R. W. SCOTT.

YARN CHANGING DEVICE FOR KNITTING MACHINES.

APPLICATION FILED MAY 13, 1912.

1,123,937.

Patented Jan. 5, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

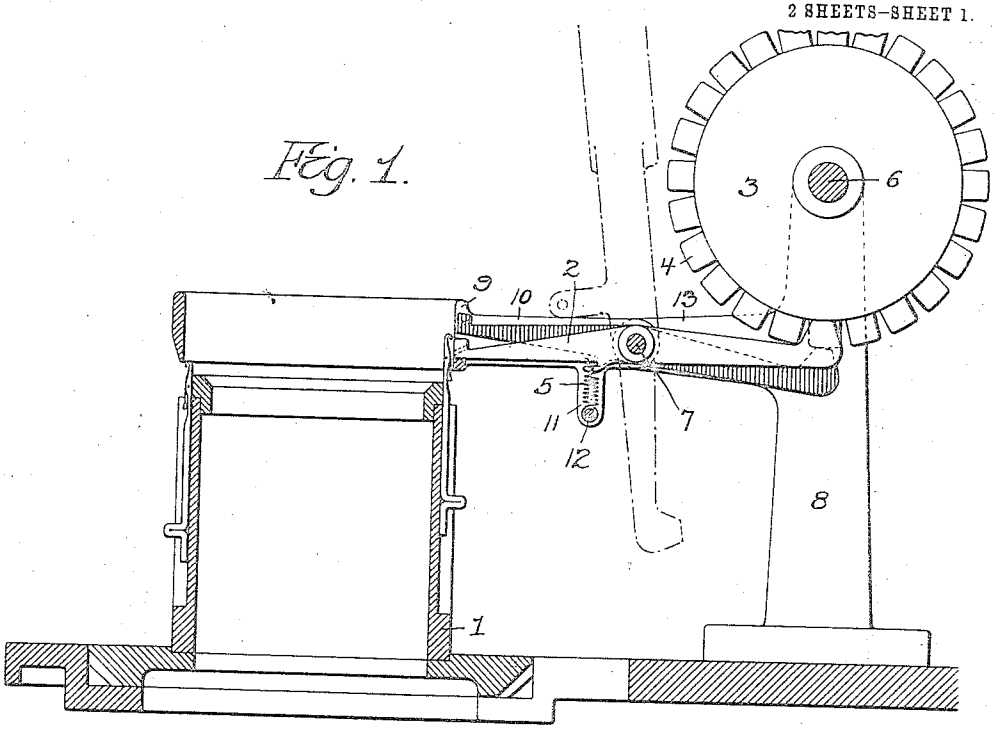
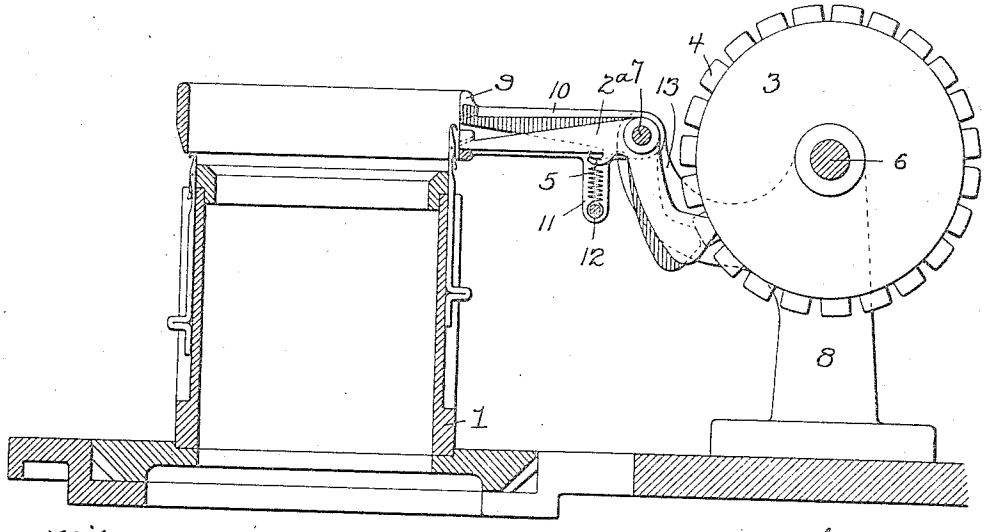


Fig. 2.



