Dec. 7, 1954 K. I. J. ROSÉN 2,696,252

MACHINE FOR SPIRAL-CUTTING STRIPS FROM CIRCULARLY KNITTED STOCKINETTE FABRICS

Filed Sept. 20, 1951 3 Sheets-Sheet 1

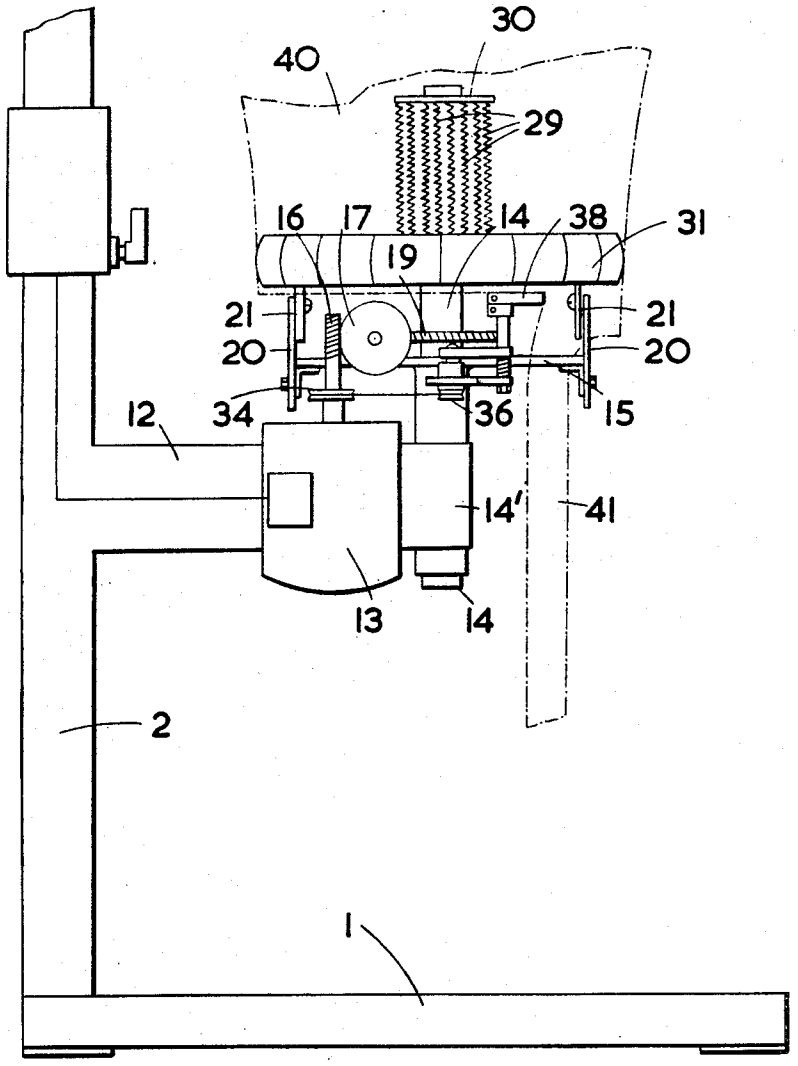


FIG. 1.

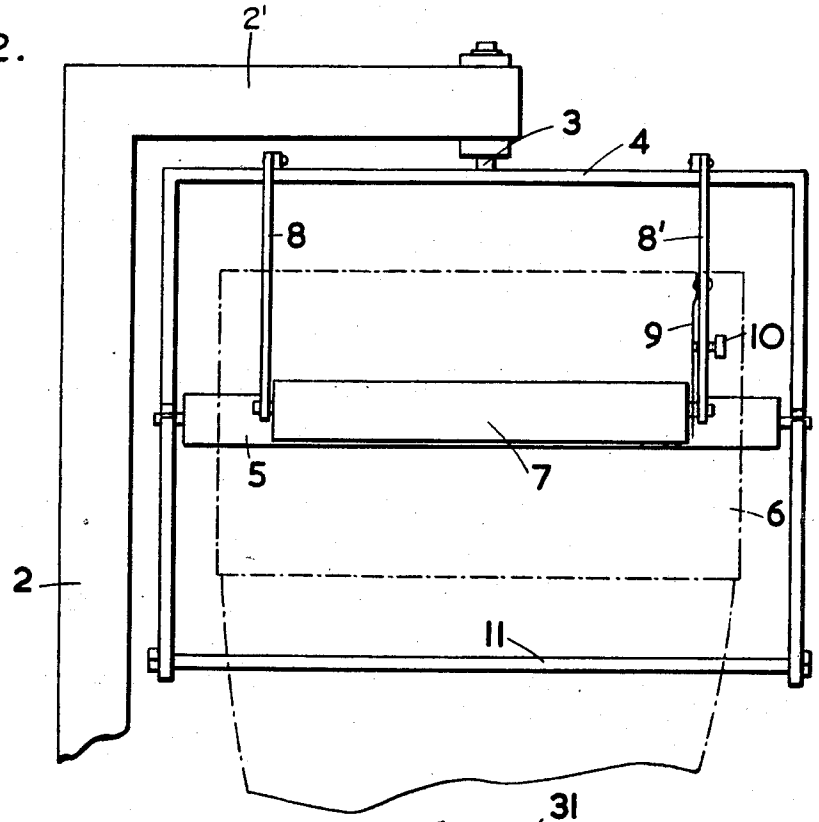
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FIG.2.



