

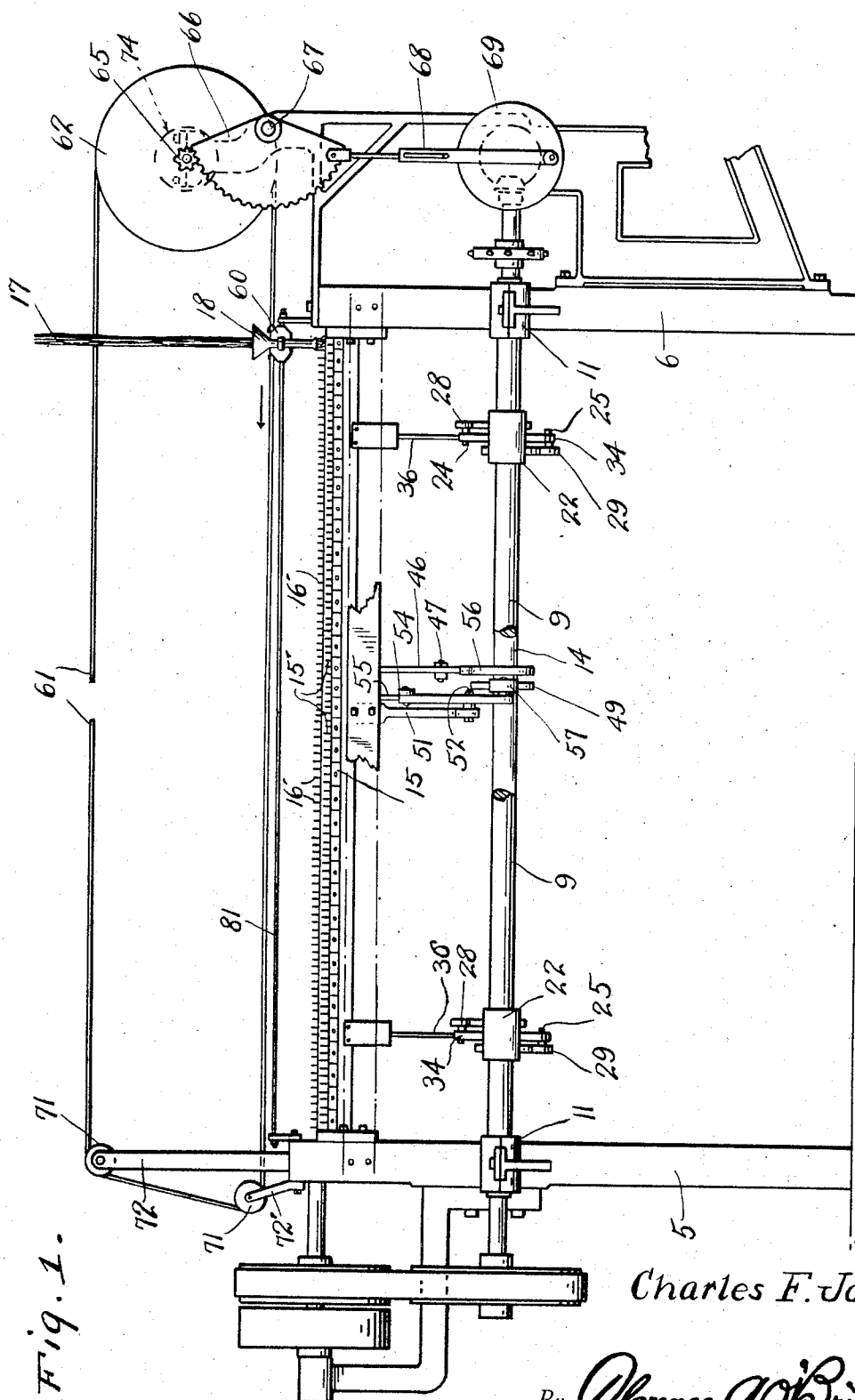
June 30, 1931.

