

(No Model.)

L. N. D. WILLIAMS.

NEEDLE BAR OR CYLINDER FOR KNITTING MACHINES.

No. 561,038.

Patented May 26, 1896.

FIG. 1.

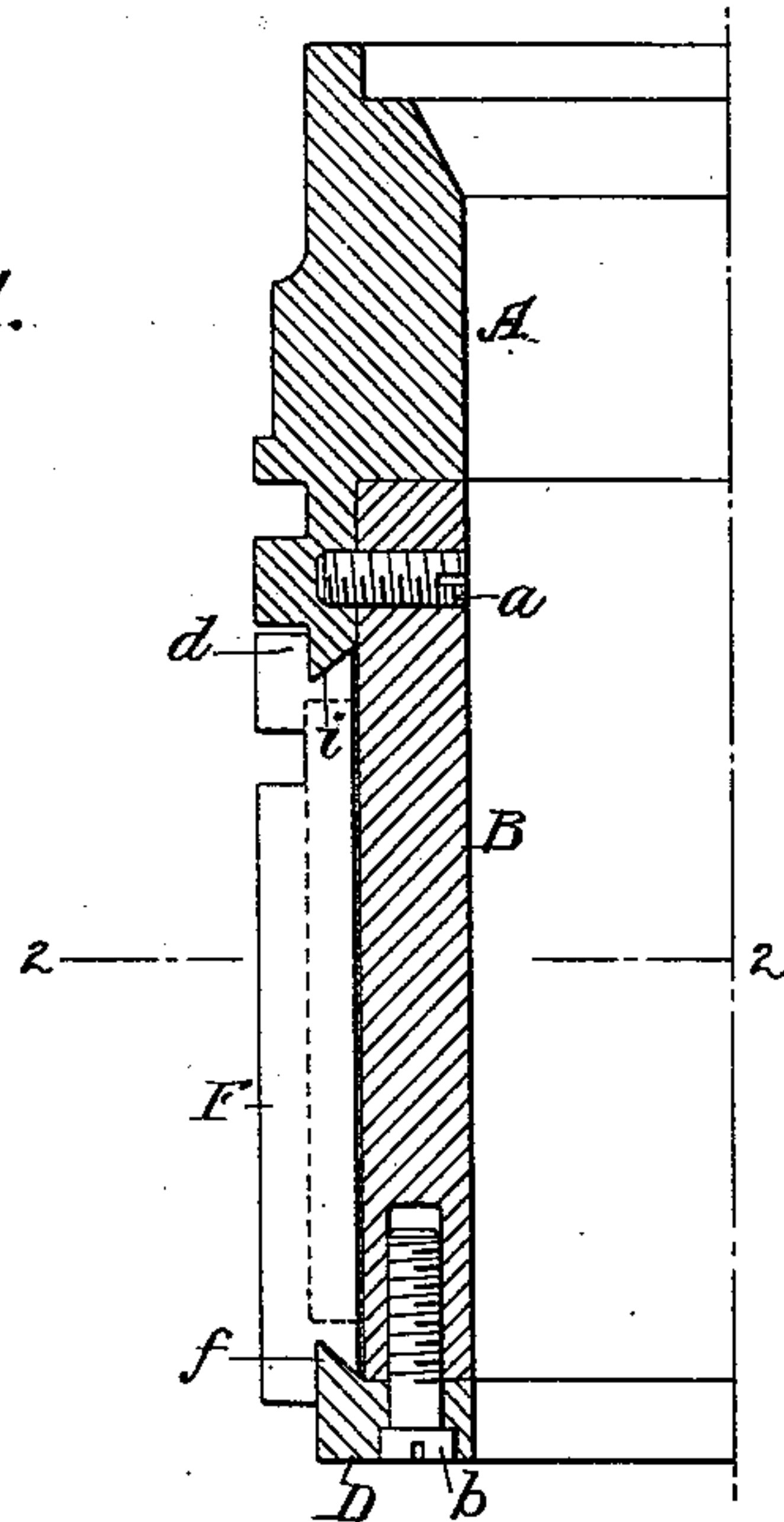


FIG. 4.

