

May 10, 1932.

R. NEBICH

1,857,737

FLAT HOSIERY KNITTING MACHINE

Filed Oct. 23, 1929

2 Sheets-Sheet 1

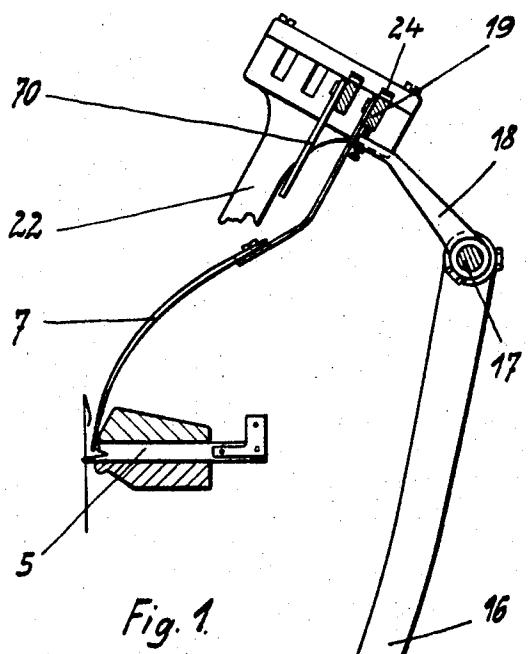


Fig. 1.

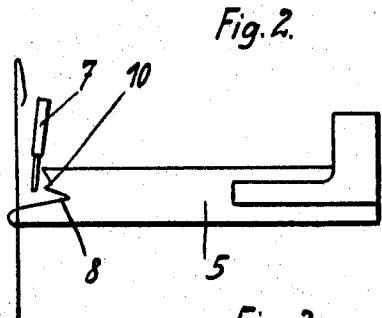


Fig. 2.

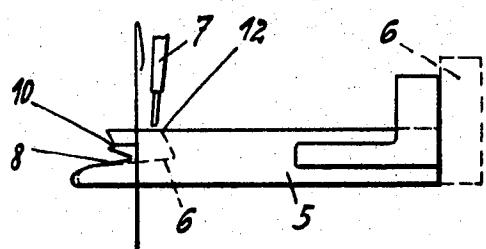


Fig. 3.

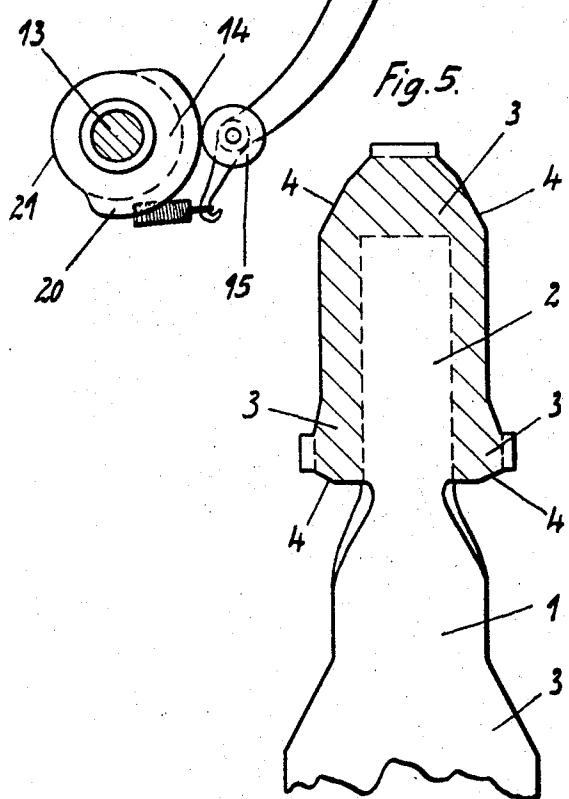


Fig. 5.

