

(No Model.)

J. S. CRANE.  
FILLING BURR FOR KNITTING MACHINES.

No. 421,248.

Patented Feb. 11, 1890.

Fig. 1.

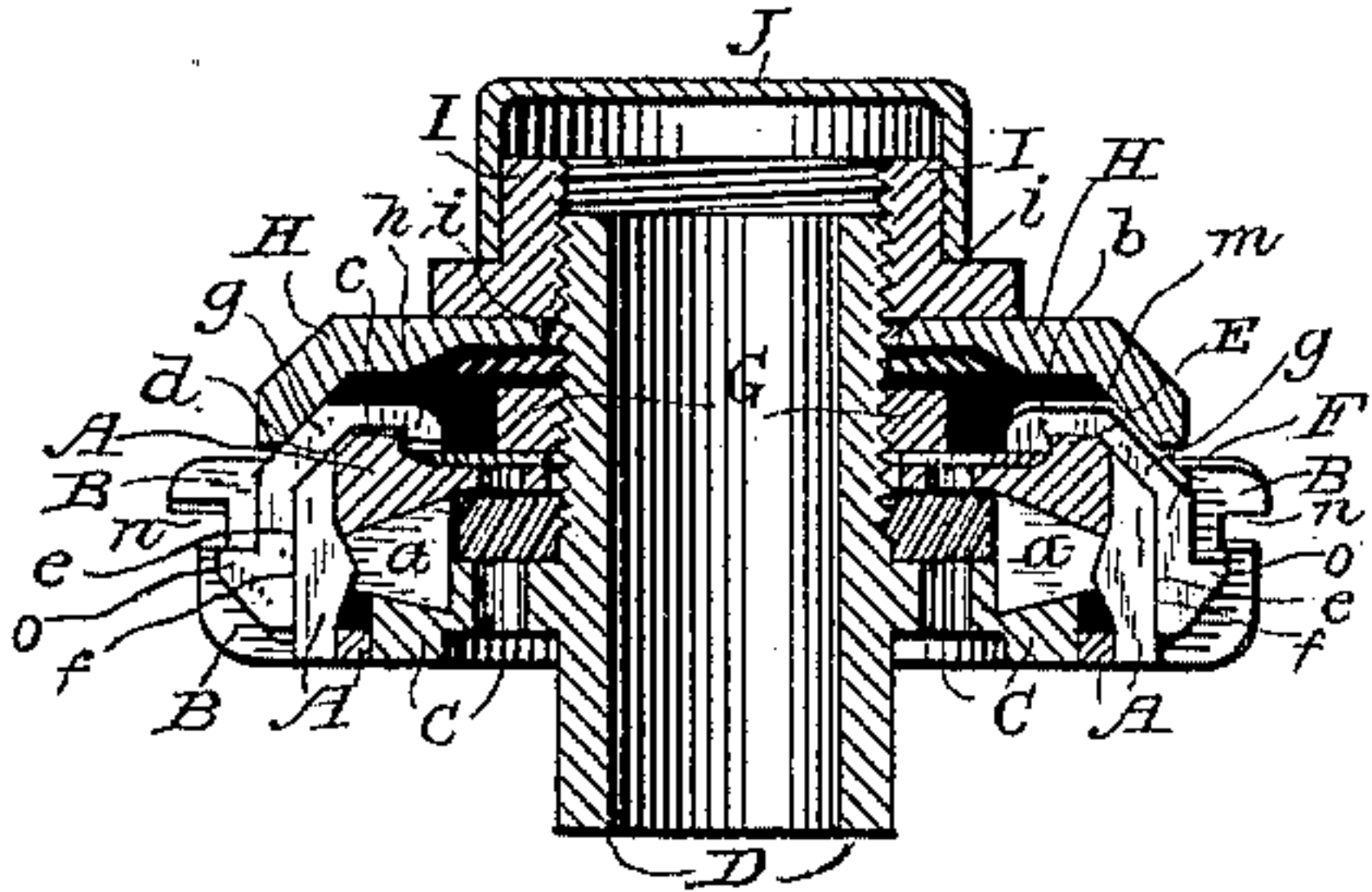


Fig. 2.

