June 5, 1956 E. LUCHSINGER 2,748,581

NEEDLE BED FOR NEEDLES SERVING FOR THE MANUFACTURE OF KNITTED FABRICS

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FIG. 1

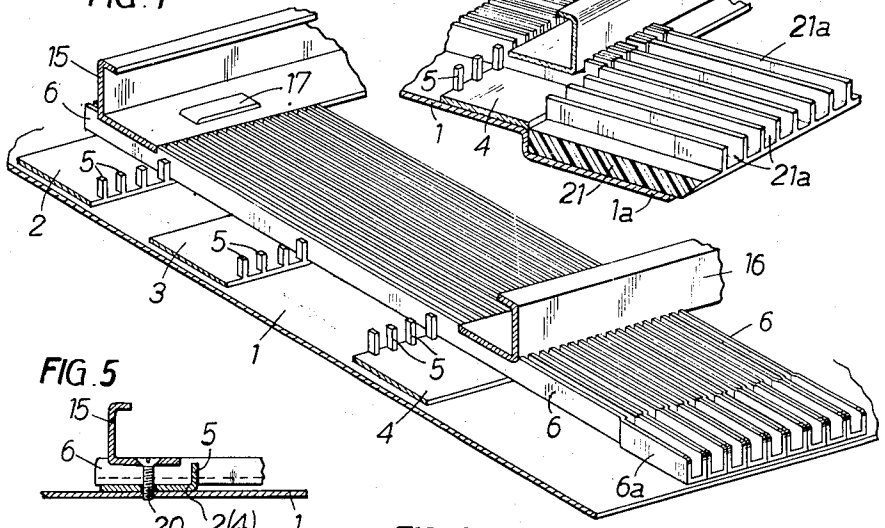


FIG. 6

FIG. 5

FIG. 2

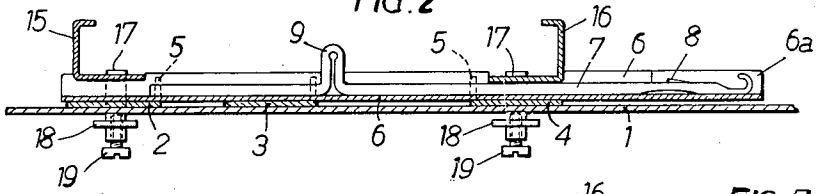


FIG. 7

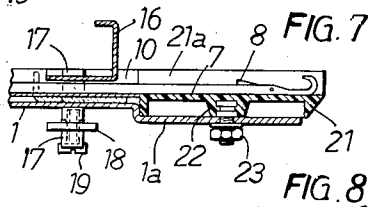


FIG. 8

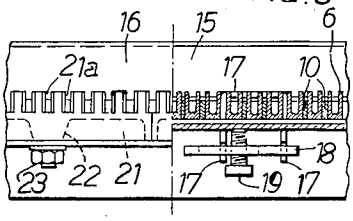


FIG. 3

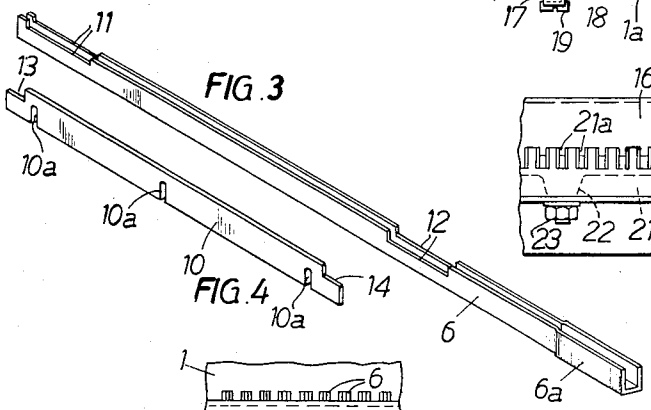


FIG. 4

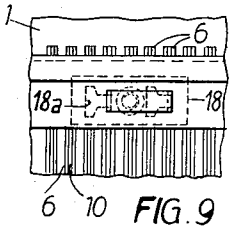


FIG. 9

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NEEDLE BED FOR NEEDLES SERVING FOR THE MANUFACTURE OF KNITTED FABRICS

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Claims priority, application Switzerland August 20, 1953

6 Claims. (Cl. 66—115)

The present invention relates to a novel and improved needle bed for needles adapted for the manufacture of knitted fabrics.