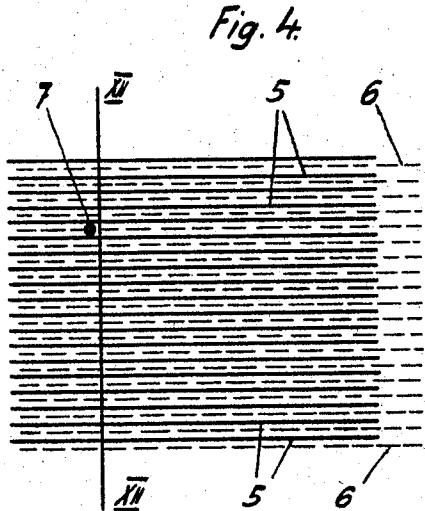


Fig. 4.

Inventor:  
Rudi Nebich  
By *June Gould, Esq.*  
Attorney

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2 Sheets-Sheet 2

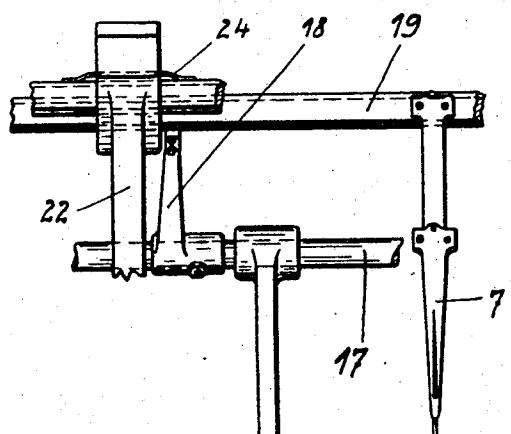


Fig. 6.

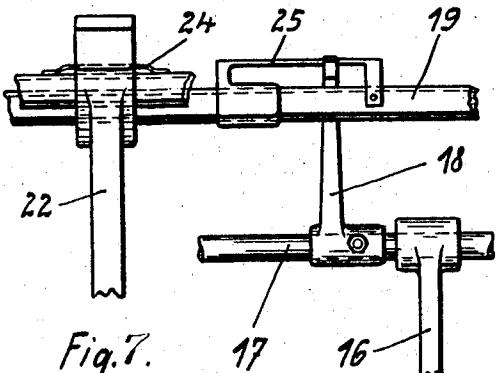


Fig. 7.

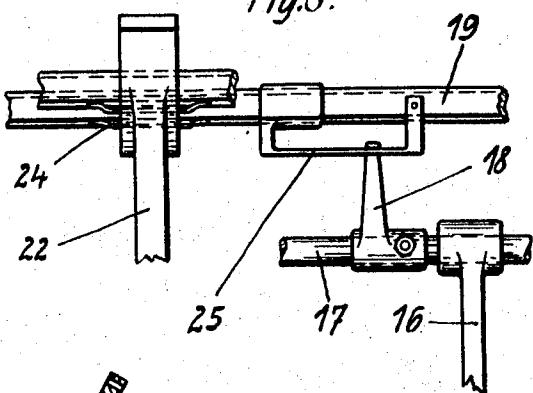


Fig. 8.

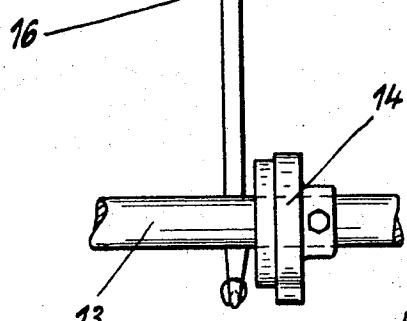


Fig. 9.

Fig. 11.