C. F. JOHNSON

1,812,700

ATTACHMENT FOR KNITTING MACHINES

Original Filed July 12 1928 5 Sheets-Sheet 1



Inventor

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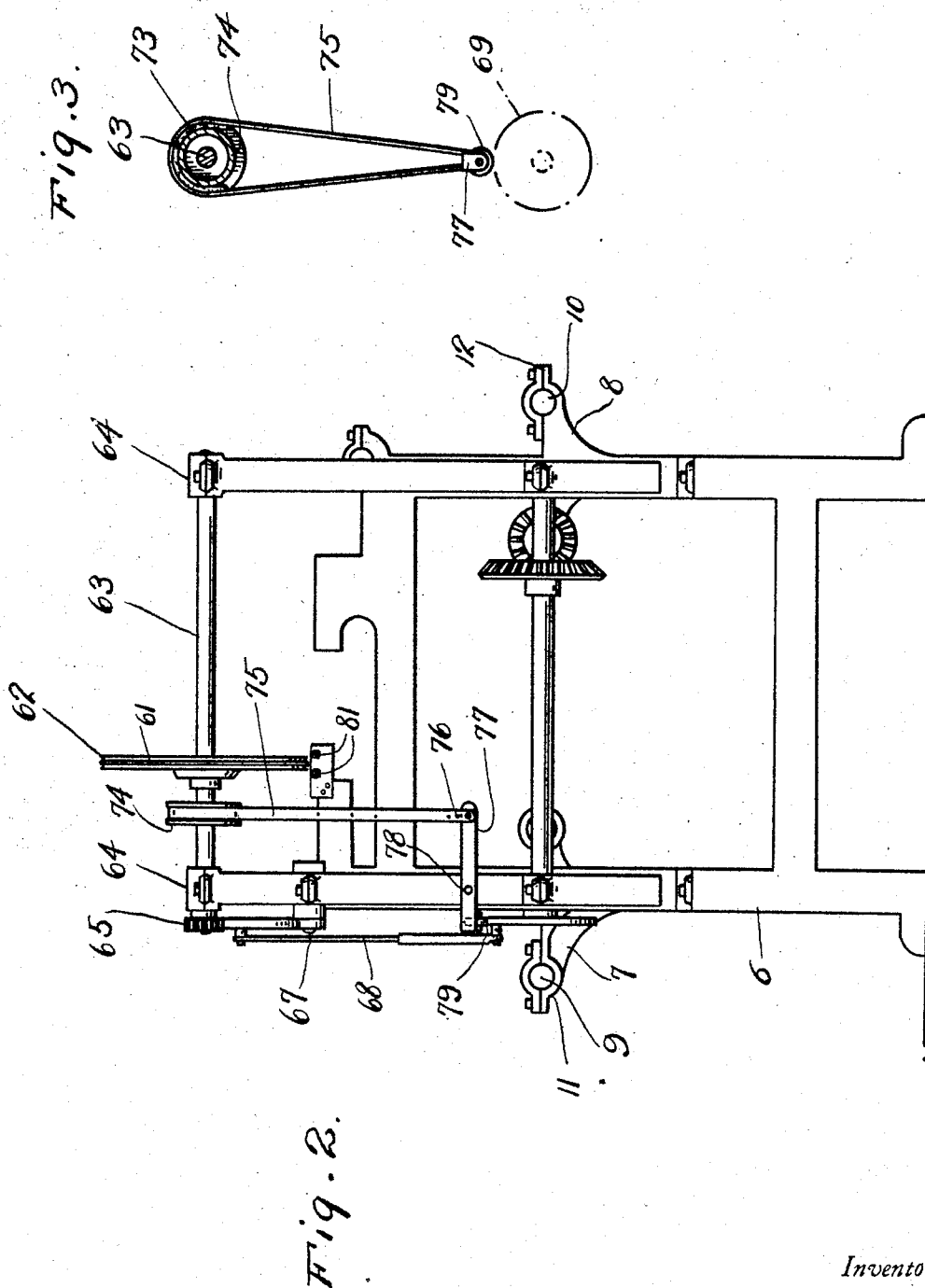
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ATTACHMENT FOR KNITTING MACHINES

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ATTACHMENT FOR KNITTING MACHINES

Original Filed July 12 1928 5 Sheets-Sheet 3

Fig. 5.