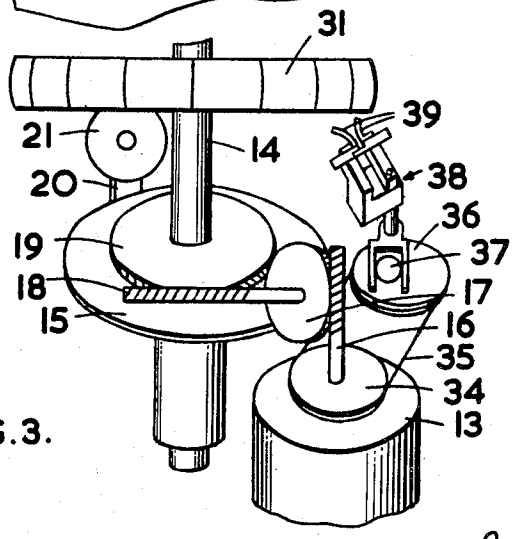


FIG.3.

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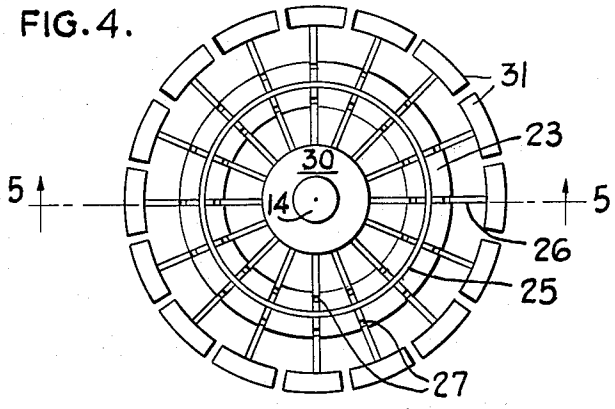
By: Pierce, Scheffler & Parker,
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FIG. 4.



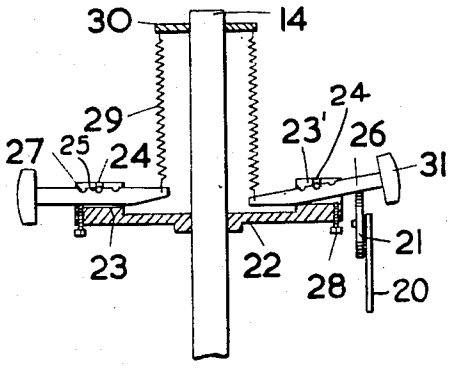


FIG. 5.

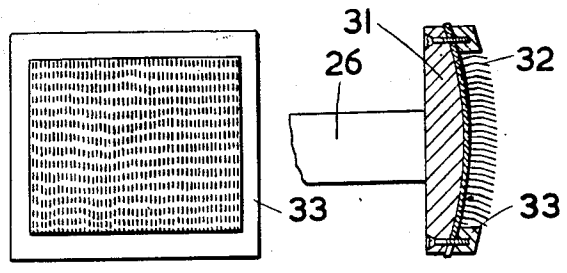


FIG. 6. FIG. 7.

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MACHINE FOR SPIRAL-CUTTING STRIPS FROM CIRCULARLY KNITTED STOCKINET FABRICS

Karl Isac Joel Rosén, Ulricehamn, Sweden

Application September 20, 1951, Serial No. 247,441

5 Claims. (Cl. 164—38)

The present invention relates to a machine for cutting spiral strips from circularly knitted stockinet fabrics, the machine being so constructed as to cut up automatically a whole roll into a continuous strip of desired uniform width.

According to the invention, a machine for cutting spiral strips from a roll of circularly knitted stockinet fabric so as to produce a continuous strip of desired uniform width is characterized in that the feeding of the fabric is effected by means of cards disposed in the form of a circle, the cards having downwardly directed teeth.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a side view of the lower part of the machine,

Figure 2 is a side view of the upper part of the machine,

Figure 3 is a perspective view of the main mechanism of the machine,

Figure 4 is a plan view of the feeding device of the machine,

Figure 5 is a section on the line 5—5 of Figure 4, and Figures 6 and 7 are front and sectional views respectively of the cards used in the machine.