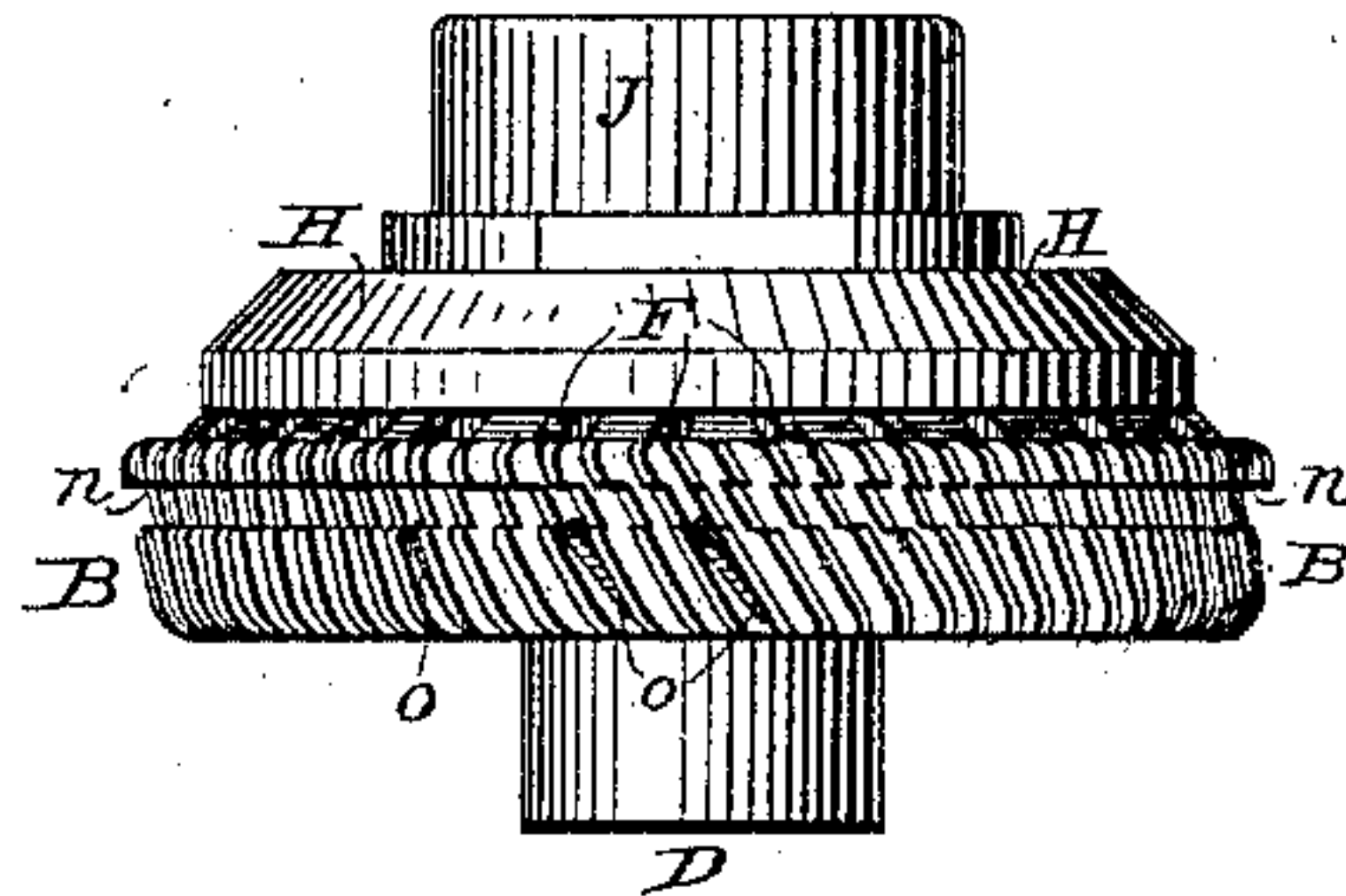


Fig. 3.