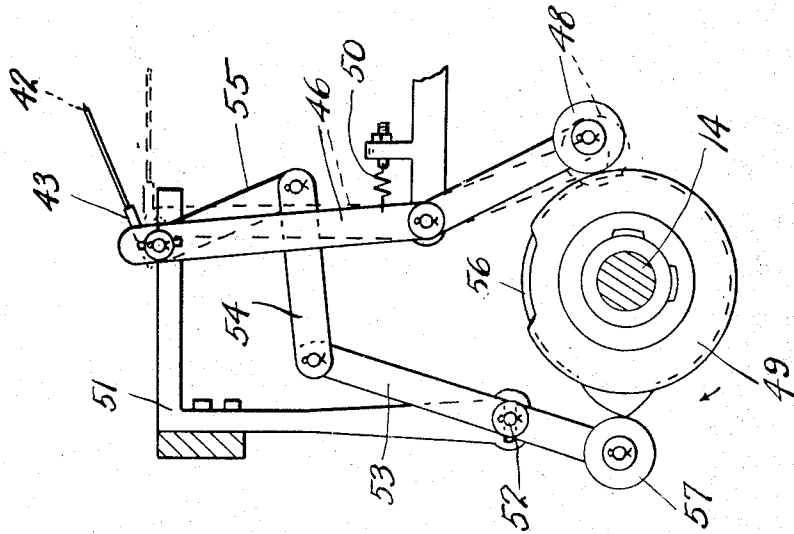
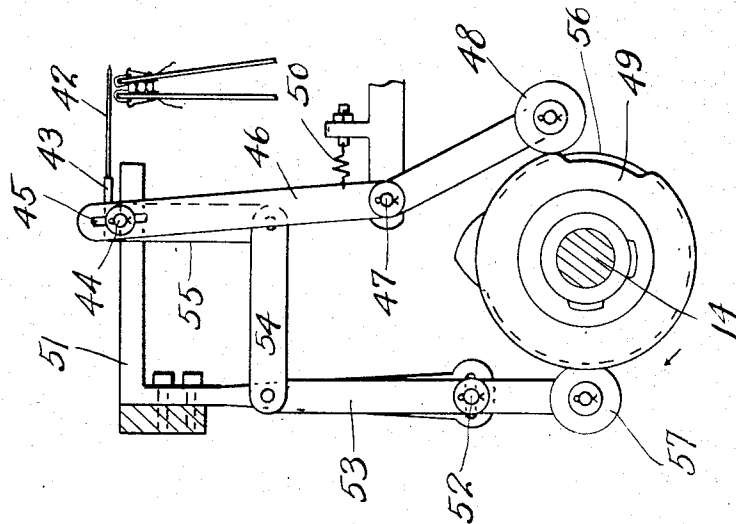


Fig. 4.