Witnesses
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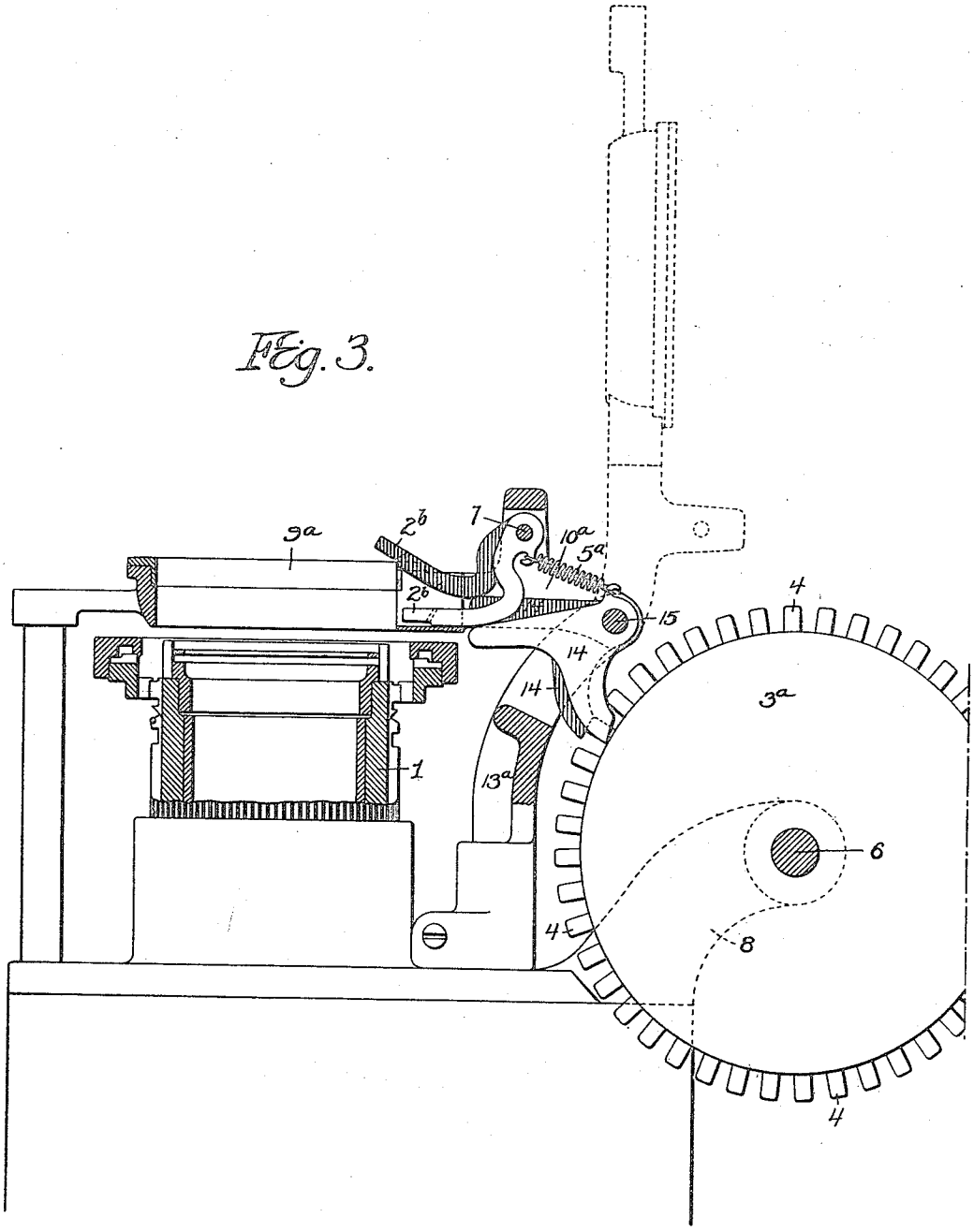
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SCOTT & WILLIAMS, INCORPORATED, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

YARN-CHANGING DEVICE FOR KNITTING-MACHINES.

1,123,937. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed May 13, 1912. Serial No. 696,956.

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Boston, Massachusetts, have invented certain Improvements in Yarn-Changing Devices for Knitting-Machines, of which the following is a specification.

My invention consists of certain improvements in the knitting machine shown and described in Letters Patent No. 604,646, issued on the 24th day of May, 1898, to L. N. D. Williams and Robert W. Scott, as assignees of said L. N. D. Williams and Harry Swinglehurst, Jr., the object of my invention being to provide a more acceptable disposal of the yarn-guiding levers and their actuating drum than in the patented machine. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawing, in which—

Figure 1 is a view, partly in side elevation and partly in section, of sufficient of a knitting machine to illustrate my present invention, and Figs. 2 and 3 are similar views illustrating certain other embodiments of my invention, that shown in Fig. 3 being preferable in many cases to the others.

In the drawing, 1 represents the revolving needle cylinder, 2 a series of yarn guiding levers, and 3 a drum for operating said levers so as to either permit them, under the pull of a suitable spring 5, to assume the operative or feeding position shown by the unshaded lever, or to cause them, under the action of cams or studs 4 on the drum 3 to assume the elevated or non-feeding position repereserited by the shaded lever.

