

(No Model.)

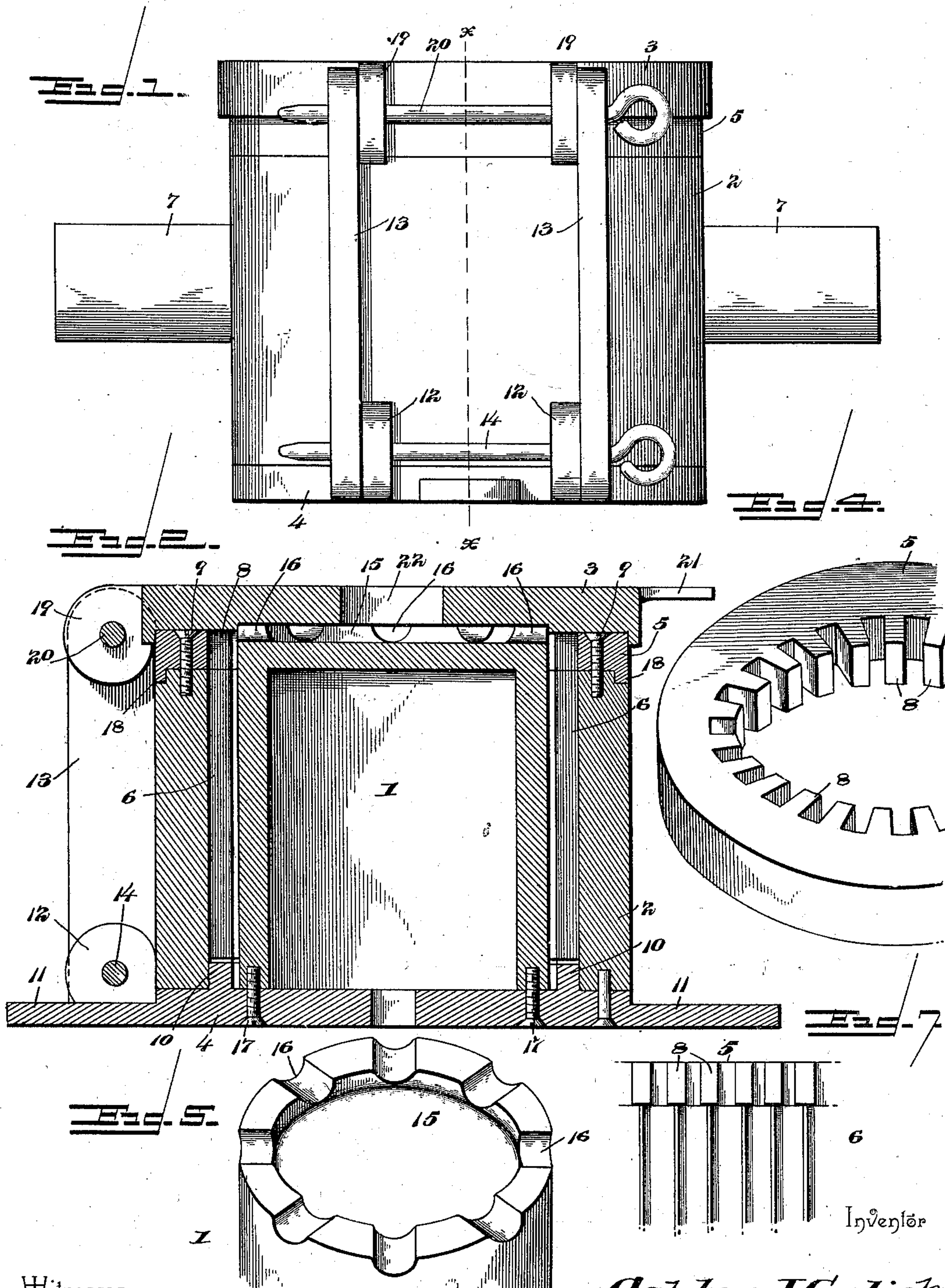
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A. J. GULICH.

MOLD FOR CASTING KNITTING MACHINE CYLINDERS.

No. 560,711.

Patented May 26, 1896.



Witnesses

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*V. B. Hillyard*

By *Two* Attorneys.

