April 29, 1941. F. CECKA 2,239,810

DEVICE FOR LOCKING THE THREAD CARRIER BARS OF FLAT KNITTING MACHINES

Filed Jan. 13, 1940 3 Sheets-Sheet 1

Fig. 1

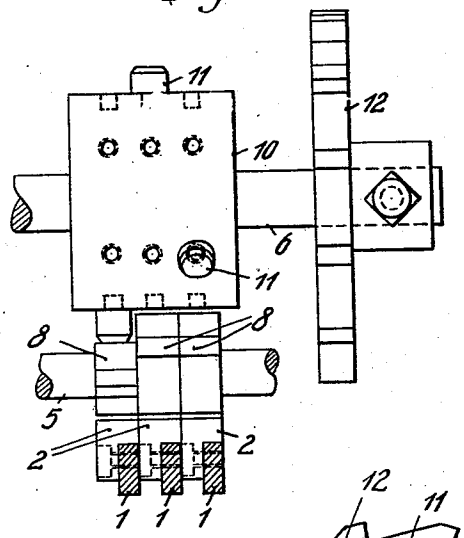
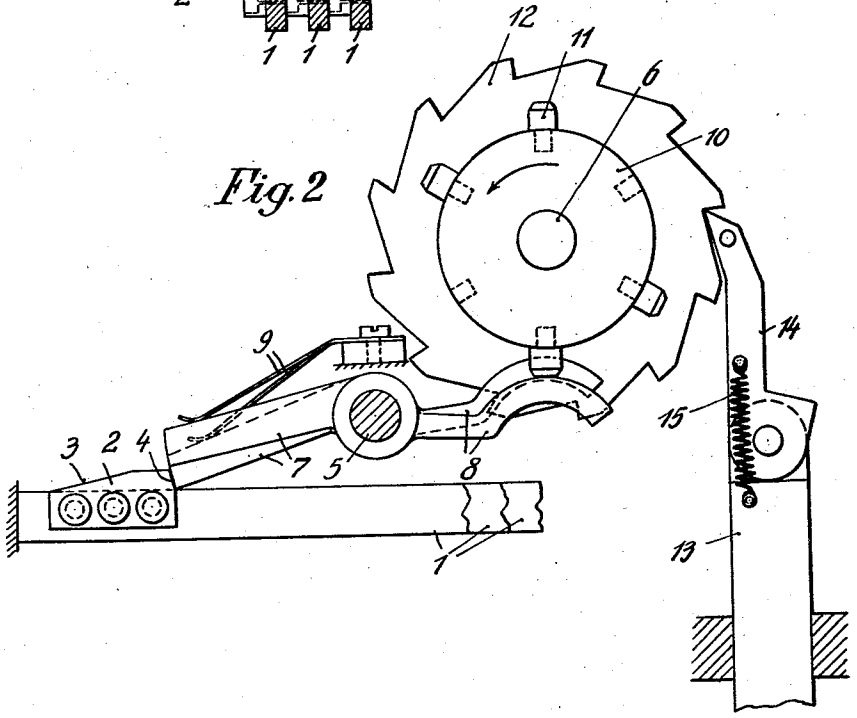


Fig. 2



Inventor:
Franz Cecka.

By William C. Linton
Atty.