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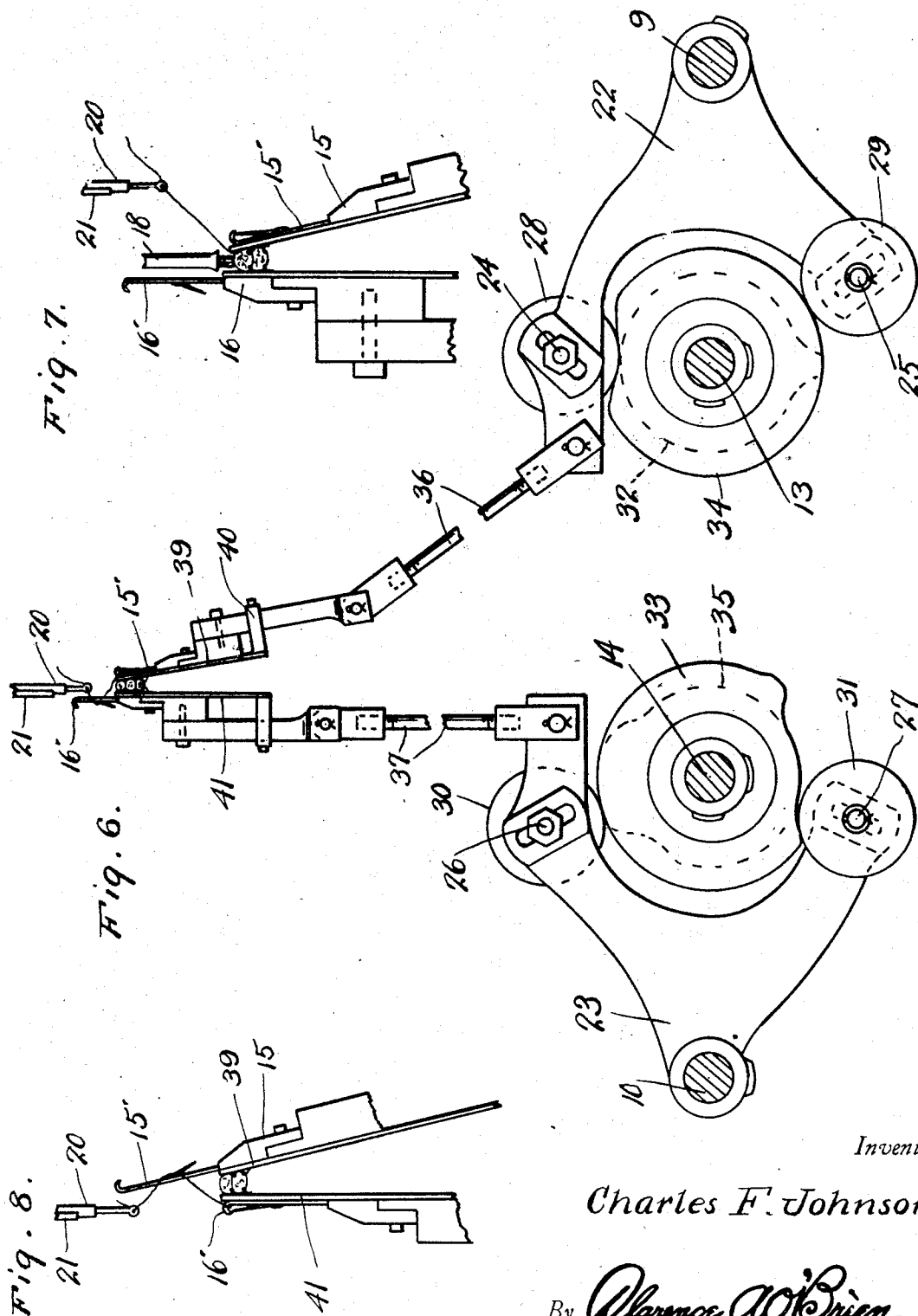
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ATTACHMENT FOR KNITTING MACHINES

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ATTACHMENT FOR KNITTING MACHINES

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Fig. 9.

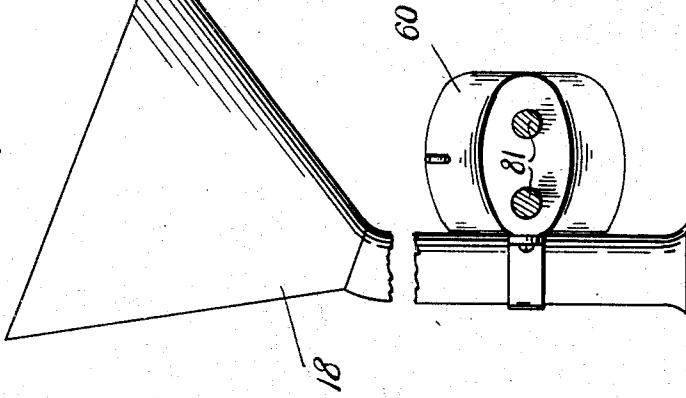
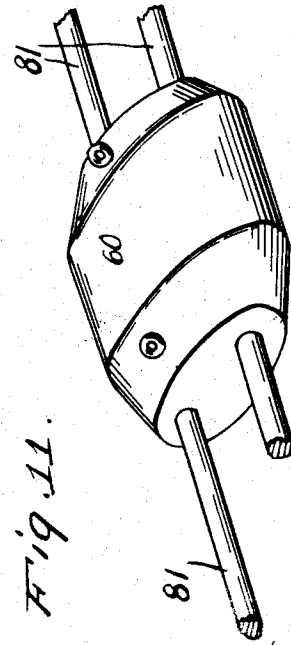


Fig. 11.