Referring to Figures 1 and 2, the machine comprises a base **1** to which is secured a pair of uprights **2** (only one shown). In an arm **2'**, secured to the top of the uprights **2** is journalled a shaft **3** supporting a frame **4**. In the frame **4** is rotatably mounted a roller **5** on which is disposed a roll **6** of stockinet fabric. The roller **5** is so disposed in the frame **4** as to be readily removable therefrom. A roller **7** coated with emery cloth is rotatably mounted in supports **8**, **8'**, carried by the frame **4**. The roller **7** is adapted to engage the roll **6** of stockinet fabric. The movement of the roller **7** may be checked by means of a spring **9** secured to the support **8'**, the position of the spring **9** being adjustable by means of an adjustment screw **10** disposed in the said support. The stockinet fabric, when unrolled from the roller **5**, passes over a guide bar **11** secured to the frame **4**.

An arm **12** is secured to the uprights **2** and carries a motor **13** and a tube-formed bearing **14'** with a flange **15** secured to its upper end. In this bearing a shaft **14** is journalled. The motor **13** drives a worm **16** meshing with a worm wheel **17**. The worm wheel **17** carries a worm **18** which meshes with a worm wheel **19** secured to the shaft **14**. To the flange **15** is secured a pair of brackets **20** which carry card lifting wheels **21**.

To the shaft **14** is secured a card bracket **22** having a flange **23** provided with a plurality of radial slots **23'** (Figures 4 and 5). In the flange **23** is disposed a circular recess **24** adapted to receive a ring **25**. Sixteen card levers **26** operating in the slots **23'** are each provided with recesses **27**, each recess being adapted to receive the ring **25** and pivot thereabout. The flange **23** has adjustment screws **28** disposed near its periphery, the adjustment screws serving to limit the downward motion of the card levers **26**. To the inner ends of the card levers **26** are secured springs **29** which are secured to a spring plate **30** fast upon the shaft **14**. To the outer end of each card lever **26** is secured a card **31** having downwardly directed yieldable wire teeth **32** and a protective frame **33** whose purpose is to prevent the teeth **32** from biting too deeply into the fabric and to reduce the friction against the fabric when the card is lifted in a manner to be hereinafter described.

To the motor **13** is secured a pulley **34** which by means of a belt **35** drives a second pulley **36** on which is

disposed an eccentric **37** which drives a cutting device shown generally at **38**. The cutting device comprises a stationary and movable arm, each arm being provided with a knife which works towards the other in a clipping movement. The cutting device works in accordance with the same principle as those normally employed in the special sewing machines used in the hosiery industry. The cutting device shown, however, is provided with a fork-shaped member **39**, which serves to lead the fabric between the knives.

In operation, the fabric disposed on the roller **5** is led over the guide bar **11** and passes over a member (not shown) which gives it a tubular form. The fabric, indicated generally at **40**, is fed over the cards **31**. When the motor **13** is started the card lift wheels **21** rotate and in passing underneath the card levers **26** cause the latter to be lifted and pivot about the ring **31**. When any particular card lever **26** is no longer in contact with a card lifting wheel **21**, the card lever is restored to its normal position by means of its spring **29**. In its upwards traverse the teeth **32** on the card lever **26** brush by but do not move the fabric since the said teeth point downwardly. When, however, the card levers are restored under the action of the springs **29**, the downwardly pivoting and moving teeth **32** penetrate the stockinet fabric and pull it downwardly. The cards **31** therefore serve as the feeding mechanism of the machine. The rotation of the fabric against the cutting device **38** causes a continuous spiral strip **41** to be cut from the fabric, the strips being collected in suitable vessels or rolled up by special rolling devices.

The provision on the card levers **26** of a plurality of recesses **27** adapted to receive the ring **25** makes it possible to vary the circumference of the circle formed by the cards.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a machine for cutting a continuous spiral strip of selected uniform width from a roll of circularly knitted stockinet fabric, the combination comprising a device for feeding said fabric to the cutter element of the machine including a circular array of card means having downwardly directed yieldable wire teeth adapted to engage and move said fabric downwardly, means for rotating said circular array of card means about the axis of said array, spring means cooperative with each card for biasing the card to its down position, roller means engaging and raising said card means in succession upon rotation of said array of card means against the force exerted by said spring means and out of gripping engagement with said fabric, and a cutter device positioned adjacent said array of card means and presenting a cutting edge to the fabric below said array of card means and which cuts the fabric in strip form in a direction transverse to the feed direction thereof, the downward movement of the fabric per revolution of said array of card means being equal to the width of the strip cut off by said cutter device.

2. A feed device as defined in claim 1 wherein said card means are each comprised of a card carried at the outer end of a radially disposed pivoted lever and which further includes means for adjusting the pivot axis of each lever in a radial direction to thereby effect a corresponding adjustment in circumference of the circular array of said card means.

3. A feed device as defined in claim 2 wherein the means for effecting the radial adjustment in said card means is comprised of a ring of fixed diameter adapted to engage a selected one of a plurality of spaced grooves disposed longitudinally along said lever.

4. A feed device as defined in claim 1 wherein each of said card means includes a protective frame therefor to prevent the card from gripping the fabric too deeply and which also reduces the friction against the fabric when the card is raised.

5. A feed device as defined in claim 1 and which further includes adjustable stop means individual to each said card means arranged to engage and limit the feeding movement of each said card means.

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