April 29, 1941. F. CECKA 2,239,810

DEVICE FOR LOCKING THE THREAD CARRIER BARS OF FLAT KNITTING MACHINES

Filed Jan. 13, 1940 3 Sheets-Sheet 2

Fig. 3

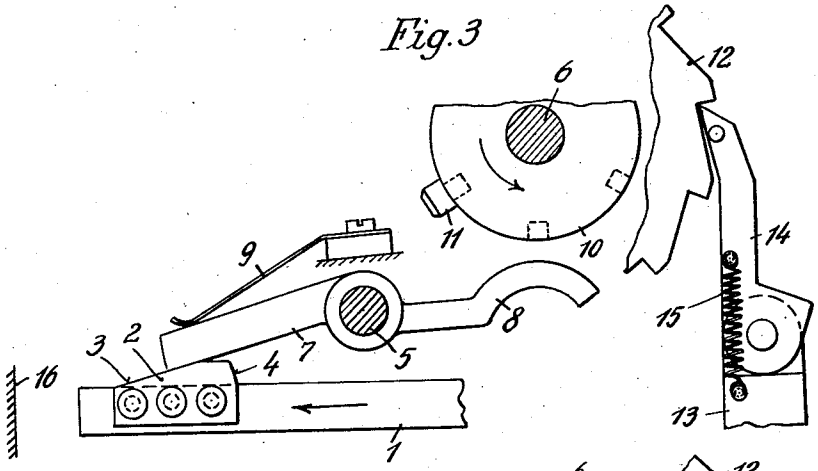


Fig. 4

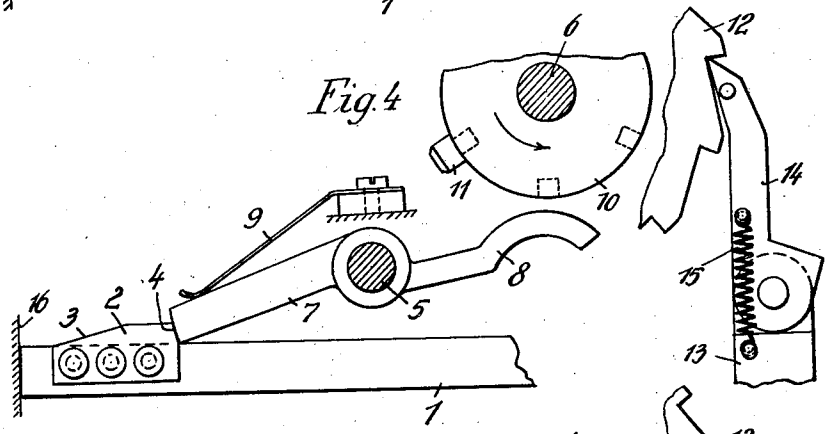
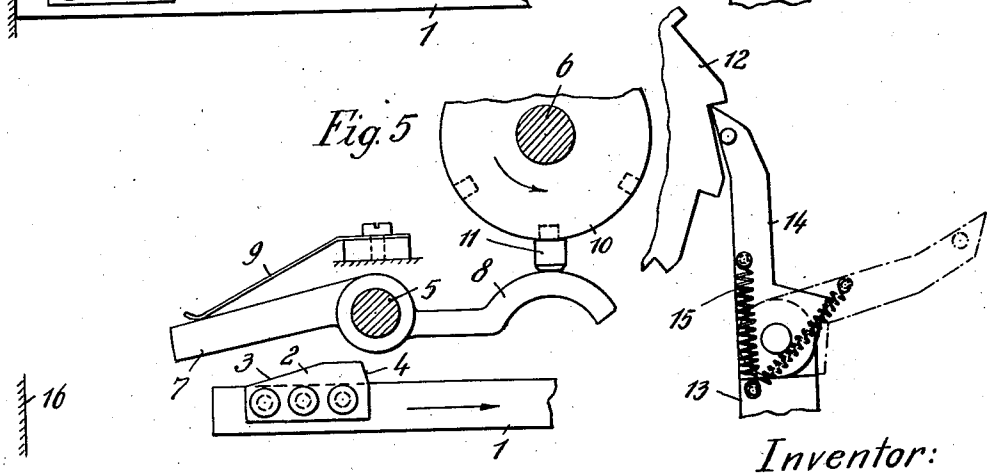


Fig. 5



Inventor:
Franz Cecka.

By William C. Linton
Atty.