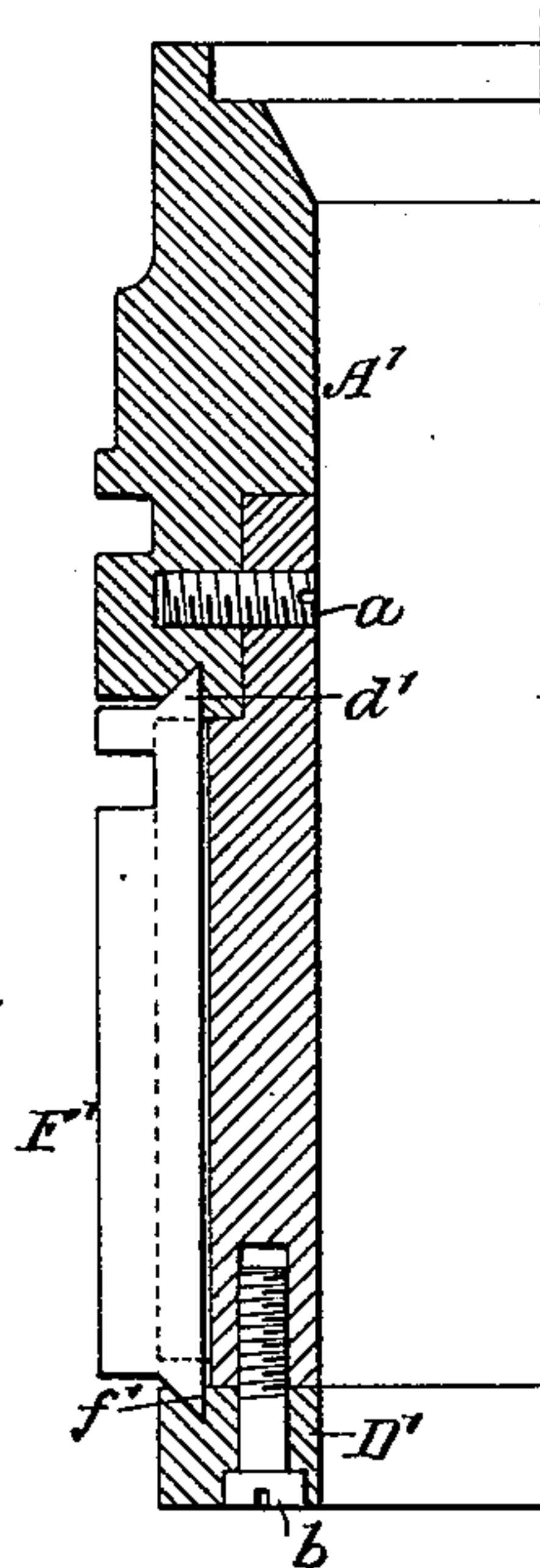


FIG. 3.