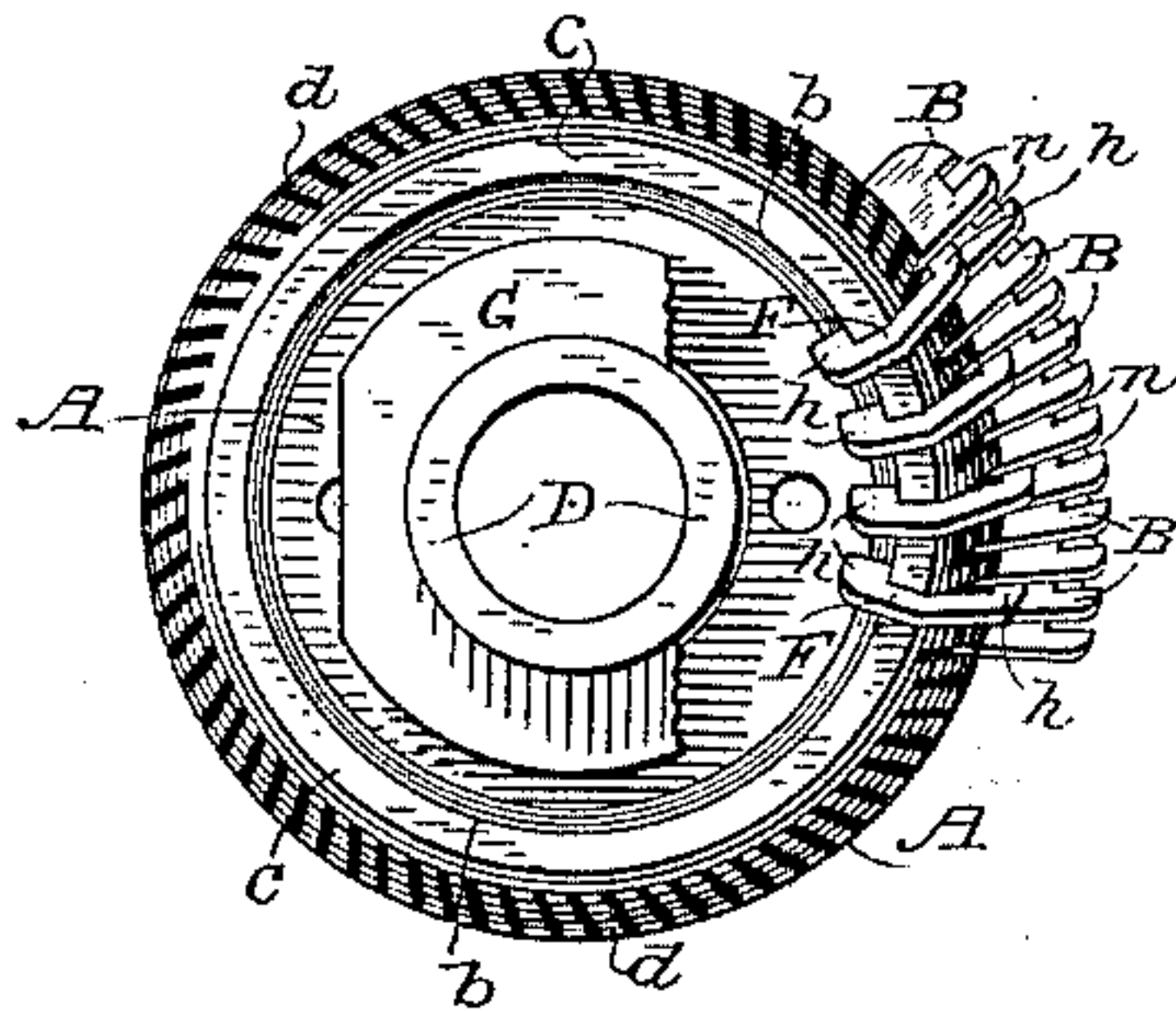


Fig. 4.

