No. 874,074 PATENTED DEC. 17, 1907.

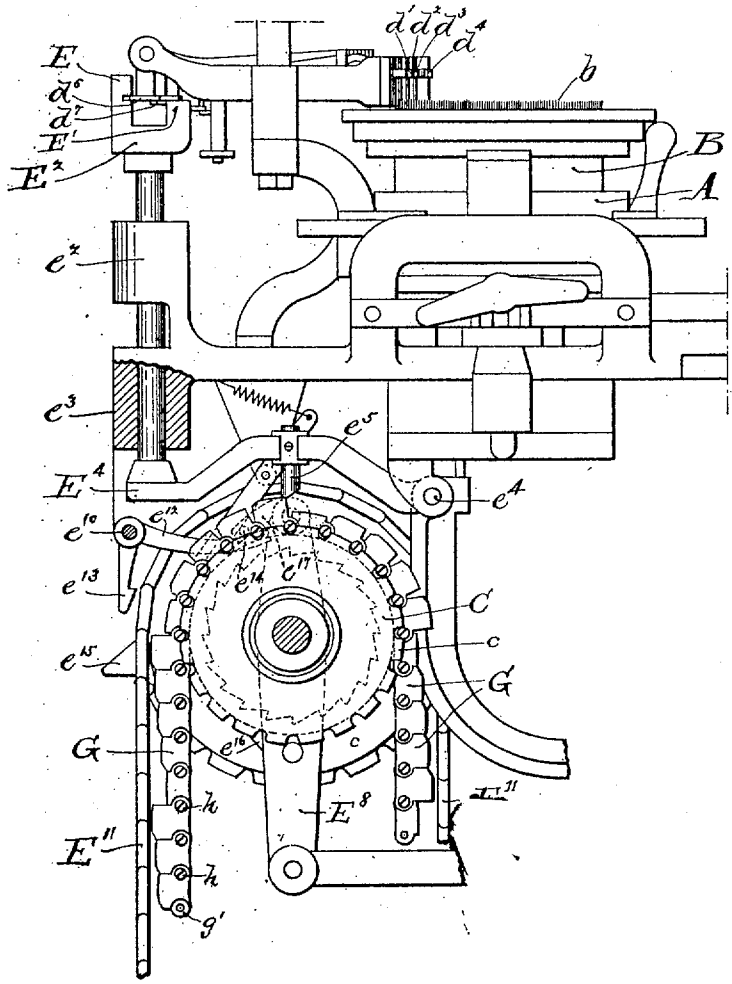
H. A. HOUSEMAN.

PATTERN MECHANISM FOR KNITTING MACHINES.

APPLICATION FILED JAN. 26, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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PATTERN MECHANISM FOR KNITTING MACHINES.

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2 SHEETS—SHEET 2.

Fig. 2.

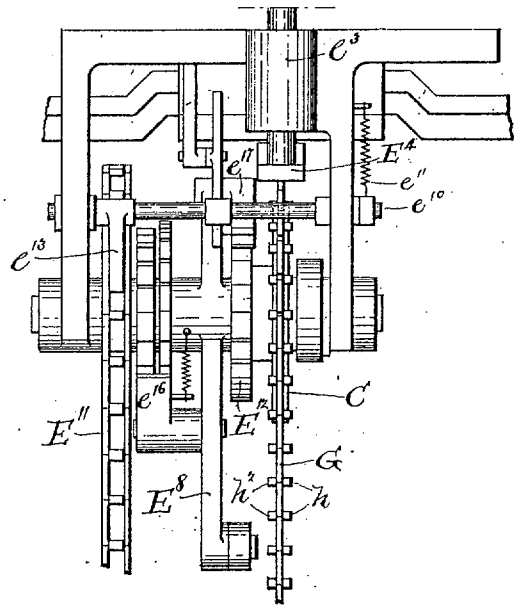
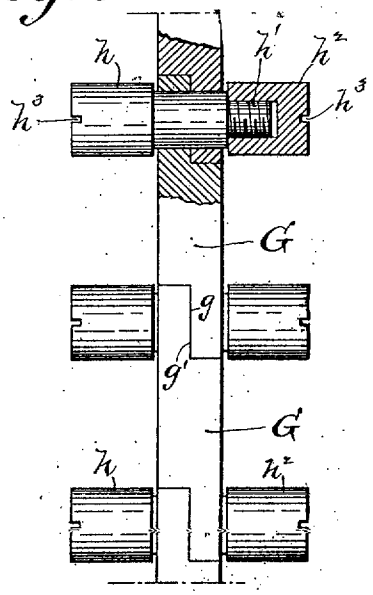


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY A. HOUSEMAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO STANDARD MACHINE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PATTERN MECHANISM FOR KNITTING-MACHINES.

No. 874,074. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed January 26, 1905. Serial No. 242,710.

To all whom it may concern:

Be it known that I, HARRY A. HOUSEMAN, a citizen of the United States, residing at Philadelphia, county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Pattern Mechanism for Knitting-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain improvements in pattern mechanisms for knitting machines, especially adapted for the purpose of controlling or moving the cam lever to varying heights to control the movement in and out of operation of a plurality of thread carriers, shown and described in Letters Patent No. 640,769, issued to me January 9th, 1900. In that patent the rod or lever controlling the thread carriers controlling cam is lifted to varying heights by means of plates of varying heights, secured to the surface of a wheel or drum, but this pattern mechanism enables only a limited variation of the combination of thread carriers.