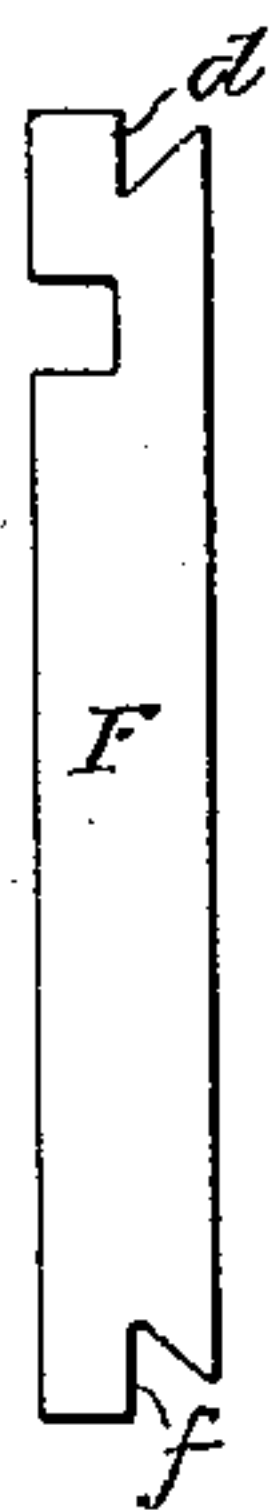
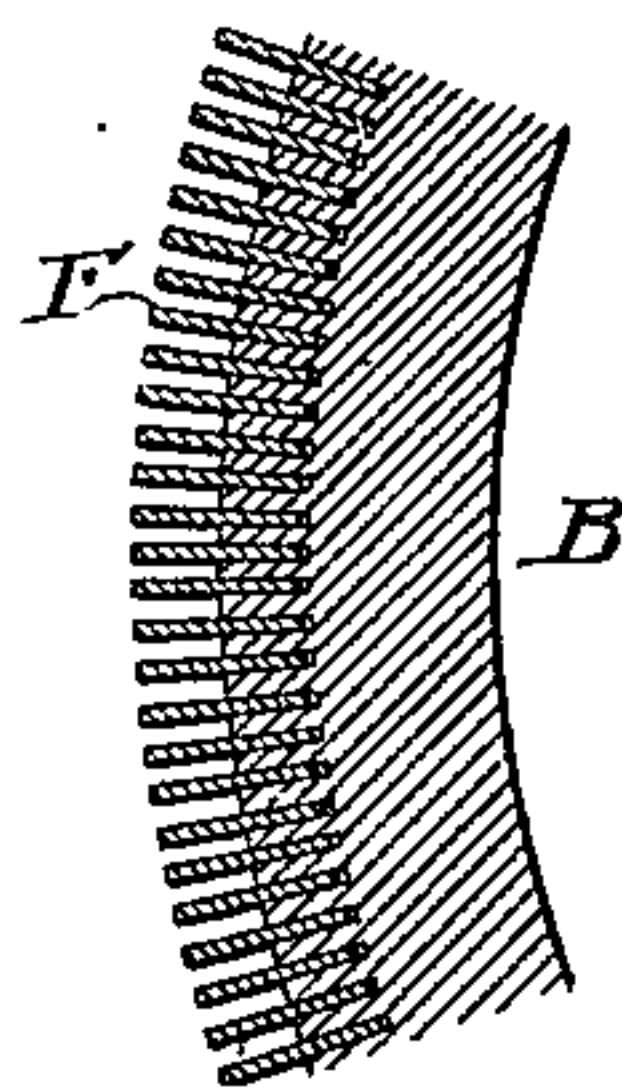


FIG. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS N. D. WILLIAMS, OF ASHBOURNE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ROBERT W. SCOTT, OF PHILADELPHIA, PENNSYLVANIA.

NEEDLE BAR OR CYLINDER FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 561,038, dated May 26, 1896.

Application filed March 27, 1896. Serial No. 585,118. (No model.)

To all whom it may concern:

Be it known that I, LOUIS N. D. WILLIAMS, a citizen of the United States, and a resident of Ashbourne, Montgomery county, Pennsylvania, have invented certain Improvements in Needle Bars or Cylinders for Knitting-Machines, of which the following is a specification.

My invention relates to that class of knitting-machine bars or cylinders in which the ribs or partitions separating the needle-grooves are formed by means of independent pieces or strips of sheet metal, the object of my invention being to so construct such a needle bar or cylinder as to provide for the true and accurate adjustment and support of said ribs or partitions. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 represents a vertical section of part of a needle-cylinder for knitting-machines constructed in accordance with my invention. Fig. 2 is a sectional plan view of the same on the line 2 2, Fig. 1. Fig. 3 is a detached view of one of the ribs or partition-strips, and Fig. 4 is a vertical section illustrating another embodiment of my invention.

Ordinary needle cylinders or bars are formed by slotting or grooving the metal of which the bar or cylinder is composed, so as to form therein channels for the reception and guidance of the needles; but irrespective of its expense this is an unsatisfactory method, because the metal of which the cylinder or bar is composed varies in hardness and thus leads to inaccuracy in the cutting and unequal wear in use. It has been proposed to overcome these objections by providing the bar or cylinder with strips of sheet metal let into grooves in said bar or cylinder and suitably confined thereto, these strips constituting the ribs or partitions which separate the needle-grooves one from another; but in this case also the separate strips rely for their accuracy largely upon the accurate cutting of the cylinder and hence do not fully attain the object for which they are intended. In carrying out my invention, therefore, I provide for the support of the sheet-metal strips or bars independently of any seating

of the same upon the bases of the grooves formed in the needle bar or cylinder. Hence any inaccuracy in the latter cannot affect the true adjustment and support of the sheet-metal strips.