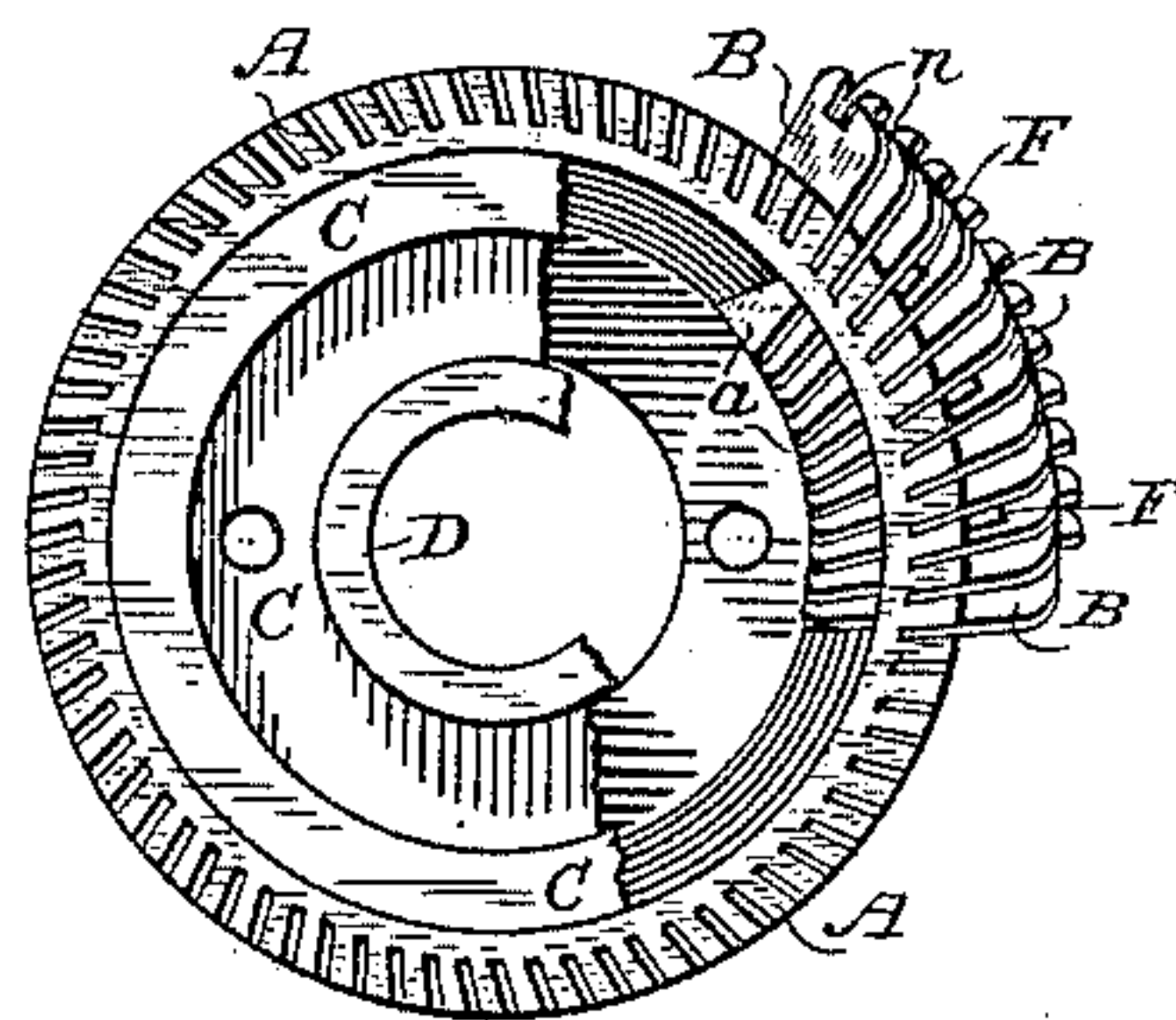


Fig. 5.

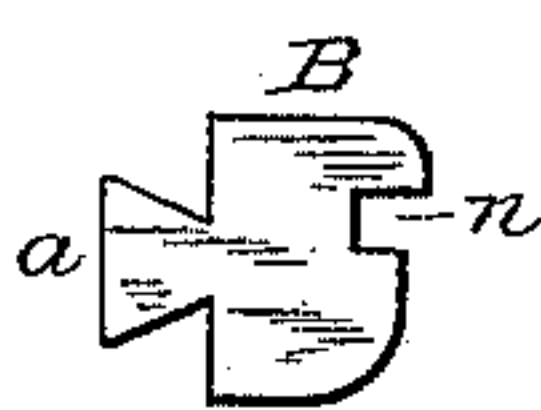


Fig. 6.

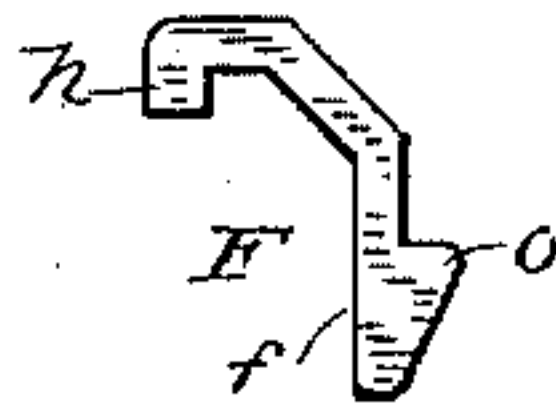


Fig. 8.

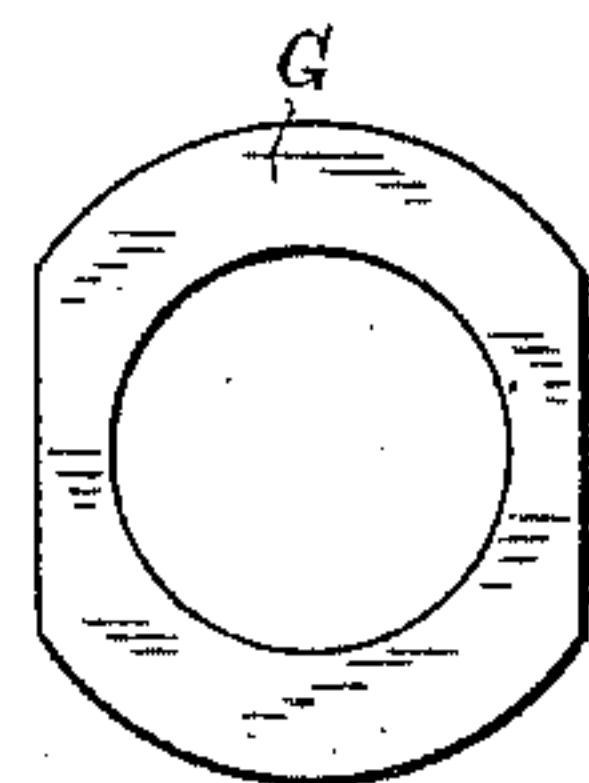


Fig. 9.

