

W. H. HORN, JR.
ATTACHMENT FOR KNITTING MACHINES:
APPLICATION FILED APR. 15, 1908.

1,053,603.

Patented Feb. 18, 1913.

Fig. 1.

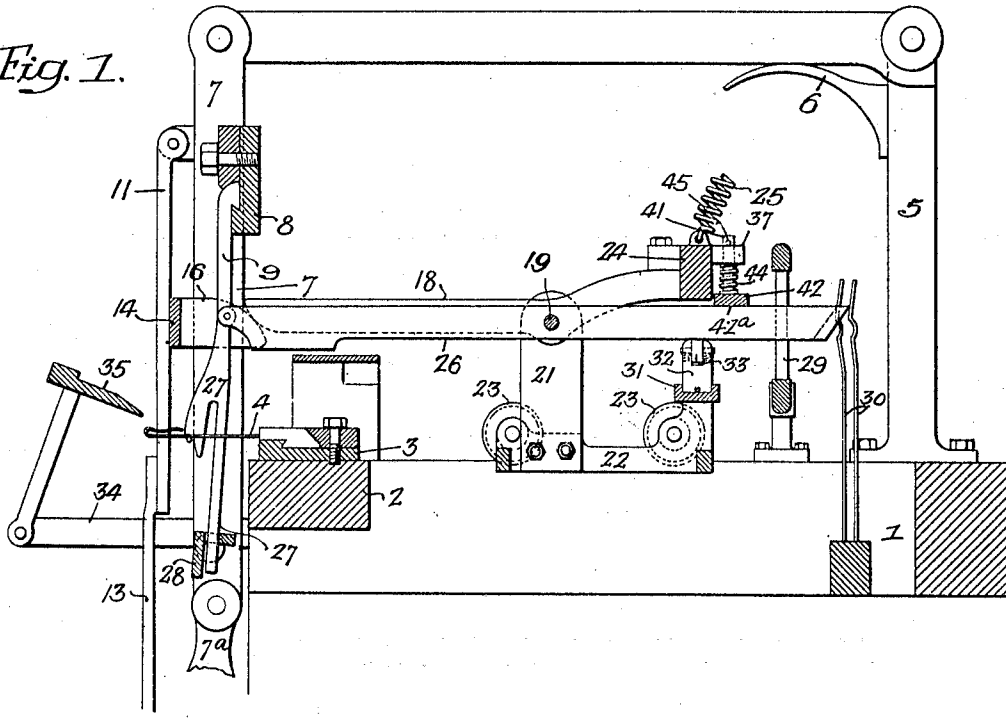
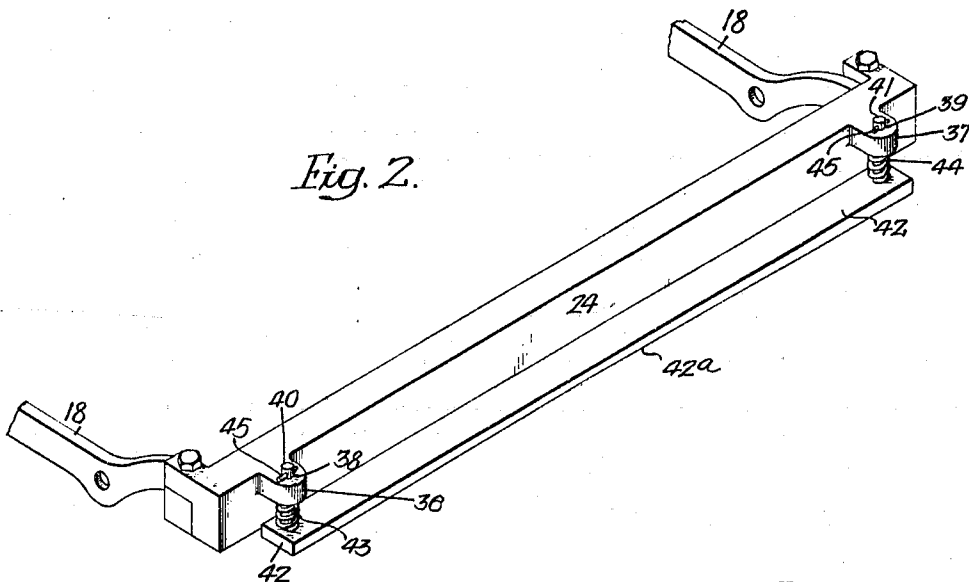


Fig. 2.



Witnesses—
Walter S. Pullinger
Wills A. Burnham

Inventor—
William H. Horn Jr.
by his Attorneys—
Howson + Howson

UNITED STATES PATENT OFFICE.

WILLIAM H. HORN, JR., OF PHILADELPHIA, PENNSYLVANIA.

ATTACHMENT FOR KNITTING-MACHINES

1,053,603.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed April 15, 1908. Serial No. 427,265.

To all whom it may concern:

Be it known that I, WILLIAM H. HORN, Jr., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Attachments for Knitting-Machines, of which the following is a specification.

My invention relates to knitting machines of the type known as hand frames for the knitting of straight work and consists of a novel attachment for use on the above mentioned type of machine, whereby it shall be possible to produce a fabric whose loops or stitches are of various sizes throughout a course.

Another object is to equip a machine of the above described type with an attachment which will allow for the production of a knitted fabric, narrow at certain portions and wide at others, while the number of loops throughout each course, as well as the number of loops throughout each wale, will remain constant throughout the fabric.