*Ashley J. Gulich*

*C. Snow & Co.*



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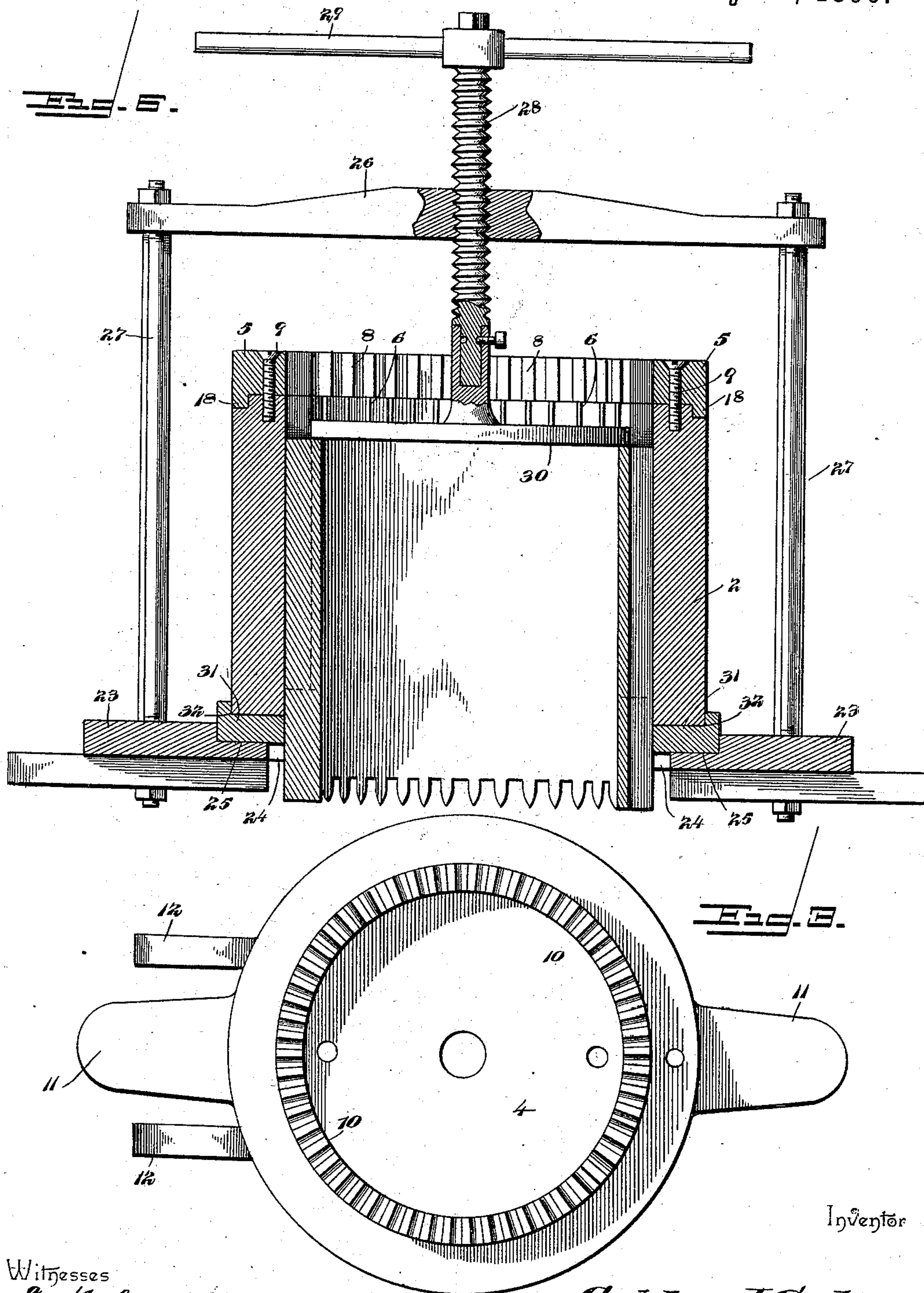
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Inventor

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*E. H. Stewart*  
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By *his* Attorneys. *Ashley J. Gulich*

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

ASHLEY J. GULICH, OF CLEARFIELD, PENNSYLVANIA.

## MOLD FOR CASTING KNITTING-MACHINE CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 560,711, dated May 26, 1896.

Application filed February 28, 1895. Serial No. 540,089. (No model.)

*To all whom it may concern:*

Be it known that I, ASHLEY J. GULICH, a citizen of the United States, residing at Clearfield, in the county of Clearfield and State of Pennsylvania, have invented a new and useful Mold for Casting Knitting-Machine Cylinders, of which the following is a specification.