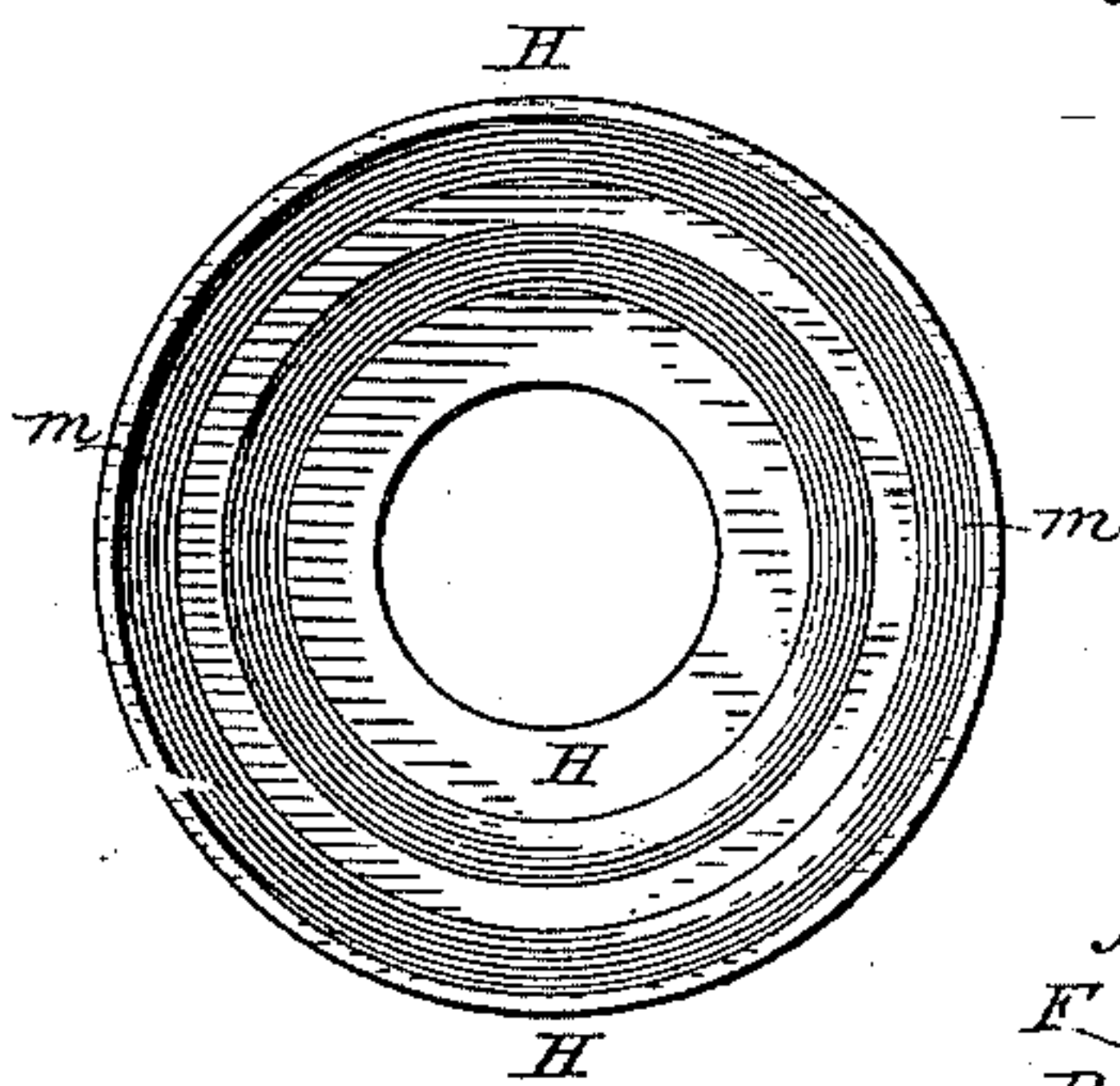


Fig. 7.

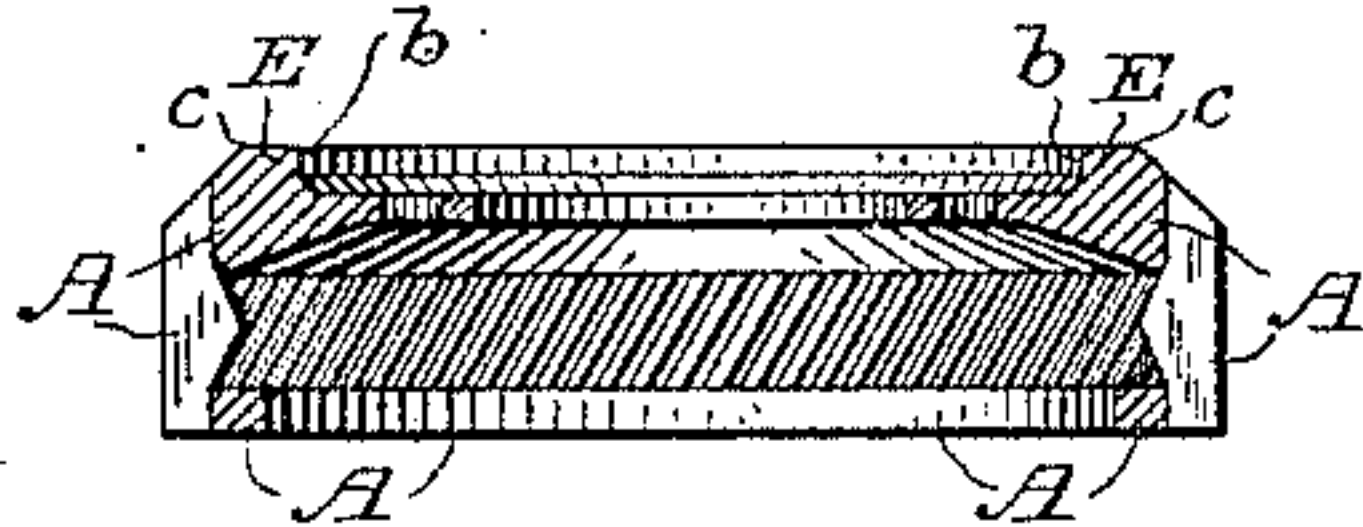


Fig. 10.

