Dec. 10, 1957 G. BITZER 2,815,652

SINKER-HEAD STRUCTURE FOR KNITTING MACHINES

Filed Nov. 15, 1954

Fig. 1

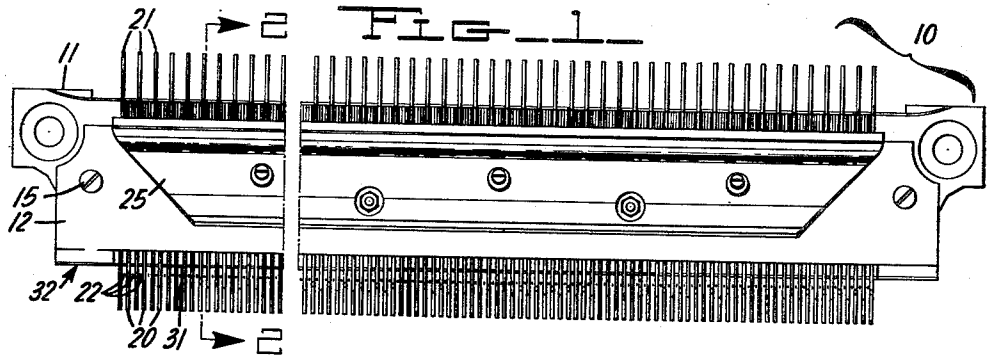


Fig. 2

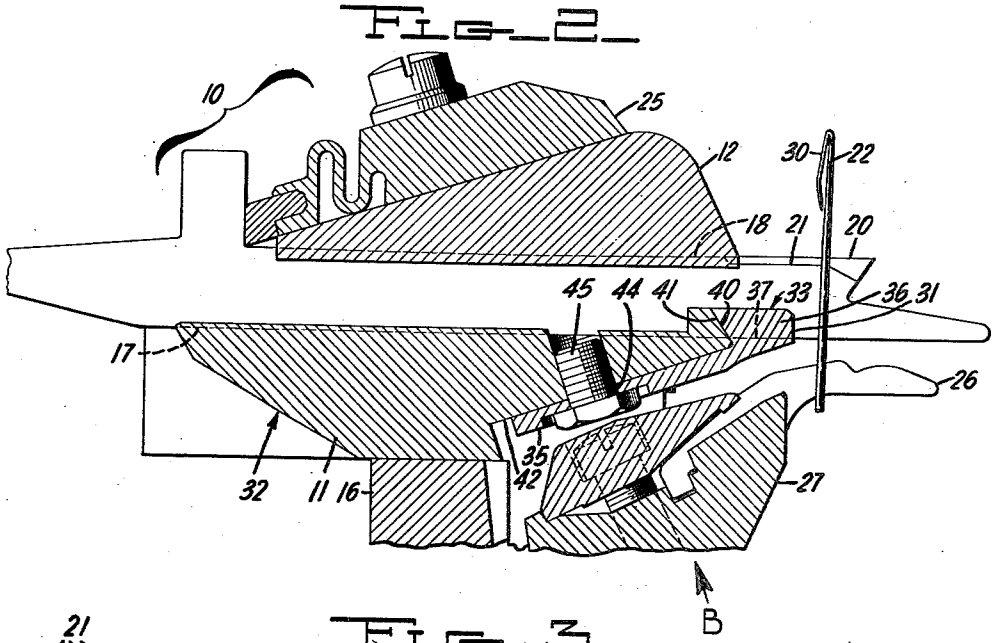
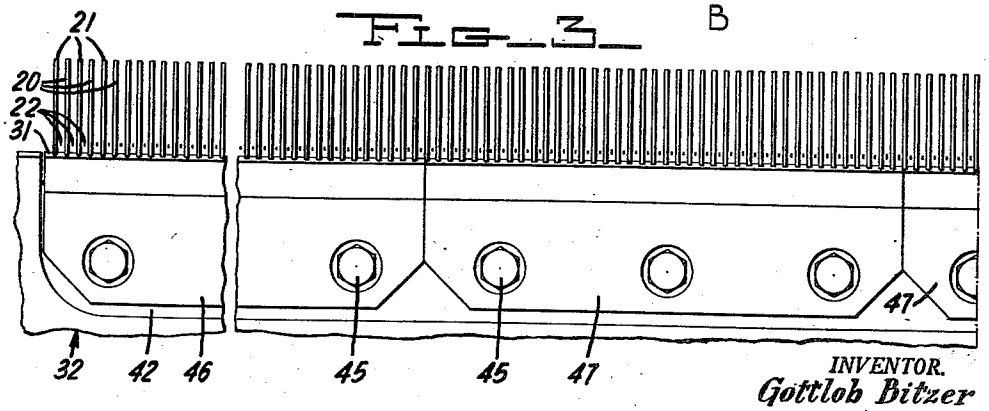