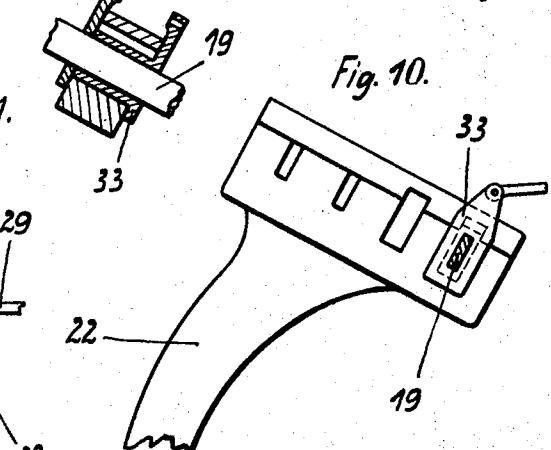
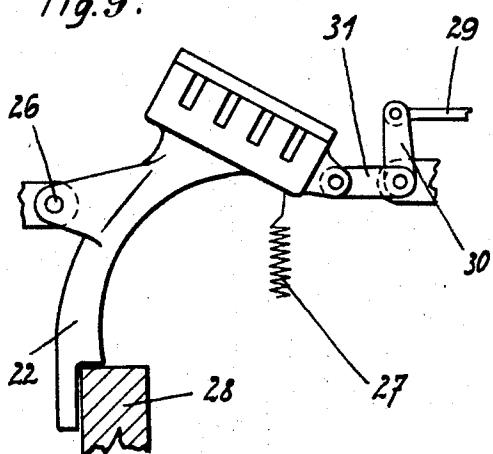


Fig. 10.



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Inventor:  
Rudi Nebich  
By *L. J. Gmelich*  
Attorney.

## UNITED STATES PATENT OFFICE

EUDI NEBICH, OF CHEMNITZ, GERMANY

## FLAT HOSIERY KNITTING MACHINE

Application filed October 23, 1929, Serial No. 401,851, and in Germany November 13, 1928.

Flat hose-knitting machines, for example, cotton machines, for producing loop plush goods, are already known. It has also been attempted to produce narrowed plush goods 5 on these machines. The usual double-throated sinkers, in one instance, were so made that their two nose ends lay in a horizontal plane. In this construction, the thread guides stood over the sinkers and regular work was possible. But since the upper, upwardly pointing nose, which sinks the plush loop, does not release the same to be knocked over, the loops are broken as the needle bars go down.

This machine has therefore not been capable of producing a regular plush fabric.

In another machine, which, however, appears to be only adapted to produce goods bounded by straight lines, the sinkers for sinking the plush loops are provided with almost horizontally extending noses. The tubular guide for the base thread in this construction stands so low between the sinker plates, that the thread is laid properly in the lower throat of the same. No difficulties are 25 encountered here in knocking over, as in the first described machine. But this second machine is not suitable for producing narrowed goods either, because the tube, which lay the base thread, then comes to rest each time between two sinkers and stands in the way of the intermediate dividing sinkers. It is a well-known fact that the tube, or the outlet end of a thread guide, can stand between two sinkers. The space between a sinker and a 30 dividing sinker, is not sufficient for this tube which must be large enough for the relatively thick base thread.

In the present machine, the base thread is laid by a special thread guide, which in itself 40 is not new. The thread guide, in looping the threads, stands low between the throat plates, which is also old per se, but is raised, before dividing, so high that the corresponding dividing sinker can make its movement unhindered. In this way it is possible, even in machines of the finest distribution, to let the base thread guide project between the sinkers during the sinking of the loops. Before 45 the sinking of each row, the base thread guide is lowered to between the sinkers, lays thread

in this position and is raised after the looping. In this way it is possible to produce completely shaped goods, provided with loop plush lining, on fixed edge machines.

Some embodiments of the invention are 55 shown in the drawings, in which Fig. 1 is a side view showing a means for raising and lowering the base thread guide; Fig. 2 is a side view showing the position of the sinker plate and of the thread guide before the sinking; Fig. 3 is a similar view showing that, after the sinking, the base thread guide is raised so high that it is out of the way of the dividing sinkers, passing by and shown in dotted lines; Fig. 4 is a plan of Fig. 3 and shows the position of the base thread guide between the sinker plates, looking from above, at the moment when the same is raised out before the advance of the dividing sinkers; Fig. 5 shows an open stocking, which 60 can be provided throughout with a loop plush lining by the present invention; Fig. 6 is a front view of Fig. 1, and Figs. 7-11 are detail views of various mechanisms which 65 can be used to raise and lower the thread guide.