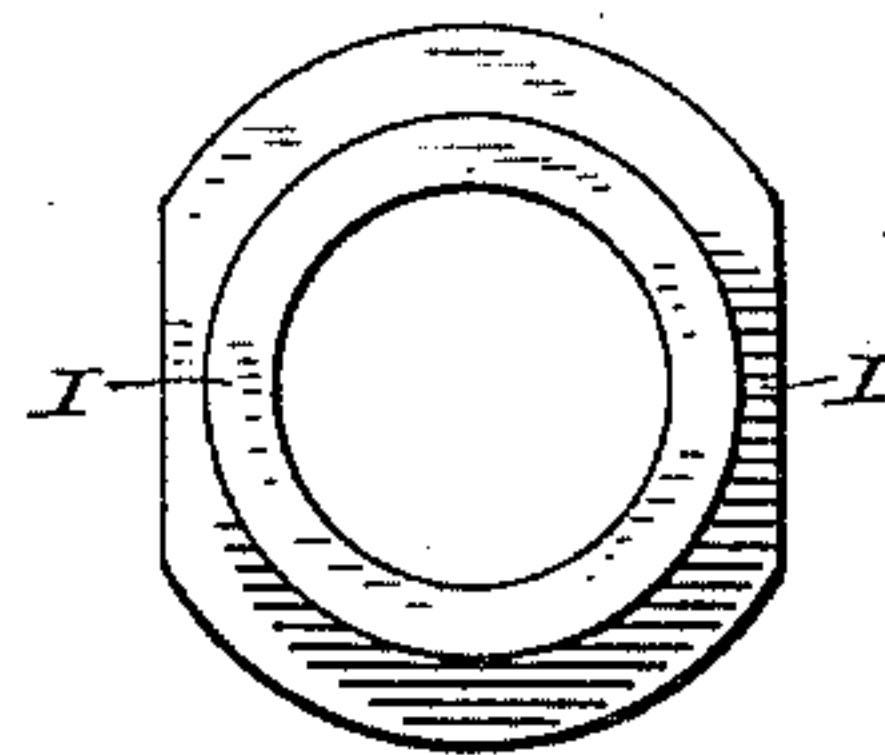
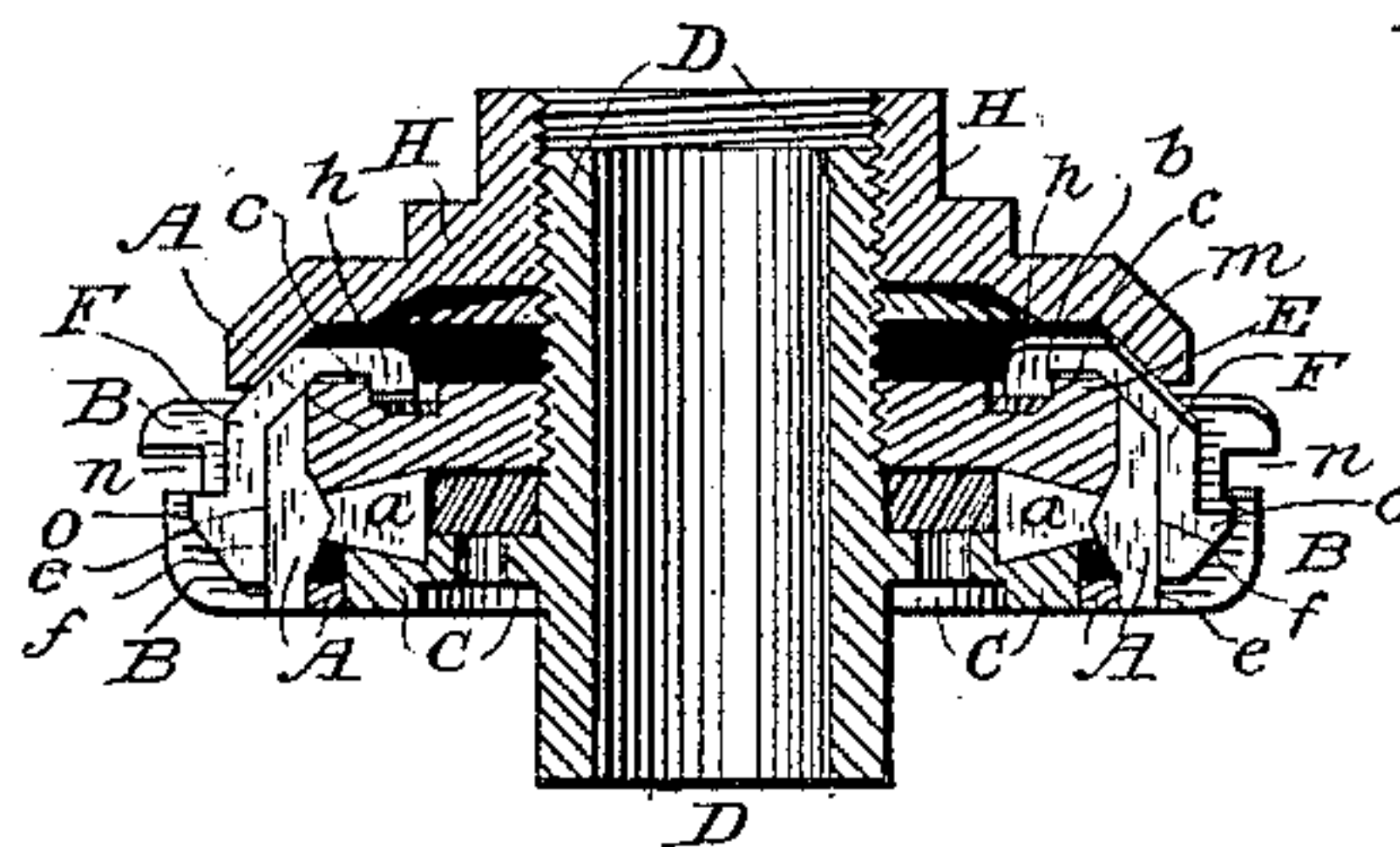


