15a to the push-rod 4. The pivot 54 secures the linkage member 51 to the machine frame. The pivot 55 connects the member 51 to the member 52 and to the lower end of the push-rod 4. The pivot 56 secures the member 52 to the member 53 and to the free end of the connecting rod 15a, and the pivot 57 secures the linkage member 53 to the frame.

The presser 6 is mounted on a bar 7 attached to the presser arm 8, the arm being pivotally mounted on a presser shaft 9, as is conventional, and pivoted by means of a vertically extend-

ing push-rod 10 connected to the arm 8 by a pivot 81.

A linkage 11 consisting of a two-armed rocker 111 and a link 112 connected to each other, to the push-rod 10, and to the free end of a connecting rod 15b by four pivots 113, 114, 115, 116 transmits movement from the last-mentioned connecting rod to the push-rod 10. The pivot 113 secures the rocker 111 to the machine frame, the pivot 114 connects one rocker arm to the push-rod 10, the pivot 115 connects the other rocker arm to the link 112, and the latter is connected to the connecting rod 15b by the pivot 116.

The main drive shaft 14 of the knitting machine, which normally rotates continuously at uniform speed during operation of the machine, carries a circular eccentric disc 13. An annular strap 12 is mounted on the circumference of the disc 13 by means of an antifriction bearing. The connecting rods 15a, 15b project radially from the strap 12 relative to the eccentric axis of rotation of the latter, and are offset approximately 60° relative to the eccentric axis.

When the shaft 14 rotates, the guide bars 1 carrying the yarn guides swings about the axis of the rocking shaft 3, and the presser 6 moves substantially horizontally toward and away from the needles 16 on the needle bar assembly 17, not shown in detail, as is necessary for the knitting operation, and achieved in prior knitting machine by means of two eccentric or cam arrangements separately driven by the main drive shaft.

I claim:

1. In a warp knitting machine having a frame, a guide bar carrier mounted on said frame for swinging motion, a presser carrier pivotally mounted on said frame, a drive shaft rotating continuously during operation of the machine, and motion transmitting means connecting said carriers to said drive shaft and including two push-rods linked to said carriers respectively for swinging said guide bar carrier and pivoting said presser carrier in timed sequence, the improvement in the motion transmitting means which comprises:

- a. a disc member mounted on said drive shaft for rotation therewith about an axis of rotation;
- b. an annular strap member mounted on said disc member for rotation about an eccentric axis parallel to said axis of rotation and spaced from the same;
- c. two connecting rods fixedly projecting from said strap member in respective, angularly offset directions away from said eccentric axis;
- d. two linkages;
- e. a first set of pivots securing one of said linkages on said frame, connecting one of said connecting rods to said one linkage, and connecting said one linkage to one of said push-rods; and
- f. a second set of pivots securing said other linkage on said frame, connecting the other connecting rod to said other linkage, and connecting said other linkage to the other push-rod.

2. In a machine as set forth in claim 1, said one linkage having three members, and said first set including four pivots, respective pivots of said first set securing two of said three linkage members to said frame, and the other two pivots connecting said two linkages to the third member of said first set, said one connecting rod and said one push-rod being fastened to said other two pivots respectively.

3. In a machine as set forth in claim 1, said other linkage including a two-armed rocker and a link member, respective pivots of said second set securing said rocker to said frame, connecting said push-rod to one arm of said rocker, securing said link member to the other arm of said rocker, and securing said link member to said other connecting rod.