The base thread guides 7, in number equal to that of the width sections, are mounted on rails 19, which slide in slots in the guide block 22. These slots are extended so far upwardly 70 that upward movement can be given to the rails 19 (Fig. 1). Since the rails 19 have in this way a certain amount of play in their guide slots, springs 24 are provided to hold them down. A lever 18, fast on a shaft 17, 75 engages under the rails 19, and this shaft is oscillated, for example, by an eccentric 14 on the main shaft 13, through the roller 15 and a lever 16, also fast on the shaft 17, so that the base thread guide 7 is raised and lowered 80 by its rails 19.

In sinking the loops, roller 15 of lever 16 runs upon the raised portion of the eccentric 14, so that the guides 7 extend down under the noses 10 of the plates 5, forming the plush loops, in order to lay the base threads freely 85 in the throats 8 (Fig. 2), and before the common advance of the dividing sinkers 6, the portion 21 of the eccentric 14 comes under the roller 15, so that the guides 7 are raised 90

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out of the plates 5. In each case, the guides must be moved away from the sinkers 5, when the dividing sinkers 6 are advanced to bring their points 12 (Fig. 3) up to the line XII—XII (Fig. 4).

5 In this way, it is possible, for example, to provide a stocking, consisting of a leg 1 and the foot 2, with plush lining without difficulty, even in the covered parts 3, and in 10 which the plush lining is also obliquely bounded at the oblique edges 4 of the goods, Fig. 5.

The construction described can be reversed by depressing the guides 7 and their 15 rails 19 by the lever 18 into the position necessary for sinking the loops. In this case, lever 18 engages over the rails 19 and the springs 24 are placed below the rails 19.

In order to assure an unhindered raising 20 and lowering of the rails 19, it is advisable to permit the lever 18 to engage directly on said rails near the guide bearings 22, as in Fig. 6. In some cases also, guideways 25 can be provided on the rails 19, as in Fig. 7, the same being 25 of the necessary length for the displacement of the rails.

If sufficient room exists below the rails 19, this mechanism can also be reversed, as in 30 Fig. 8. It would also be possible, to pivot the guide bracket 22 to the machine frame at a point 26, so that it is drawn down by its own weight and by an elastic member, for example, a spring 27, and is correctly held in the upper position by an abutment 28. The movement 35 of the bracket 22 with the thread guides is imparted by the rod 29, connected to the angle-lever 30 and 31, and is correctly positioned by the same. The pivot 26 can also be on the other side of the bearing 22.

40 According to Figs. 10 and 11, the bracket 22 may be provided with guides or bushings 33, movable obliquely upwards, for the rails 19, said guides being controlled by a lever 18 in the manner described above.

45 Whether only one or several rails 19 are raised and lowered, is of no importance, nor is the number of the levers 18 used.

I claim:

50 1. A flat hosiery knitting machine for making covered plush goods comprising dividing sinkers, jack sinkers, which have special upper nibs, and base thread guides projecting into the jack sinkers which lay their threads into the lower nibs of the said sinkers, and means whereby the said guides for the base threads, which during the sinking of the loops project into the jack sinkers, after the sinking of the loops are raised to such height at their points of motion reversal, that 55 they do not get in the way of the dividing sinkers which move forward later and wherein in the base thread guides are again depressed after the dividing and before the sinking of the loops.

60 2. A flat hosiery knitting machine for

making covered plush goods comprising dividing sinkers, jack sinkers, which have special upper nibs, and base thread guides projecting into the jack sinkers which lay their threads into the lower nibs of the said sinkers, and means whereby the said guides for the base threads, which during the sinking of the loops project into the jack sinkers, after the sinking of the loops are raised to such height at their points of motion reversal, that they do not get in the way of the dividing sinkers which move forward later and wherein the base thread guides are again depressed after the dividing and before the sinking of the loops, guide blocks and supporting rails for the base thread guides, said guide blocks having upwardly extending slots wherein said supporting rails are movable vertically.

In testimony whereof I have affixed my 85 signature.

RUDI NEBICH.

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