A principal object of the invention is to provide a needle bed which permits a relatively easy and economic construction and further to replace in a simple manner parts, which are subjected to heavy wear.

Other objects and advantages of the invention will be apparent from the following description. The invention is further pointed out in the claims.

Preferred embodiments of the invention are illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view partly in section of the needle bed according to a first embodiment;

Figure 2 is a sectioned elevation along the needle channel according to Figure 1;

Figure 3 is a perspective view of needle channel serving to guide the needle;

Figure 4 is a filling strip;

Figure 5 is a modified form of attachment for the needle channel in sectional elevation;

Figure 6 is a perspective view partly in section of a modified form of the needle bed;

Figure 7 is a perspective sectional view along a needle channel according to Figure 6;

Figure 8 is a front view after Figure 7 partly in section;

Figure 9 is a ground view of the connecting bar common to both embodiments.

In the embodiment according to Figure 1 the numeral **1** designates the base plate on which three flat holding rails **2**, **3** and **4** extending parallel to each other are mounted. Each of the holding rails **2**—**4** has an upstanding marginal row of teeth **5** formed by punching. Across the holding rails **2**—**4**, profiled rails **6** of channel cross-section and having walls of uniform thickness are arranged, each of these channels serving to guide one slidable needle **7**, having a tongue **8** and a foot **9**, which latter is provided for engagement with a cam-box (not shown) in a known manner. The channels **6**, which consist of sheet metal formed to the described profile and can be hardened without great danger of warping, are according to Figures 1 and 3 formed somewhat larger in their forward end part **6***a* lying in the working zone of the needle **7** and serving as knocking-over comb, than in their remaining part of the channel **6**. Over the length of this remaining part a filling strip is inserted between each two adjacent channels **6**, thereby improving the stability of the needle bed. Between each two adjacent upstanding teeth of the three holding rails **2**—**4** a needle channel **6** is inserted so that the teeth **5** serve to position the channels. The filling strips **10** are inserted into said teeth with their three lower recesses **10***a*. At the open upper side of the needle channels **6** two recessed portions **11** and **12** are provided on each of its two shanks. Similar recessed portions **13** and **14** are arranged at the upper rims of the filling strips **10**. Into the said recessed portions **11** and **12** of the needle channels **6**, and **13** and **14** of filling strips **10**, upper rails **15** and **16** are inserted

which extend parallel to the holding rails **2**—**4** and press the needle channels **6** and the filling strips **10** down on the holding rails, while acting as stops for the said parts. Both of the upper rails **15** and **16**, which at the same time may serve to guide the cam-box are connected to the plate **1** by means of sheet metal clamps **17** spaced apart on the lower shank of each upper rail. The two downwards pointing shanks of each clamp **17** which are arranged each between two adjacent needle channels extend through slots in the holding rails **2** and **4** and tensioning bars **18** arranged below the base plate **1**. Both shanks of the clamp **17** coact with the tensioning bar **18**, which holds a clamping screw **19** acting on the base plate **1** as will be described in connection with Figure 8 in a more detailed manner.

If sufficient space is available between adjacent needle channels, it is possible to connect the upper rails **15** and **16** by means of screws **20** with the base plate **1**.

The pitch of the toothing **5** at the holding rails **2**—**4** is chosen according to the desired distance between the needle channels, when manufacturing the needle bed as will be readily understood.

The second embodiment is insofar different from the described one that the front end part of the needle channels lying in the working zone of the sliding needles **7** is constituted by a non-metallic end piece **21**, which preferably consists of synthetic material, e. g. plastic. This end piece, which has channels **21***a* serving to guide the needles **7** abuts against the needle channels **6** and is seated in a lower part **1***a* of the base plate **1**. At its underside the end piece **21** has longitudinal and transverse ribs and besides is provided with a number of eyes **22** each having a cast-in screw bolt **23**, which serves to rigidly connect the end piece **21** with the part **1***a* of the base plate **1**. For the connection of the needle channels **6** with the base plate **1**, clamps **17** are provided as described in the first embodiment. In Figure 8 can be seen that both shanks of a clamp **17** extend between two adjacent needle channels **6**, the lower end of both shanks being received in slits **18***a* arranged in the tensioning bar and having enlarged end portions. These serve to facilitate the engagement and disengagement between clamp **17** and bar **18** as will be readily appreciated.