In the construction shown in the drawings the cylinder is composed of three parts—namely, the top A, body B, and base-ring D, suitably secured together by set-screws *a* and *b*, the body B having formed in its outerface the grooves for the reception of the sheet-metal strips F, which constitute the ribs or partitions between the needle-grooves. Each of these strips F, however, instead of having its sole rear bearing against the base of the groove formed in the body B of the cylinder has at the top an inner bearing-face *d* and at the bottom an inner bearing-face *f*, the face *d* seating against a shoulder formed by means of a rib *i*, projecting downwardly from the top plate A of the cylinder and the bearing-face *f* at the bottom of the strip seating against the front of the base-ring D. The under side of the rib *i* and the upper side of the projecting portion of the base-ring D are beveled, as shown in Fig. 1, and the rear portion of each strip F is likewise beveled at top and bottom for the reception of these beveled portions of the top and base-ring of the cylinder, so that when the various parts of the cylinder are properly assembled and secured together the strips F are not only rigidly confined to the cylinder in a vertical plane, but they are also drawn inward by the beveled portions of the top A and base D. Hence the upper and lower bearing-faces *d* and *f* of each strip are seated firmly upon the front of the rib *i* and base D, respectively, the grooves in the body B of the cylinder being preferably cut so deep that the inner edge of each strip F will touch the base of each groove but lightly, if at all. As each of the strips F is accurately formed and as the bearing-surfaces of the top and base of the cylinder can be likewise accurately formed by turning, or, in the case of a straight bar, by planing, it follows that accurate adjustment and support of the strips F are provided for irrespective of the accuracy of the grooves formed in the body B of the cylinder. Hence the objections to former needle cylinders or bars having independent partition-

strips are effectually overcome. Although I prefer to make the top A and base D both separate from the body B of the cylinder, as shown, one or other of these parts may be
 5 formed in one piece with the cylinder, as desired, without departing from my invention, and the means adopted for securing the parts together may also be modified in various ways within the knowledge of the mechanic.

10 The strips F (shown in Figs. 1 and 3) have their upper and lower bearing-faces d and f in planes in advance of the rear edge of the strip; but this is not necessary to the proper carrying out of my invention, as said upper
 15 and lower bearing-faces may be in the same plane as said rear edge, as shown, for instance, at d' and f' in Fig. 4, the top A' and base-ring D' being properly constructed to form bearings for these faces.

20 Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A needle bar or cylinder for knitting-machines having strips or bars of sheet metal
 25 let into grooves in the same, said strips having inner bearings upon portions of the cylinder other than the bases of the grooves, substantially as specified.

2. A knitting-machine needle bar or cylinder
 30 der having sheet-metal bars or strips let into grooves therein, said bar or cylinder having, above and below its grooved portion, shoulders presenting true faces serving as seats for inner bearing-faces formed upon the strips,
 35 said shoulders and bearing-faces being so dis-

posed in respect to the grooves and to the backs of the strips that the latter are not firmly seated upon the bottoms of the grooves, substantially as specified.

3. A knitting-machine needle bar or cylinder
 40 der having strips or bars of sheet metal let into grooves therein, said bar or cylinder having, above and below the grooved portion, shoulders presenting beveled faces for engagement with correspondingly-beveled por-
 45 tions of the strips, and seats for inner bearing-faces formed upon the strips, said shoulders and bearing-faces being so disposed in respect to the grooves and to the backs of the
 50 strips that the latter are not firmly seated upon the bottoms of the grooves, substantially as specified.

4. A knitting-machine needle bar or cylinder
 55 der having sheet-metal strips let into grooves therein, said bar or cylinder having also upper and lower detachable portions presenting shoulders which form seats for inner bearing-
 60 faces formed upon the sheet-metal strips, said shoulders and bearing-faces being so disposed in respect to the grooves and to the backs of the strips that the latter are not firmly seated
 upon the bottoms of the grooves, substantially as specified.

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

LOUIS N. D. WILLIAMS.

Witnesses:

JOS. H. KLEIN,

FRANK E. BECHTOLD.