Fig. 3



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United States Patent Office 2,815,652 Patented Dec. 10, 1957

2,815,652

SINKER-HEAD STRUCTURE FOR KNITTING MACHINES

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Application November 15, 1954, Serial No. 468,842

3 Claims. (Cl. 66—98)

This invention relates to sinker-head structures for straight bar knitting machines and more particularly to a replaceable needle beard pressing edge for the sinker-heads of such machines.

In straight or full-fashioned knitting machines a usual sinker-head has a base member and a cap member which are provided with guide slots for the sinkers and dividers. The base member also has a presser edge portion against which the beards of the needles are pressed during each knitting cycle of the machine. The sinker-head is usually constructed of a soft metal such as brass, particularly because of the good machinability of this metal. However, the sizings used on many of the present yarns employed in the knitting process form an abrasive coating on the presser edge and steel needles which causes rapid wear of the softer material of the presser edge by the harder material of needles. Heretofore when the wear became excessive the sinker-head had to be removed from the machine, disassembled and the presser edge then remachined. However, only a comparatively small amount of the original material at the presser edge could be removed before the base member was totally unfit for use and had to be replaced, which very often occurred before there was excessive wear in the sinker and divider slots. This resulted in not only the considerable monetary cost of repairing or replacing the affected sinker-head parts but also the loss in production while the machine was idle.

It is accordingly an object of the instant invention to provide a full-fashioned knitting machine with a sinker-head having a presser edge of a material that will resist wear caused by the repeated engagements between the needles and presser edge.

Another object of the invention is to provide a full-fashioned knitting machine with a sinker-head having a separately formed presser edge portion which is readily replaceable in the sinker-head with a minimum expenditure of money and time.

It is a further object of the invention to provide a sinker-head with separate members which are readily attachable to the sinker-head to replace worn portions of the beard presser edge or the entire presser edge as desired.

With these and other objects in view, which will become apparent from the following detailed description of the illustrative embodiment of the invention shown in the accompanying drawings, my invention resides in the novel elements, features of construction and arrangement of parts in cooperative relationship as hereinafter more particularly pointed out in the claims.

In the drawings:

Figure 1 is a plan view of a sinker-head constituting one-knitting head of a full-fashioned knitting machine;

Fig. 2 is a cross-sectional view on an enlarged scale taken substantially along the line 2—2 of Fig. 1; and

Fig. 3 is a view on an enlarged scale of a portion of the underside of the sinker-head of Fig. 1 taken substantially in the direction of the arrow B in Fig. 2.

Referring to the drawings, Figs. 1 and 2 show a sinker-head assembly **10** for a common type of full-fashioned knitting machine. The sinker-head **10** comprises a base or bed **11** and a cap **12** which is secured to the base by screws or bolts **15** adjacent the ends of the assembly. The base **11** is secured to a center bed forming part of the usual framework of the machine, a portion of the center bed being shown at **16** in Fig. 2. The base **11** and cap **12** are provided with aligned slots **17** and **18**, respectively, for sinkers **20** and dividers **21**. The sinkers **20** and dividers **21** are advanced and retracted in the slots in a usual manner by well known means (not shown) to cooperate with spring bearded needles **22** in forming loops for a knitted fabric. The sinker-head **10** is also provided with a verge plate **25** which acts to define the advanced position of the sinkers and dividers. Also cooperating with the needles **22** are knockover bits **26** which are carried in a bar **27** supported for rocking movement in bearing portions on the base member **11** (not shown).

In a usual knitting cycle, yarn is measured and formed into loops around the needles **22** by the sinkers **20** and dividers **21** and the needles then moved downwardly to catch the yarn beneath the beard portions **30** of the needles. As the needles continue downwardly they are also moved to press and close the beard portions **30** against a vertical surface or presser edge **31**, formed at the front of the base member **11** as shown in Fig. 2, so that the beards will pass through previously formed loops on the needles. After the needles **22** pass through the previously formed loops and those loops are cast off, the needles are moved upwardly to the position of Fig. 2 and the sinkers and dividers are manipulated to cover the new loops to strip them from beneath the beard portions **30** and down the shanks of the needles in the usual manner. In producing fabrics such as stockings, sweaters and the like, this knitting cycle is repeated up to one hundred or more times a minute throughout the formation of the fabrics.