April 29, 1941. F. CECKA 2,239,810

DEVICE FOR LOCKING THE THREAD CARRIER BARS OF FLAT KNITTING MACHINES

Filed Jan. 13, 1940 3 Sheets-Sheet 3

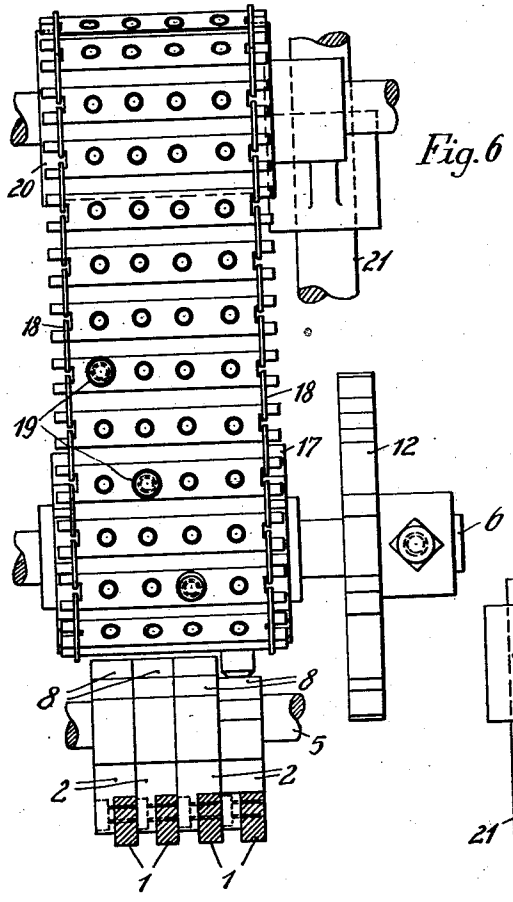


Fig. 6

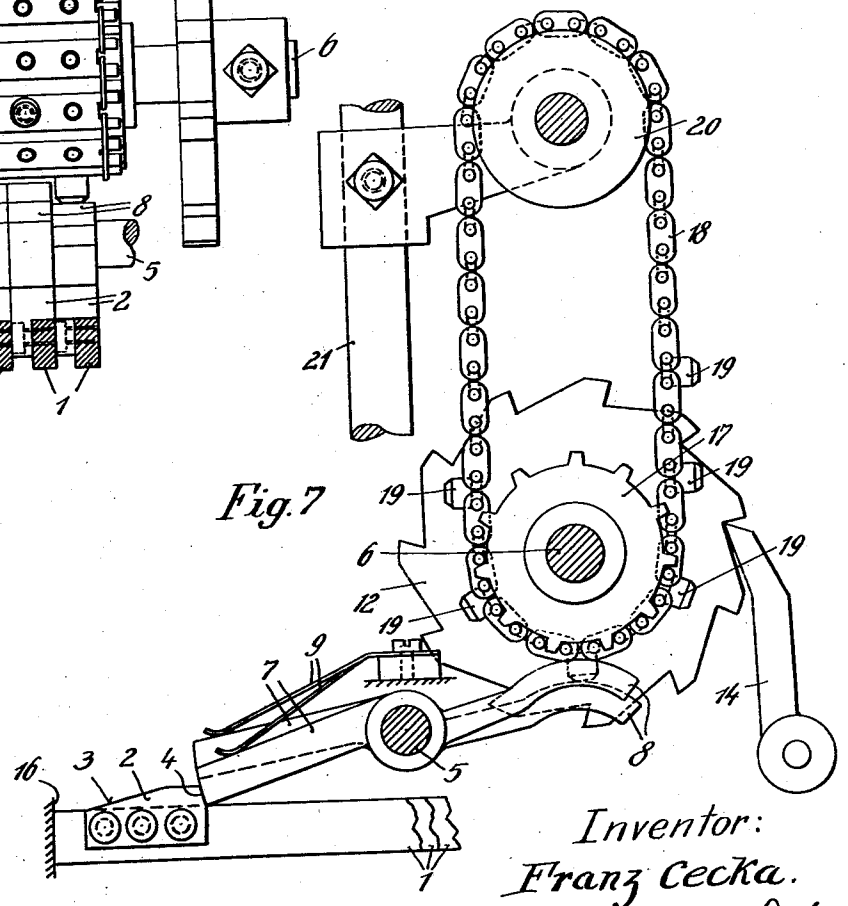


Fig. 7

Inventor:
Franz Cecka.
By William C. Linton
Atty.

Patented Apr. 29, 1941 2,239,810

UNITED STATES PATENT OFFICE

2,239,810

DEVICE FOR LOCKING THE THREAD CARRIER BARS OF FLAT KNITTING MACHINES

Franz Cecka, Chemnitz, Germany, assignor to Schubert & Salzer Maschinenfabrik Aktiengesellschaft, Chemnitz, Germany

Application January 13, 1940, Serial No. 313,771
In Germany December 21, 1938

1 Claim. (Cl. 66—127)

The present invention relates to a device for locking the thread carrier bars of flat knitting machines.

The hitherto used devices for locking the thread carrier bars of flat knitting machines are so constructed that in the moment the thread carrier bars come into contact with the stop limiting their stroke all the thread carrier bars are locked, whereas all of them are released again as soon as they are moved in opposite direction so that inoperative thread carrier bars may be displaced under the action of vibrations of the machine.

To obviate this drawback an electromagnetic control mechanism for the locking devices of the thread carrier bars has been proposed by means of which some of the locking devices only are actuated in such a manner that the operative thread carrier bars only are released in the moment of their movement.

Electrically controlled devices, however, are not highly desired because due to dust and dirt the contacts may be rendered inoperative and the sources of defects may be excluded by skilled workmen only. Therefore, very often the machine must be stopped as such skilled labourers are not always available at once.