Fig. 11.



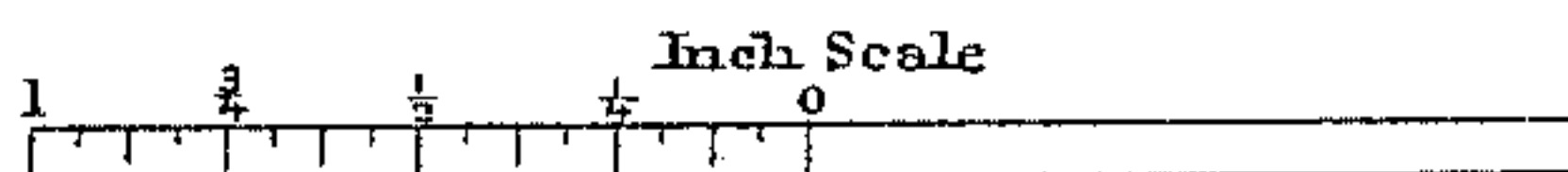
Witnesses

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# UNITED STATES PATENT OFFICE.

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## FILLING-BURR FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 421,248, dated February 11, 1890.

Application filed September 5, 1889. Serial No. 323,030. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN S. CRANE, of Lake Village, in the county of Belknap and State of New Hampshire, have invented certain  
5 new and useful Improvements in Filling-Burrs for Knitting-Machines, of which the following is a specification.

This invention relates to the filling-burrs of knitting-machines, which are provided  
10 with wings or blades for dividing the needles of the machine and for inserting the yarn, and with teeth between the wings or blades for springing or pressing certain of the needles out of line, so as permit the insertion of  
15 the thread. Hitherto knitting-machine burrs have been provided with removable and interchangeable dividing wings or blades, such burrs having been used as clearing-wheels, loop-wheels, landing-wheels, and knocking-  
20 over wheels; but a special construction of burr has hitherto been required for filling-wheels.

Now, the object of the present invention is to utilize the present construction of the  
25 ordinary burr as a filling-wheel by providing such a burr with removable and interchangeable pressing teeth or hooks, which are inserted between the usual wings or blades at such intervals as the special character of  
30 work may require; and the invention in its generic features consists in a filling-burr thus provided with a set of removable and interchangeable dividing wings or blades, and with a set of independently removable and  
35 interchangeable pressing teeth or hooks arranged at proper intervals between the dividing wings or blades.

The improved filling-burr is illustrated in the accompanying drawings, in which—

40 Figure 1 is a central vertical section of the improved burr, the plane of the section passing through the hub parallel with the plane of the wings or blades. Fig. 2 is a side view of the burr. Fig. 3 is a broken upper view of the hub, showing a portion of the blades  
45 and teeth in position. Fig. 4 is a broken bottom view of the hub, showing a portion of the blades in position. Fig. 5 is a view of one of the blades or wings. Fig. 6 is a view of one  
50 of the teeth or hooks. Fig. 7 is a detail view of the hub, showing the same in central verti-

cal section. Fig. 8 is a view of the hub-holding nut. Fig. 9 is a view of the plate which retains the pressing teeth or hooks in position. Fig. 10 is a view of the upper locking-  
55 nut; and Fig. 11 is a section in the same plane as Fig. 1, showing a modification of the construction.