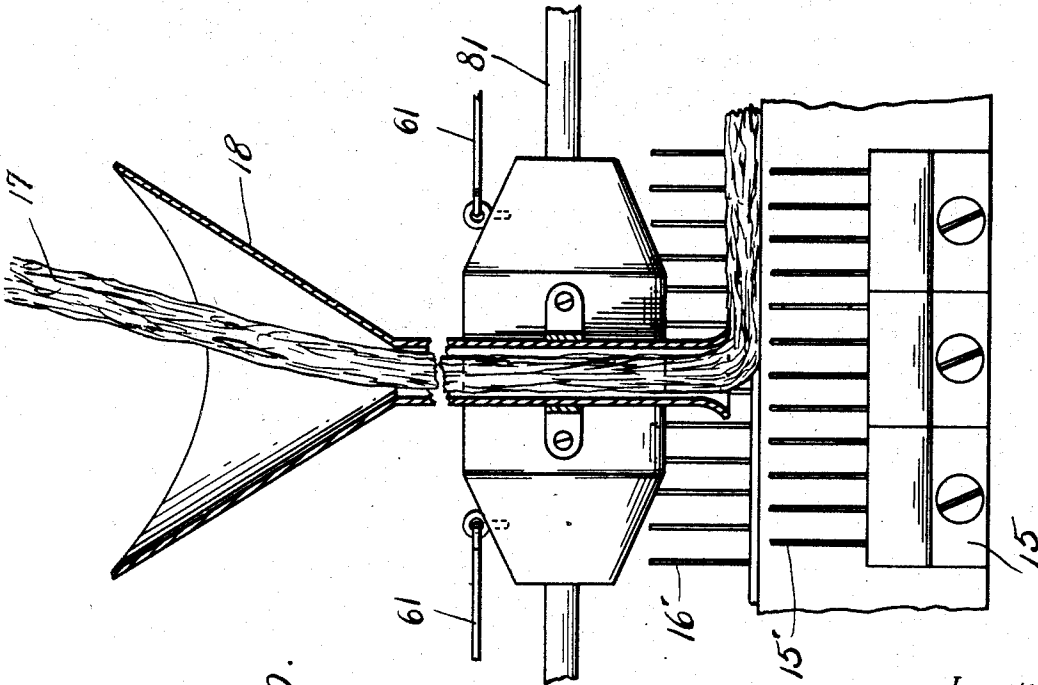


Fig. 10.

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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR KNITTING MACHINES

Application filed July 12, 1928, Serial No. 292,226. Renewed December 5, 1930.

The present invention relates to attachments for knitting machines, more especially for such machines as are adapted to make knitted paddings, and shown in Letters Patent, issued to Townsend, #229,487, June 29, 1880; and the objects of the invention are to provide new and improved means for operating the needle bar, the roving carrier and the packing down of the roving after it has been laid across the machine.

In the drawings:

Figure 1 is a front elevation of the machine embodying the invention.

Figure 2 is an end elevation of the machine.

Figure 3 is a detail section showing a brake mechanism.

Figures 4 and 5 are sectional views, illustrating the packing mechanism.

Figure 6 is a sectional view, showing the needle bars and operating means therefor.

Figures 7 and 8 are detail views showing the needles and guides in different positions from that shown in Figure 6.

Figure 9 is an elevation of the trumpet and carrier thereof.

Figure 10 is a sectional view thereof, and

Figure 11 is a perspective view of the carrier.