According to the invention the object aimed at is obtained mechanically. For this purpose locking levers, influenced by pattern drums, drums carrying pins, pattern chains or the like, act upon the thread carrier bars in such a manner that the latter unimpededly reach the stops limiting their stroke in the direction towards said stops and are automatically locked by these stops in the position of contact with said stops, whereas the thread carrier bars continuing their operation only are released on movement in the opposite direction by actuation of the corresponding locking levers according to pattern.

The device according to the invention is particularly adapted for carrying out operations in which a different thread carrier bar is actuated and a different thread is supplied in each row of loops.

In the accompanying drawings two constructions according to the invention are shown by way of example.

In these drawings:

Fig. 1 is a front elevation of a device according to the invention using a drum carrying pins actuating three thread carrier bars.

Fig. 2 is a side view of the device shown in Fig. 1,

Figs. 3 to 5 illustrate three different operative positions of the front thread carrier bar in broken away side views,

Fig. 6 is a front elevation of a device according to the invention using a pattern chain for operating four thread carrier bars, and

Fig. 7 is a side view of the device shown in Fig. 6.

As shown in the construction according to Figs. 1–5, three carrier bars 1 are arranged in the machine in the usual manner. Fixed upon the end of each thread carrier bar is a locking block 2 which towards the end is provided with an inclination 3 and towards the other side with a curve-like locking face 4.

In a bearing block, not shown in the drawings and connected to the narrowing tackle, a shaft 5 and another shaft 6 are journalled. Pivoted upon the shaft 5 are double-armed locking levers comprising arms 7 and 8 one for each thread carrier bar. The curve-shaped locking faces 4 correspond to the shape of the front edges of the lever arms 7 which are so formed as to continuously remain in contact with the locking faces during movement. Leaf springs 9 act upon the lever arms 7.

Fixed upon the shaft 6 are a drum 10 carrying pins 11 and a feed disc 12. The lever arms 8 extend into the range of the pins 11 carried by the drum 10. A feed linkage 13 connected to the already mentioned bearing block not shown in the drawings carries a swingable pawl 14 which in the usual manner may be brought into an inoperative position and held in the operative position by a tension spring 15. The stroke of the thread carrier bars is limited by a stop 16.

The operation of the device is as follows:

If the thread carrier bars are moved in the direction towards the stop 16 limiting their stroke they unimpededly reach the latter. If as shown in Fig. 3 the locking blocks 2 come into the range of the lever arms 7 the latter are lifted by the inclinations 3. In the position of contact shown in Fig. 4 the lever arms 7 of all the locking levers under the action of the leaf springs 9 engage automatically behind the curve-shaped locking faces 4 of the locking blocks 2 and lock all the thread carrier bars. The drum 10 carrying the pins 11 then occupies a position in which the lever arms 8 of the locking levers are free of the pins of the pattern drum, i. e. out of the range of these pins.

If the movement of the thread carrier bars is continued in opposite direction, the feed drum is fed by lifting of the feed linkage. If a pin 11 of the drum 10 extends into the path of a lever

arm 8 the latter is moved downwardly. The corresponding upward movement of the other lever arm 7 then causes release of the corresponding locking block 2 of the corresponding thread carrier bar as shown in Fig. 5, while all lever arms 8, not influenced by pins 11, continue to lock their thread carrier bars as shown in Fig. 2.

According to the construction shown in Figs. 6 and 7 a chain drum 17 is fixed upon the shaft 6 besides the feed disc 12. A chain 18 provided with pins or studs 19 is led around this chain drum and also about a tension roller 20 of a linkage 21 which is connected to the above mentioned bearing block not shown in the drawings.

All other elements of this construction correspond to those shown in the construction described in detail above and therefore all these elements are designated by the same reference number as those shown in Figs. 1–5. The operation of the pins or studs 19 of the chain drum 17 is the same as that of the pins 11 carried by the drum 10.

What I claim is:

A device for locking the thread carrier bars of flat knitting machines, comprising stops limiting the stroke of said thread carrier bars, means operating according to pattern, double-armed locking levers influenced by said means operating according to pattern and acting upon said thread carrier bars, and springs acting upon said double-armed locking levers, the arrangement being such that said carrier bars unimpededly reach said stops limiting their stroke in the direction towards said stops and are automatically locked by said levers in the position of contact with said stops, whereas said thread carrier bars continuing their operation only are released on movement in the opposite direction by influencing corresponding arms of said double-armed locking levers according to pattern and against the action of said springs, said locking blocks being fixed upon the ends of said thread carrier bars and having an inclination towards one end and a curve-like locking face at the other side corresponding in shape to the front edge of one of the arms of said double-armed locking levers.

FRANZ CECKA.