It is further desired to provide a machine especially designed to produce bandages, abdominal supporters, etc., which are of greater width in the middle than at the ends, although it may be used in any case where it is desired to obtain a fabric of varying depth.

Again, it is desired to provide a machine by which a fabric having the above characteristics may be produced and which shall be capable of including as a part of such fabric a weft thread of rubber.

These objects and other advantageous ends I attain as hereinafter set forth, reference being had to the accompanying drawings, in which:—

Figure 1, is a sectional elevation of sufficient of a hand frame to illustrate my invention; and Fig. 2, is a perspective view of my invention.

Referring to the drawings, 1 is a main or supporting frame upon which is mounted a transverse beam 2 forming the support for a needle bed 3 containing the needles 4. Projecting vertically from the main frame 1 are standards 5, which, by the aid of springs 6 fixed thereto, form a yielding support for two depending levers 7 having handles 7^a. These levers 7 in turn form a support for a sinker bed 8 having sinkers 9, hereinafter termed "lead sinkers" to distinguish them from other sinkers referred to later. Pivoted to the depending levers 7 are two other

levers 10 and 11 provided with handles 12 and 13 respectively and having between and attached to them a bar 14. This latter has at each end cams 15 and 16 for engagement with double ended levers 17 and 18 pivoted at 19 to bearings 20 and 21 upon a carriage or tram 22 which is mounted on wheels 23 so as to be movable along the frame. Attached to the short arms of the levers 17 and 18 and extending transversely across the machine is a falling-bar 24 normally kept in a raised position by a spring 25 depending from the frame of the machine. Also pivoted at 19 are the sinker jacks 26 having sinkers 27 attached to their forward ends, so as to be free to swing and these latter are in alinement with the driving or lead sinkers 9 with which they alternate. The lower ends of all the sinkers pass through a facer bar 28 pivotally mounted in and extending between the levers 7. The rear ends of the sinker jacks 26 pass through a reed 29 fixed to the main frame of the machine and this reed acts as a positioner to hold said jacks from any lateral movement, while springs 30 press against their ends and hold them steady when the sinkers are in their lowered position.

Mounted below the sinker jacks 26 on the carriage 22, is a slur race 31 extending across the machine and practically in vertical alinement with the locking-bar 24, while mounted upon this race and capable of being moved over it is a slur-cock 32 having a yieldingly mounted roller 33. Brackets 34 projecting from the main frame 1 of the machine form the support for a latch closer 35.

The falling-bar 24 is provided with lugs 36 and 37 which are in the present instance cast integral therewith. The lugs 36 and 37 have bores 38 and 39 formed therein respectively. Rods 40 and 41 are slidably mounted within respective bores 38 and 39 and project from the upper face of a design cam or falling-plate 42 the latter having a design face 42^a. Compression springs 43 and 44 encircle the rods 40 and 41 and bear against the upper face of the design cam 42 and the lower face of the lugs 36 and 37. The rods 40 and 41 are limited in their downward movement by pins 45 or any other means which will limit the movement of the design cam.

The operation of the machine is as follows:—The yarn being laid upon the needles

4, the slur-cock 32 is caused to travel across the race 31; the roller thus being caused to strike the under side of the sinker jacks and raise them, thereby lowering the sinkers 27 which pass the yarn between the needles. Under these conditions the rearward ends of certain of the sinker jacks 26 will strike the high portions of the cam or design face 42^a while others will strike successively lower portions, with the result that the forward ends of said sinker jacks 26 will conform to the contour of the cam face 42^a. The lead or driving sinkers are brought down by pulling the handles 7^a, which forces the yarn between the alternate needles, while the latch closing and the casting of the stitches is performed in the usual manner. Since the sinker jacks conform to the contour of the cam or design plate, the jack sinkers will also take the same contour and vary as to their intermeshing with the needles; the ones deepest in mesh necessarily drawing more yarn and forming longer loops. The sinkers 27 are brought to their normal positions by pressing in on the handles 12 and 13, thereby raising the forward ends of the double ended levers 18 under the action of the cams 15 and 16 on the rod 14, which action lowers the locking-bar 24. As the design cam face 42^a is normally lower than the lower face of the falling-bar, the rear ends of the sinker jacks, after having been raised out of their normal engagement with the springs 30 by the slur-cock, will strike respective portions of the said cam face 42^a, and as the front end of the jacks are heavier than the rear ends the latter will

rest against the cam or design face and cause the jack sinkers to intermesh with the needles to different extents. The first action, due to the lowering of the falling-bar, is to compress the springs 33 and 34. A continued downward movement of the falling-bar causes the latter to engage and realine the sinker jacks by lowering them in the usual manner. After the sinker jacks have been realined the spring 25 acts to raise the falling-bar into the position ready for the beginning of another course as shown in Fig. 1.

I claim:

1. The combination, in a straight knitting machine having a plurality of sinker-carrying jacks and a falling bar, of a design cam slidably attached to the locking bar; and a resilient buffer interposed between the said design cam and the falling bar.

2. The combination, in a straight knitting machine having a plurality of sinker-carrying jacks, of a falling bar, said falling bar having bearings formed therein; a design cam having projections formed thereon, said projections being slidably attached within said bearings on the falling-bar; and compression springs interposed between the design cam and the falling-bar.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM H. HORN, JR.

Witnesses:

WM. A. BARR,

WILLIAM E. BRADLEY.