Referring to the drawing in detail, it will be seen that the frame of the machine comprises ends 5 and 6. Arms 7 and 8 project forwardly and rearwardly respectively from the ends 5 and 6. Shafts 9 and 10 are rockable in the bearings 11 and 12 respectively on the ends of the arms 7 and 8. Shafts 13 and 14 are rotatable between the ends 5 and 6, in the same horizontal plane with the shafts 9 and 10 therebetween and in spaced parallelism therewith. In Figure 7, the needle bars 15 and 16 are at rest represented in the position at the time that the roving 17 is laid across the machine. The front needle bar 15 is at its lowest point of movement and the back needle bar 16 is nearly at its highest point of movement. At this point, the back needle bar 16 is in a vertical plane and the front needle bar 15 is disposed at an angle thereto to form a trough therebetween for receiving the roving 17 being de-

posited. The mechanical means of moving these needle bars will be explained later. It is sufficient to say now that both of the needle bars remain stationary in their respective positions until the roving has been carried across the machine. This is a decided improvement in that it allows the roving being fed from one trumpet 18 to cross the full width of the machine instead of several trumpets carrying the rovings a fraction of the distance across as described in Patent 615,585, Dec. 6, 1898.

After the roving has been deposited in the trough formed by the back needles 16' on one side, the warp threads running from the front of the needles 15' to the guides 20 on the other side, the roving is packed down by the fingers in a manner hereinafter described. This serves to make the padding uniform in appearance and texture, and also prevents the roving from getting in front of the back needles as the guides swing through to make the stitch, eliminating the danger of imperfection and stoppages.

Figure 6 shows the guide bar 20, after the thread has been locked around the back needles. After this, the back needles are raised sufficiently to allow the previous stitch to slide below the latches and start downwardly, a movement universally used in knitting. As the back needle bar starts downwardly, the front needle bar starts upwardly, so that when the back needles are at the lowest point of movement, the front needles are at their highest point of movement, the guide wire meanwhile making a lap around the front needles as shown in Figure 8, before they are raised sufficiently to allow the previous stitch to slide below the latches. The needle bars then revert to their respective positions as shown in Figure 7 and the cycle is repeated. The movement of the needle bars is as follows: Two needle bar arms 22 and 23 are rockable on shafts 9 and 10 respectively and have rotatably mounted on them, by means of adjustable studs 24, 25, 26, and 27 respectively, truck rollers 28, 29 and 30, 31 respectively.

The upper rollers 28 and 30 ride on master cams 32 and 33 respectively and the lower

rollers 29 and 31 ride on the lower side of counter cams 34 and 35 respectively. These cams 32, 34, and 33, 35, are keyed on the shafts 13 and 14 respectively. These shafts 5 are keyed together and geared in the usual conventional manner. The shaping of these cams to acquire the desired motion is a process well known in the flat knitting art.

Adjustable links 36 and 37 are connected 10 to needle bars 15 and 16 and arms 22 and 23 respectively. The needle bars are caused to remain stationary, during the laying in of the roving and the subsequent packing by the design of the cams, sufficient portions of the 15 peripheries of the cams being eccentric with their shafts, thereby causing vertical motion of the needle bars. The front plate 39 of the knock over board 40 between the padding and the needles and over the top of which the 20 stitch is formed is adjustable to various distances with respect to the rear plate 41, allowing different sizes of roving to be used, and padding of a variety of thicknesses to be made on the same machine. A series of 25 smooth fingers 42 are suitably fastened to a flat bar 43. The ends 44 of the bar 43 are reduced and rounded and fitted in slots 45, in the upper ends of levers 46, rockable on studs 47 and having at their lower ends 30 truck rollers 48.

These rollers 48 are caused to ride on the cam 49 by springs 50. The shapes of these cams are such that at a certain point, the fingers 42 are thrown forward for a certain 35 distance. A bracket 51 serves as a bearing in the middle of the bar 43, and at its lower end holds an adjustable stud 52, which acts as a fulcrum for a lever 53. This lever is connected to the bar 43 by means of two other 40 loosely connected links 54 and 55. It is obvious then, any movement of the lever 53 will have the effect of swinging the bar 43 on its own axis and causing the ends of the fingers 42 to be raised upwardly. This movement 45 is accomplished by another cam 56, which revolves against a truck roller 57 on the lower end of the lever 53. The cams 49 and 56 are fastened to the cam shaft 14, and are so timed that after the roving trumpet has crossed 50 the machine, the fingers 42 are both raised and moved forward until they are over the roving, when they move downwardly between the back needles 16', pressing the roving compactly. The trumpet 18 is fastened to a block 60, which slides on rails 81 55 the entire length of the needle bars. This block is operated by a chain or cable 61 which is trained over a wheel 62. The wheel 62 is fixed to a shaft 63 fixed in bearings 64. A 60 pinion 65 is on the shaft 63 and a gear segment 66 meshes therewith being rockably mounted as at 67.