This invention relates to apparatus to facilitate the casting of cylinders for knitting-machines in which the longitudinal grooves or needle-raceways in the outer side of the cylinder are enlarged at their upper ends to provide clearance for the formation of the loop and stitch, and the object of the same is to provide a mold which can be easily manipulated both in the casting process and in the removal therefrom of the cylinder after the latter has been cast.

The improvement consists, essentially, of the novel formation of the mold and an appliance whereby the completed cylinders are easily and quickly removed from the casing or body of the mold without detriment to either the cylinder or the mold.

The improvement also consists of the peculiar features and novel combinations of the parts, which hereinafter will be more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a rear elevation of a mold embodying the essence of the invention. Fig. 2 is a vertical section on the line X X of Fig. 1. Fig. 3 is a top plan view of the lower cap-plate. Fig. 4 is a detail view of the upper cap-rim, showing the inner extensions for forming the enlarged spaces at the upper ends of the needle-raceways in the outer side of the cylinder. Fig. 5 is a detail view of the upper portion of the core. Fig. 6 is a detail view showing the appliance and the manner of removing the cylinder from the casing or body of the mold. Fig. 7 is an enlarged detail view of a portion of the body of the mold, showing the cap-ring in operative relation therewith.

In its organization the mold comprises, essentially, a core 1, body or casing 2, upper cap-plate 3, lower cap-plate 4, and a cap-ring 5. The body or casing 2 is cylindrical in form, and is provided on its inner side with a series of longitudinally-disposed ribs 6, which form

the needle-raceways in the outer side of the cylinder. This body or casing, with its longitudinal ribs, may be formed of any desirable and suitable metal, brass being preferable, because of its non-liability to corrosion and the ease with which it can be worked. Handles 7 project from the sides of the casing 2 at diametrically opposite points and facilitate the handling of the mold, and also serve as supports for the same when removing the core after the cylinder has been cast. The cap-ring 5 is of a thickness to correspond with the thickness of the casing or body 2, and has extensions 8 on its inner side which correspond in number and position with the longitudinal ribs 6 of the body 2. These extensions 8 are in register with the ribs 6 when the parts 5 and 2 are assembled and serve to provide the enlarged spaces at the upper ends of the needle-raceways in the cylinder. In order to prevent displacement of the cap-ring 5 when positioning the same upon the body 2, the meeting edges of the said body 2 and the cap-ring 5 will be rabbeted in the ordinary manner, as shown most clearly in Figs. 2 and 6, screws or other fastenings 9 being provided to hold the cap-ring in proper relation upon the body 2.

The lower cap-plate 4 is provided with a circular series of cog-teeth 10 upon its upper face, which are adapted to enter the lower end of the casing 2, and which serve to provide cog-gearing on the lower end of that style of cylinder which is adapted to be rotated in the successful operation of the knitting-machine. Obviously, when the cylinder is not to be provided with cog-gearing at its lower end the lower cap-plate 4 will be plain on its upper face, or the circular series of cog-teeth 10 may be supplanted by a plain annular flange or rib. This circular series of cog-teeth 10, entering the lower end of the body 2, serve to center the lower cap-plate 4 and the core 1 attached thereto. Extensions 11 project horizontally from the cap-plate 4 at diametrically opposite points and enable the ready detachment of the cap-plate and core from the body of the mold after the casting of the cylinder. Ears 12 extend from one edge of the cap-plate 4 and correspond with longitudinal flanges 13 on the side of the body or casing 2, the said



ears and flanges being transversely apertured to receive a pin 14, by means of which the cap-plate 4 is pivotally connected to the body of the mold.

5 The core 1 is cylindrical in outline and is closed at its upper end, which end is provided with a central depression 15, from which extend laterally a series of passages 16 to form gates for the passage of the molten metal to  
10 the space between the opposing sides of the core and the body of the mold. The core is hollow and open at its lower end, which end is fitted upon the cap-plate 4 within the cog-teeth 10, and is attached to the plate 4 by  
15 means of screws or other fastenings 17.