A is the hub of the burr, provided on its periphery with the usual inclined slots for  
60 the reception of the wings or blades B B. The wings or blades are provided, as usual, on their inner edges with dovetailed or flaring projections *a a*, (one on each blade,) which are locked between an inclined face  
65 on the under side of the hub and an inclined groove on a plate C, carried by the screw-bush D, all in a well-known way. The upper part of the hub is provided with a project-  
70 ing annular rib or flange E, over which extend the removable pressing teeth or hooks F. This projecting rib or flange E has an inner face *b*, substantially perpendicular to the upper surface of the hub, an upper face *c*, substantially parallel with the upper surface of  
75 the hub, and an inclined outer face *d*, connecting the upper face *c* of the flange with the outer peripheral wall *e* of the hub, which is substantially at right angles to the upper surface of the hub. Each pressing tooth or  
80 hook F is shaped on its inner edge to conform with the surface of the hub and the projecting rib or flange. Thus each hook has a straight portion *f*, which fits against the outer peripheral wall *e* of the hub, an inclined por-  
85 tion *g*, which fits against the inclined surface *d* of the rib or flange, and a downwardly-extending hook *h*, which fits inside the inner face *b* of the flange. The pressing teeth or hooks are disposed between the dividing  
90 blades or wings at any desired intervals. As shown in the drawings, there are one-third as many pressing-teeth as there are dividing-blades, and they are arranged in regular sequence. It will be observed that the divid-  
95 ing wings or blades are arranged equidistantly from each other, and that their mutual order and arrangement are not disturbed or altered by the presence of the pressing teeth or hooks, which are thin enough to fit in be-  
100 tween the wings or blades as they are ordinarily spaced.



The screw-bush is held in position by a nut G, which rests upon the upper surface of the hub and within the hooked ends *h h* of the pressing teeth or hooks.

5 The pressing teeth or hooks are held in place by a plate H, having a central aperture *i*, which slips over the screw-bush D. This plate has on its inner periphery an inclined edge *m*, the inclination of which corresponds  
10 with that of the inclined portions *g g* of the teeth or hooks and of the inclined surface *d* of the rib or flange E. When the plate H is in position, its inclined edge *m* just rests against the inclined portions *g g* of the teeth  
15 or hooks, thus preventing any movement of the latter. This plate H is held in position by a locking-nut I, fitting over the bush D. In this manner the pressing teeth or hooks are held firmly in position. They are pre-  
20 vented from radial movement by their hooked ends engaging the inner face of the rib or flange E, and they are held from any upward movement by the inclined edge of the locking-plate H. At the same time any of the  
25 teeth or hooks can be readily replaced by unscrewing the locking-nut I and removing plate H, and in the same way all of the teeth or hooks may be removed, thus leaving an ordinary burr.

30 A cap or thimble J fits over the upper end of the locking-nut to give a finished appearance, and also to prevent access of dust to the bearing-surfaces of the screw-bush and its stud or arbor.

35 The dividing blades or wings B B are each provided with a thread-notch *n*, and the general width of the pressing teeth or hooks is such that when in position their outer edges lie within the inner walls of the notches *n n*.  
40 The outer ends of the teeth or hooks extend below the notches *n n*, and are provided with projecting pressing-nibs *o o*, (one on each tooth,) which project outwardly beyond the inner walls of the notches, so that the needles  
45 will be pressed thereby a sufficient distance to allow the passage behind them of the thread or yarn lying in the notches *n n*.

The modification shown in Fig. 11 consists in a slightly-different connection between the  
50 hub A, screw-bush D, and locking-plate H. In this modification the nuts G and I are omitted, the bush D screws directly into the central threaded aperture of the hub, and the central aperture of the plate H is threaded, so  
55 that it screws directly onto the bush. The plate H is screwed down until its inclined edge bears against the teeth or hooks F.

It will be observed that the two sets of teeth and blades can be removed and replaced independently of each other, since they are re- 60 tained and held in position on opposite sides of the hub. The addition of the pressing teeth or hooks does not increase the thickness of the burr materially, since the hub is hollowed out in order to form the rib or flange 65 E, so that the burr, without the pressing teeth or hooks, can be used for other purposes than a filling-wheel.

I claim as my invention—

1. A knitting-machine filling-burr having a 70 set of removable and interchangeable dividing wings or blades and a set of independently removable and interchangeable pressing teeth or hooks disposed at proper intervals between said dividing wings or blades, 75 substantially as set forth.

2. A knitting-machine filling-burr having a hub provided with dividing wings or blades, said hub having a projecting rib or flange, in combination with a set of pressing teeth or 80 hooks disposed between said dividing wings or blades, said teeth or hooks having hooked ends engaging with said rib or flange, substantially as set forth.

3. In a knitting-machine filling-burr, a hub 85 having a projecting rib or flange, a bush passing through said hub, and a set of dividing wings or blades secured to said hub, in combination with a set of pressing teeth or hooks having hooked ends engaging with said rib 90 or flange, and a locking-plate passing over said bush and holding said pressing teeth or hooks in place, substantially as set forth.

4. In a knitting-machine filling-burr, a hub having a projecting rib or flange, said rib or 95 flange having an outward inclined surface, and a set of dividing wings or blades in said hub, in combination with pressing teeth or hooks, each having a hooked end engaging with said rib or flange and having an inclined 100 portion resting against said inclined surface of said rib or flange, and a locking-plate having its edge inclined and resting against the inclined portions of said teeth or hooks, sub-  
105 stantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN S. CRANE.

Witnesses:

M. L. CRANE,  
THOS. HAM.