A pitman 68 is connected with the gear segment 66 and is operated by a wheel 69. The 65 cable or chain 61 is trained over the pulley

62 at one end of the machine and a pair of pulleys 71 at the other end of the machine mounted in brackets 72 and 72', rising from the top of the end frame member 5. It will therefore be seen that as the wheel 69 rotates, the gear segment 66 oscillates, thereby 70 oscillating the shaft 63 moving the roving trumpet 18 back and forth across the machine. A brake 73 is mounted on a pulley 74 carried by the shaft 63. This brake shoe 73 75 is fixed in a loop like flexible member 75, the lower end of which is adjustably engaged as at 76 with a lever 77 rockable intermediate its ends as at 78 and having a roller at its forward end as at 79, riding on the periphery 80 of the wheel 69, the brake increases friction and imparts a steady movement to the segment gear 66 and the roving feeding table 61.

Having thus described my invention, what I claim as new is:

1. A machine for knitting padding including a frame, spaced needle bars rockably connected with the frame, means for intermittently moving the needle bars with respect to each other, a trumpet, means supported on the frame for intermittently moving the trumpet back and forth in the space between the needle bars for depositing roving therein, said first mentioned means including 90 mechanism for placing the needle bars at rest during the period of movement of the trumpet, a bar carrying fingers movably supported on the frame for packing the roving in a compact mass between the needle bars prior to the stitching operation. 95

2. A machine for knitting padding including a frame, spaced needle bars rockably connected with the frame, means for intermittently moving the needle bars with respect to each other, a trumpet, means supported 105 on the frame for intermittently moving the trumpet back and forth in the space between the needle bars for depositing roving therein, said first mentioned means including mechanism for placing the needle bars at rest 110 during the period of movement of the trumpet, a bar carrying fingers movably supported on the frame for packing the roving in a compact mass between the needle bars prior to the stitching operation, said movable support being rockable and further having its rocking axis movable backward and forward. 115

3. A machine for knitting padding including a frame, spaced needle bars rockably connected with the frame, means for intermittently moving the needle bars with respect to each other, a trumpet, means supported on the frame for intermittently moving the trumpet back and forth in the space 120 between the needle bars for depositing roving therein, said first mentioned means including mechanism for placing the needle bars at rest during the period of movement of the trumpet, a bar carrying fingers mov- 125 130

ably supported on the frame for packing the roving in a compact mass between the needle bars prior to the stitching operation, said movable support being rockable and further having its rocking axis movable backward and forward, and tension means bearing on the trumpet moving means for steadying the movement of the trumpet.

4. A machine for knitting padding comprising the combination with spaced needle bars, means intermittently moving said bars with respect to each other, a trumpet, and means for intermittently moving the trumpet back and forth to deposit roving in the space between said needle bars, of means for packing the deposited roving between said needle bars.

5. A machine for knitting padding comprising the combination with spaced needle bars, means intermittently moving said bars with respect to each other, a trumpet, and means for intermittently moving the trumpet back and forth to deposit roving in the space between said needle bars, of means for packing the deposited roving between said needle bars prior to the stitching operation.

6. A machine for knitting padding comprising the combination with spaced needle bars, means intermittently moving said bars with respect to each other, a trumpet, and means for intermittently moving the trumpet back and forth to deposit roving in the space between said needle bars, of means for packing the deposited roving between said needle bars, said means including fingers for projecting over the deposited roving and means for causing said fingers to be projected and retracted and when projected to press down on the roving substantially as shown and described.

7. A machine for knitting padding comprising in combination with spaced needle bars, means intermittently moving said bars with respect to each other, a trumpet, and means for intermittently moving the trumpet back and forth to deposit roving in the space between said needle bar, of a packer located to one side of the path of movement of the trumpet, and means for moving said packer into position adjacent the needle bars and in part to project over the deposited roving, said packer including means for moving the projected part down on the roving for the purposes described.

In testimony whereof I affix my signature.
CHARLES F. JOHNSON.