In order to prevent the knitted fabric from being exposed to sharp edges, the edges of the needle channels at the free end of the end piece **21** are taken off or rounded. This can be done more easily with the material provided for the end piece **21** than with sheet metal and has the advantage that the yarn can not get caught at the piece **21**, that no threads are worn off and that the fabric is not soiled, which danger exists when the fabric is in sliding contact with the metal.

As is evident from the foregoing description, the parts of the needle bed according to the described embodiments can very easily be assembled and if necessary removed for replacement. Instead of using a plurality of holding rails having each a row of teeth **5** provided for the fixation of the needle channels, only one such holding rail may be used, it would also be possible to provide one or several rows of teeth directly at the base plate **1**, or the latter could be provided with one or several rows of openings to take up one or several rows of teeth formed by tongues at the set of needle channels **6**.

It will be understood that the invention may be embodied in other specific forms and modifications without departing from the spirit thereof, and it will be further understood that the needle bed according to the invention is equally suitable for both known manners of forming stitches.

What I claim is:

1. A needle bed for working needles serving for the manufacture of knitted fabrics comprising a flat base

plate, oblong toothed holding means situated on said base plate, profiled rails transversely arranged on said holding means in tooth engaging relation therewith, said holding means being adapted to determine the relative position of said profiled rails in transverse direction on said base plate and said profiled rails forming channels having walls of uniform thickness and serving to guide said working needles.

2. A needle bed for working needles serving for the manufacture of knitted fabrics comprising a flat base plate, at least one holding rail placed on said base plate and having at least one row of upstanding teeth, profiled rails transversely arranged on said holding rail and being engaged by said upstanding teeth, upper rails positioned on said profiled rails and extending parallel with respect to said holding rail and connecting means projecting between said profiled rails and connecting said upper rails with said base plate.

3. A needle bed for working needles serving for the manufacture of knitted fabrics, comprising a flat base plate, at least one holding rail placed on said base plate and having at least one row of upstanding teeth, profiled rails transversely arranged on said holding rail and being engaged by said upstanding teeth, upper rails positioned on said profiled rails and extending parallel with respect to said holding rail, and filling strips arranged between said profiled rails and having upper and lower recessed portions, said lower recessed portions being adapted for engagement with said teeth of said holding rail, said profiled rails having similar recessed portions at their upper sides, the upper recessed portions at said filling strips and at said profiled rails being adapted for engagement with said upper rails.

4. A needle bed for working needles serving for the manufacture of knitted fabrics, comprising a flat base plate, at least one holding rail placed on said base plate and having at least one row of upstanding teeth, profiled rails transversely arranged on said holding rail and being engaged by said upstanding teeth, upper rails positioned on said profiled rails and extending parallel with respect to said holding rail, filling strips arranged between said profiled rails and having upper and lower recessed portions, said lower recessed portions being adapted for engagement with said teeth of said holding rail, said profiled rails having similar recessed portions at their upper sides, the upper recessed portions at said filling strips and at said profiled rails being adapted for engagement with said upper rails, connecting clamps arranged at said upper rails and having downwardly projecting shanks, and tensioning bars arranged below said base plate and being provided with slots having enlarged end portions, said shanks being adapted to engage said slots and said enlarged end portions serving to allow insertion of said shanks into said slots.

5. A needle bed for working needles serving for the manufacture of knitted fabrics comprising a flat base plate, oblong tooth holding means situated on said base plate, profiled rails transversely arranged on said holding means in tooth engaging relation therewith, said holding means being adapted to determine the relative position of said profiled rails in transverse direction on said base plate and said profiled rails forming channels having walls of uniform thickness and serving to guide said working needles, and a non-metallic end piece arranged at the front end of the profiled rails on the base plate and connected with the latter, said end piece being adapted to serve as elongation of said needle channels.

6. In a needle bed for working needles serving for the manufacture of knitted fabrics, a base plate, a holding rail arranged on said base plate and having a row of upstanding teeth, profilled rails seated on said holding rail and engaged by said teeth, an upper rail arranged over said profiled rails and extending in the same direction as said holding rail, connecting means projecting between said profiled rails and securing said upper rail to said base plate and a non-metallic end piece positioned in a lower portion of said base plate and being adapted to constitute an elongation of said profiled rails.

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