The upper cap-plate 3 fits snugly upon the outer edge portion of the core 1 and the upper edge of the cap-ring 5 and is provided with a depending flange 18, by means of which the  
20 said cap-plate is held from lateral displacement. Ears 19, corresponding to the ears 12, enable pivotal connection to be made between the body of the mold and the said cap-plate 3, a pin 20 being provided to pass through cor-  
25 responding openings in the ears 19 and the upper portions of the flanges 13. A lateral extension 21, opposite the ears 19, enables the cap-plate 3 to be readily turned upon the pin 20 when it is required to open and close the  
30 said cap-plate for any purpose. A centrally-disposed opening 22 in the cap-plate 3 provides for the pouring of the molten metal into the mold when casting the cylinder. The parts being assembled as herein specified, and  
35 it being required to cast a cylinder, the molten metal, which may be Babbitt or of like composition of lead, zinc, &c., is poured in a molten state through the opening 22 into the depression 15, from which it escapes and is  
40 evenly distributed to the space between the core and body of the mold by the gates or passages 16. After the cast cylinder is sufficiently cooled, the cap-plate 3 is either removed or thrown back, and the mold is sus-  
45 pended by means of the handle 7 in a suitable support to enable the ready detachment of the cap-plate 4 and the attached core 1. The cylinder now remains to be removed from the body or casing 2, which operation is quickly  
50 and easily performed by the appliance shown in Fig. 6, which latter consists of a base 23, having a centrally-disposed opening 24, rabbeted at its upper-edge portion, as shown at 25, a ring 31, an upper cross-beam 26, connected at its  
55 ends with the base by standards 27, a pressure-screw 28, operating in a threaded opening in the cross-beam 26 and provided at its upper end with a handle or hand-wheel 29 and at its lower end with a plunger 30. The ring 31  
60 is fitted in the rabbet 25, by means of which it is held in place and is provided in its upper side with a seat 32 to receive the lower end of the body or casing 2. The plunger 30 is of a size to fit within the space between the inner  
65 edges of the longitudinal ribs 6 of the body of the mold. After the casting of the cylin-

der and the removal of the cap-plate 3 and the core 1 in the manner hereinbefore set forth, the body of the mold 2 is transferred and fitted in the ring 31, and the plunger 30  
70 is adjusted upon the upper end of the cylinder. Now by turning the pressure-screw 28 in the proper direction the plunger 30 will be lowered and force the cylinder from the body of the mold. This is clearly shown in Fig. 6.  
75 The appliance for removing the cylinder from the body of the mold is constructed with special reference to be used in connection with molds of varying sizes, and to this end the plunger 30 and the ring 31 are made inter-  
80 changeable, so that for a smaller mold a reduced plunger will be employed and a ring 31, having a smaller opening and a reduced seat 32 for the reception of the lower end of the casing 2.  
85

From the foregoing it will be seen that the mold is simple in construction and that its parts are readily accessible for any desired purpose, and that by having the cap-ring 5 detachably connected with the body of the  
90 mold it can be replaced by others in which the extensions 8 may correspond in thickness with the longitudinal ribs 6, or be thicker, so as to vary the enlarged recesses at the upper ends of the needle-raceways of the cylinder.  
95 A mold of this construction also admits of cylinders of different styles being readily cast by simply changing the lower cap-plate 4 and the cap-ring 5 in the manner set forth.

From the foregoing it is obvious that  
100 changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this in-  
105 vention.

Having thus described the invention, what is claimed as new is—

1. In an apparatus for casting knitting-machine cylinders, the combination of a casing, or body, provided on its inner side with a se-  
110 ries of longitudinal ribs, a cap-ring detachably connected with one end of the body, and provided on its inner side with a series of extensions corresponding in position and num-  
115 ber with the longitudinal ribs, a lower cap-plate having an annular extension to enter the body, a core attached and carried by the lower cap-plate, and an upper cap-plate adapted to rest upon the upper edge of the cap-  
120 ring and the edge portion of the core, substantially as set forth.

2. In an apparatus for casting knitting-machine cylinders, the combination with the mold-body, of an appliance for removing the cylinder therefrom after being cast, consist-  
125 ing of a base having an opening for the passage of the cylinder when leaving the mold-body, a ring fitted in a rabbet surrounding said opening, and having a seat in its upper side for the reception of the mold-body, an  
130 upper cross-beam connected with the base, a pressure-screw working through a threaded



opening in the cross-beam, and a plunger detachably connected with the lower end of the said pressure-screw to fit snugly within the mold-body and engage with the upper end of  
5 the cast cylinder, substantially as described for the purpose set forth.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in the presence of two witnesses.

ASHLEY J. GULICH.

Witnesses:

JOHN H. SIGGERS,

E. G. SIGGERS.