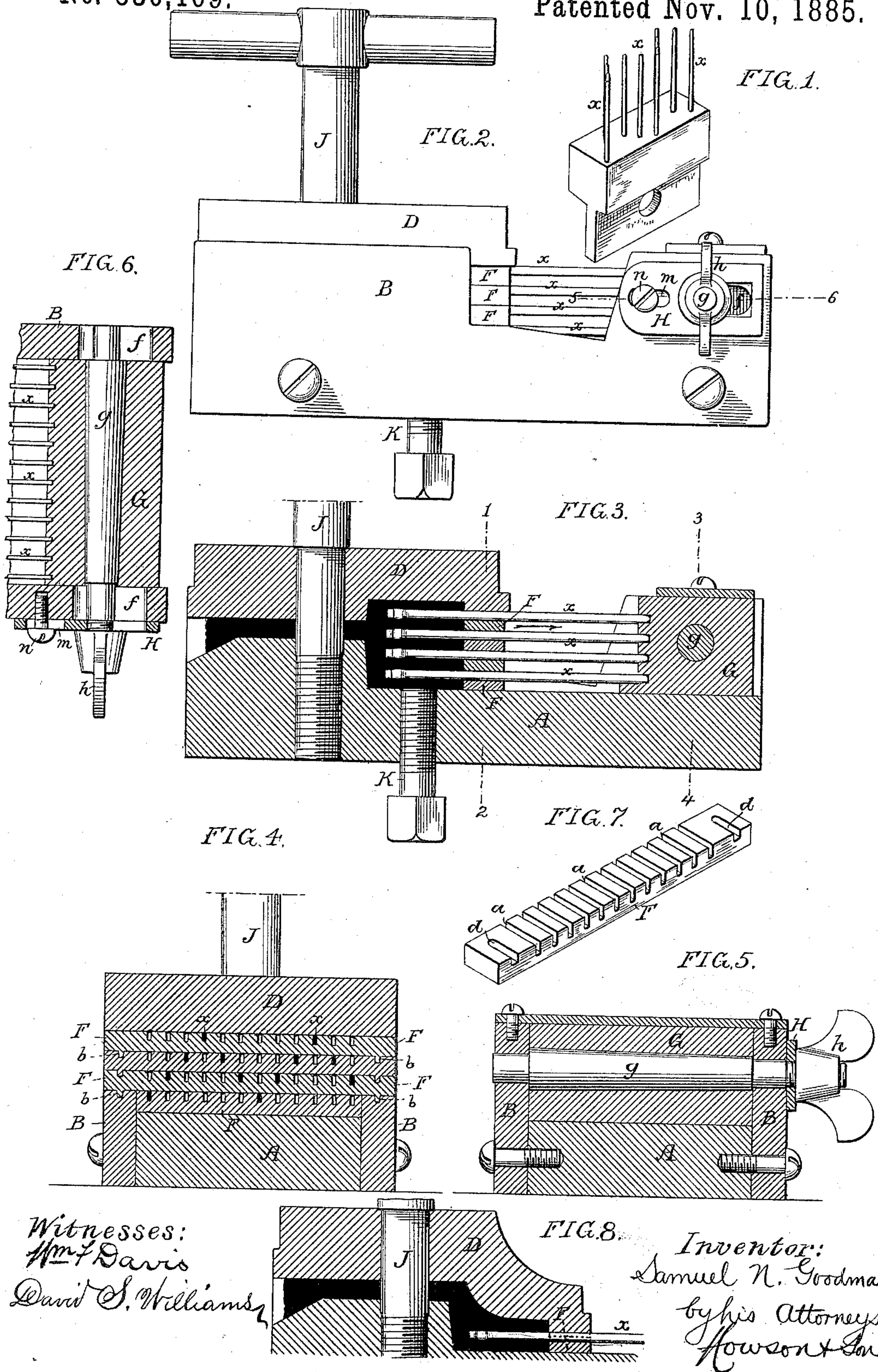


(No Model.)

S. N. GOODMAN.  
MOLD FOR CASTING.

No. 330,109.

Patented Nov. 10, 1885.



Witnesses:  
Amos Davis  
David S. Williams

Inventor:  
Samuel N. Goodman  
by his Attorneys  
Howson & Sons



# UNITED STATES PATENT OFFICE.

SAMUEL N. GOODMAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
CONYERS BUTTON AND JOHN BUTTON, JR., OF SAME PLACE.

## MOLD FOR CASTING.

SPECIFICATION forming part of Letters Patent No. 330,109, dated November 10, 1885.