My present invention has for its object a pattern mechanism which will have the capacity to vary the combination of thread carriers used to an unlimited extent.

I will first describe the embodiment of my invention, illustrated in the accompanying drawings, and then point out the invention in the claims.

In the drawings, I will only illustrate that portion of the machine shown and described in my Patent No. 640,769, as is necessary to an understanding of the present invention and will omit such other parts as are shown and described in the patent.

In the drawings—Figure 1 is a side view of a portion of a knitting machine. Fig. 2 is a front view of a portion of Fig. 1. Fig. 3 is an enlarged detail of my pattern device.

A is the cam cylinder, B the needle cylinder, having needles *b*.

d, *d'*, d^2, d^3, d^4 are the levers of the thread carriers described in my Patent No. 640,769. These levers are operated upon by cams E and E'. The cams E, E' operating upon rollers upon the end of the levers at different heights, two rollers d^6, d^7 being shown. The cams are elevated to different heights to coact with the different rollers and their corresponding levers, and thread carriers, all as described in said Patent No. 640,769.

The cams E and E', as in Patent No. 640,769, are secured to a block E^4, supported upon the rod E^3, which is capable of vertical movement in guides e^2, e^3. The lower end of this rod rests upon the end of the lever E^4 pivoted at e^4 to the frame of the machine. Connected to this lever between its pivot point and the rod E^3 is the projection e^5.

C is a wheel supported so as to revolve. This wheel has on each side the sprocket teeth *c*.

G are a plurality of blocks having inclined upper cam faces and said blocks are of different heights. Each block, at one portion of its end, has a socket *g* and at another portion an orificed projection *g'* corresponding to the socket *g*. They are associated together by a bolt passing through corresponding orificed portions of contiguous projections. These bolts have at one end an enlarged head *h* and a threaded opposite end *h'* on which works a threaded holding nut h^2 corresponding to head *h*. Both the end of head *h* and holding nut h^2 have the inset or cut h^3 one for a holding, the other for a turning device. By this arrangement I can form a pattern device provided with projecting blocks and arrange them in any desired relation, number and way with each other, or any desired number with relation to each other. The head and nut of the bolt enter between the sprocket teeth *c* on opposite sides of the wheel. The blocks projecting below the bolts rest upon the wheel between the sets of sprocket teeth before the bolts bottom in the sprocket teeth. By this construction, the blocks have a positive and fixed seat on the wheel, while the bolts, as it were, float between the sprocket teeth.

The projection e^5 rests upon the surface formed by the blocks G and dependent upon the height of block immediately acting upon the projection e^5 depends the position of cams E and E'. By the use of a pattern device of this kind and properly associating the blocks used I can produce all the possible sequence or order of association of action of the thread carriers and I can also provide for any number of duplications of any given sequence.

The wheel C is rotated intermittently in

the following manner: E^8 is a rocking lever. This rocking lever is constructed as, and rocked in the manner, set out in my Patent No. 640,769. Pivoted to the lever E^8 are the two pawls e^{16} and e^{17}. The pawl e^{16} works in the ratchet E^9 secured upon the shaft C to operate chain E^{11}. The pawl e^{17} works in the ratchet E^{12}, connected to wheel E^5. This pawl is held out of action in the following manner: e^{10} is a rock-shaft having the spring e^{11}. Upon this shaft are the levers e^{12} and e^{13}. The outer end of lever e^{12} rests against a pin e^{14} upon the pawl e^{17} and, by the action of the spring e^{11}, holds said pawl out of engagement with the teeth of ratchet E^{12}. The lever e^{13} is in alinement with projections e^{15} upon the chain E^{11}, and when struck by said projection, the shaft e^{10} is rocked, causing lever e^{12} to be depressed, allowing the pawl e^{17} to engage the teeth and move the wheel, C. When the wheel C is thus revolved, the sprocket teeth *c*, through the medium of the bolts, pull the pattern device, composed of the blocks, around with it.

I do not intend to limit myself to the specific purpose or use of my invention hereinbefore set forth, as the same is capable of use for other purposes and I intend to include any use to which it is applicable.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is—

1. The combination of a toothed wheel, a chain formed of cam blocks, flexibly connected by connecting members, the blocks in the movement of the chain resting upon the face of the wheel and the connecting members floating between and being moved by the teeth.

2. The combination with a toothed driving wheel, of a pattern link chain, the links being supported upon the face of the wheel and the connecting link members floating between the teeth of the wheel.

3. In combination, with a wheel having two sets of circumferential projecting teeth, of a plurality of blocks, bolts flexibly securing said blocks together, there being a portion of said blocks beneath said bolts, the bolts floating between contiguous projecting teeth and the blocks resting on the wheel between the sets of teeth.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 19th day of January, 1905.

HARRY A. HOUSEMAN.

Witnesses:
T. B. WOOD,
M. M. HAMILTON.