Normally the presser edge **31** is formed on the base **11** which is constructed of a soft material such as brass or the like. However, due to various conditions and particularly to the types of sizings used on the yarns, the repeated engagement of the needles with the presser edge **31** quickly causes wear and damage to the presser edge. This necessitates frequent idling of the machine to permit the removal of the sinker-head from the machine and its disassembly for repairs to the presser edge. Also, in many instances damage to the presser edge is such that the base **11** must be discarded before little if any wear has occurred in the sinker and divider slots **17**.

In order to limit the costly repairs to and/or replacement of the base **11** of the sinker-head, according to the instant invention, the base comprises a body portion or element **32** and a readily replaceable member **33**. The member **33**, which may be of the same material as the body element **32** but which is preferably of a harder and more wear resistant material such as steel, has a flange **35** and a portion **36** the front surface of which forms the presser edge **31**. The portion **36** is provided with slots **37** which are aligned with and form continuations of the slots **17** in the body element **32** and has a rear surface **40** lying at an acute angle to the flange **35** and extending upwardly and rearwardly away from the edge **31** to overlie a front edge **41** of the body element. The flange **35** extends rearwardly and downwardly from the portion **36** and engages a surface **42** along the underside of the body element **32**. Suitable fastening means such as studs **45** pass through apertures **44** in the flange **35** and are threaded into the body element **32**. The re-entrant angle formed by the surface **40** in engagement with the surface **41**, in conjunction with the securing of

the flange **35** to the body element **32** accurately and firmly positions the member **33** on the body element against movement. The member **33** may be formed as a single element extending across the full width of the slotted portion of the body element **32**. Preferably, however, in order to facilitate the removal and replacement of the entire presser edge **31** or only a worn portion thereof, the member **33** is formed as end sections **46**, the left end section being shown in Fig. 3, and interchangeable center sections **47**.

It will be obvious from the foregoing that the members **33** may be quickly replaced when worn thus not only greatly reducing the idle time of the machine and the resulting loss of production but also eliminating the necessity of replacing the base member **11** before it must be discarded due to wear in the slots **17**. In fact, the length of time that the base member may be used without replacement because of wear in the slots is also increased as the forward portions of the sinker and divider slots which normally receive the greatest amount of wear from the sinkers and dividers are in the replaceable members **33**.

Of course, the improvements specifically shown and described by which the above results are obtained can be changed and modified in various ways without departing from the invention herein disclosed and hereinafter claimed.

I claim:

1. A base for a sinker-head structure for knitting machines employing spring beard needles, said base having a beard presser edge and comprising a body element and a replaceable member, said replaceable member having a portion defining said presser edge, said portion having a surface extending at an angle to said presser edge and overlying the front edge of said body element and a flange having a surface extending at an acute angle to the surface on said portion and engaging the underside of said body element, and means removably securing said replaceable member to said body element, whereby said replaceable member is held against movement by the beard pressing action of the needles against said presser edge.

2. A base for a sinker-head structure for knitting machines employing spring beard needles, said base having a beard presser edge and sinker and divider slots and comprising a body element and a replaceable member, said body element having a front edge extending at an acute angle to said slots and a surface at the underside thereof extending at an acute angle to said front edge, said replaceable member having a portion defining said presser edge and a flange, said portion and flange having surfaces extending at an acute angle relative to each other and interfitting said front edge and underside surface of said body element, and means removably securing said flange to said body element, whereby said replaceable member is held against movement by the beard pressing action of the needles against said presser edge.

3. A base for a sinker-head structure for knitting machines employing spring beard needles, said base having a beard presser edge and sinker and divider slots and comprising a body element of a relatively soft metal and a replaceable member of a material relatively harder than the material of said body element, said body element having a front edge extending at an acute angle to said slots and a surface at the underside thereof extending at an acute angle to said front edge, said replaceable member having a portion defining said presser edge and a flange, said portion and flange having surfaces extending at an acute angle relative to each other and interfitting said front edge and underside surface of said body element, and means removably securing said flange to said body element, whereby said replaceable member is held against movement by the beard pressing action of the needles against said presser edge.

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