Application filed September 21, 1885. Serial No. 177,694. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL N. GOODMAN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented  
5 certain Improvements in Molds for Casting, of which the following is a specification.

The object of my invention is to construct a mold for the convenient manufacture of an improved form of needle or finger bar for  
10 knitting-machines, and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of one form  
15 of the improved bar; Fig. 2, a side view of the mold for making the same; Fig. 3, a longitudinal section of the mold; Fig. 4, a transverse section on the line 1 2, Fig. 3; Fig. 5, a transverse section on the line 3 4, Fig. 3; Fig.  
20 6, a sectional plan on the line 5 6, Fig. 2; Fig. 7, a perspective view of a bar forming part of the mold, and Fig. 8 a sectional view showing the mold adapted for the production of an ordinary needle-bar.

25 In making certain classes of knitted fabric it is desirable to produce a tufted or plush surface having loops or plush threads of different lengths, and in a separate application filed by me and bearing even date herewith I have  
30 described and claimed a bar having needles or loop-retaining fingers in different longitudinal planes for use in making such a fabric.

My present invention consists of a mold for  
35 manufacturing this improved needle or finger bar.

A is the base of the mold, which has opposite sides or cheek-pieces B B and a cap or cover plate, D, between which and the base  
40 of the mold are confined a series of bars, F, each of these bars being provided with a number of parallel notches, *a*, for the reception of the stems or shanks of the needles or fingers *x*. The bars F, with the body and the cap of  
45 the mold, inclose a space into which the butt-ends of the needles or fingers project, and which is filled with melted lead by pouring the latter through a suitable opening or gate in the mold. (See Fig. 2.) The bars F are  
50 maintained in their proper lateral relation to each other by means of pins *b* and recesses *d*,

as shown in Figs. 4 and 7, each recess being open at one end, for a purpose explained hereinafter.

A gage-cock, G, is guided between the cheek-  
55 pieces B at the outer end of the mold, these cheek-pieces having slots *f* for the reception of the ends of the tapered pin *g*, which is adapted to an opening in the gage-block, so that by tightening a thumb-nut, *h*, upon the  
60 projecting end of this pin the block G can be confined in the position to which it has been adjusted.

A stop-plate, H, is secured to one of the cheek-pieces of the mold by a pin, *m*, adapted  
65 to a slot, *n*, and this plate is also slotted for the reception of the pin *g*, and serves to limit the movement of the block G toward the bars F, and thereby prevent the projection of the butts of the needles or fingers inward to an  
70 undue extent.

In setting up the mold the gage-block is first adjusted to the proper position, and the first of the bars F is secured to the base of the  
75 mold, the needles or fingers which are to form the first row being then properly adjusted to the gage-block and to the notches of the bar F. The second bar is then laid over the first bar, and the second rows of needles or fingers applied thereto and to the gage-block in the  
80 same manner, this operation being repeated until all the bars and all the fingers or needles are in place, when the cap-plate D is applied and secured by means of the clamp-screw J.

When the lead has been poured into the  
85 mold and cooled, the gage-block is retracted, the cover-plate removed, and the lead, with its needles or fingers, lifted out of the mold, a screw-stem, K, being used to eject it, if necessary. The bars F are then withdrawn by  
90 removing them, one after another, in the direction of the arrow, Fig. 3, from between the rows of needles or fingers, the open-ended recesses *d* permitting this removal of the bars.

The mold can, if desired, be employed for  
95 casting a lead with a single row of needles or fingers or a lead having a less number of rows than is shown in Fig. 1, the under side of the cap-plate in this case being so formed as to prevent a large amount of surplus metal in  
100 the lead. Thus, as shown in Fig. 8, the mold has one bar, F, and is adapted for the manu-



facture of a lead having a single row of needles or fingers.

I claim as my invention—

1. The combination of the body of the mold, the cap-plate, and a series of detachable bars, F, as specified.
2. The combination of the body of the mold, the cap-plate, and the detachable bars F, retained in position by pins and recesses, as specified.
3. The combination of the body of the mold, the cap-plate, and the detachable bars F, notched for the reception of the needles or fingers, and having pins *b* and open-ended recesses *d*, as set forth.
4. The combination of the body of the mold,

the cap-plate, and the detachable bars F with a gage-block, G, as specified.

5. The combination of the body of the mold with the gage-block G, the tapered pin *g*, and the thumb-nut *h*, as specified.

6. The combination of the body of the mold, the cap-plate, the detachable bars F, the adjustable gage-block G, its pin *g*, and the stop-plate H, as specified.

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

SAMUEL N. GOODMAN.

Witnesses:

WILLIAM F. DAVIS,  
HARRY SMITH.