In the patented structure both the shaft which carried the drum 3 and the pivot pin 7 for the yarn guiding levers, were mounted upon a swinging carrier whereby the entire series of yarn guiding levers could, on occasion, be moved away from the needle cylinder. Such movement, in the patented structure, was therefore always attended by a like movement of the lever-actuating drum, there being no change in the relation of the drum and levers during such movement. It is advisable, however, to so mount the lever-actuating drum that there will be no possibility of the yarn changing movements getting out of their proper time in respect to the changes in the operation of other parts of the machine effected during the cycle of operations for the performance of which the machine is designed. For this reason it is preferable to mount the drum 3 upon the main cam shaft which carries the other cams, wheels or drums for controlling the movements of the other parts of the machine, or to mount said drum 3 upon a shaft adapted like the main cam shaft to fixed bearings so that it may be geared to said main cam shaft in such manner as to have no movement independently thereof. In my present machine, therefore, I have mounted the drum 3 upon a shaft 6 which may be the main cam shaft of the machine or a shaft geared thereto, so as to operate in unison therewith, but in either case being adapted to fixed bearings and occupying a position in relatively close proximity to the knitting head so that the drum will be in position to act directly upon or in close relation to the yarn guiding levers 2.

The member 9 which serves to carry the group of yarn guiding levers into and out of operative relation with the needle cylinder is so mounted that when it is in position to permit the levers to coöperate with the needle cylinder said levers will also be in position for being acted upon by the cams or studs 4 of the drum 3, either directly or through the medium of other interposed levers, but when said carrier is moved to the inactive position, as shown for instance by dotted lines in Figs. 1 and 3, those ends of the yarn guiding levers upon which the cams or studs 4 of the interposed levers normally act will be moved away from the drum 3, the latter therefore offering no obstruction to the free movement of the carrier into and out of its operative position.

In the present instance the carrier constitutes a latch-guard ring which in a certain type of machine is mounted above the needle cylinder, this ring, in the structures shown in Figs. 1 and 2, having one or more arms 10 hung to the same shaft 7 upon which the yarn guiding levers 2 are pivotally mounted and having a depending arm 11 carrying a rod 12, to which are connected the springs 5 which act upon said yarn guiding levers, the shaft 7 being carried by an arm or arms 13 projecting from the fixed structure 8 which carries the main cam shaft 6, although my invention is not limited to this particular method of mounting the carrier.

In that embodiment of my invention shown in Fig. 2 the yarn guiding levers 2ª

are in the form of bell cranks but the other features of construction are substantially the same as in Fig. 1.

That embodiment of my invention shown in Fig. 3 is in many cases preferable to either of the others since it provides for a greater range of movement of the yarn guiding levers, owing to the fact that levers 14 are interposed between the drum 3^a and the yarn guiding levers 2^b which provides for any desired multiplying of the leverage through which such yarn guiding levers 2^b are operated. In this embodiment of my invention the pivoting arms 10^a of the latch ring 9^a are mounted upon a pin 15 to which the interposed levers 14 are pivoted, and each yarn guiding lever 2^b and its corresponding interposed lever 14 are connected by a spring 5^a, which at its opposite ends engages lugs on the said levers 2 and 14 so that one and the same spring performs the double function of moving the ends of the levers 14 toward the drum 3^a and maintaining the levers 2 in constant contact with the levers 14.

I claim:

1. The combination, in a knitting machine, of a needle cylinder, a plurality of yarn guides independently movable into and out of operative relation with said needle cylinder, lever mechanism carrying said guides, a lever-actuating drum, a drum shaft mounted in fixed bearings adjacent to the knitting head, and a carrier for said lever mechanism, said carrier and the members of the lever mechanism which are acted upon by the drum having one and the same pivotal axis, which is independent of the axis of the drum shaft.

2. The combination, in a knitting machine, of a needle cylinder, a plurality of yarn guides independently movable into and out of operative relation with said needle cylinder, levers carrying said yarn guides, a lever-actuating drum, a drum shaft mounted in fixed bearings adjacent to the knitting head, and a movable carrier for the yarn guide levers, said carrier and levers being pivotally mounted upon one and the same axis, which is independent of the axis of the drum shaft.

3. The combination, in a knitting machine, of a needle cylinder, a plurality of yarn guides independently movable into and out of operative relation with said needle cylinder, lever mechanism carrying said yarn guides, a lever-actuating drum, a drum shaft mounted in fixed bearings adjacent to the knitting head, springs whereby the guide-carrying levers are normally actuated so as to move the guides to operative position, and a carrier for said lever mechanism, said carrier and the lever members which are acted upon by the drum having one and the same pivotal axis, which is independent of the axis of the drum shaft.

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

ROBERT W. SCOTT.

Witnesses:
D. B. WILLIAMS,
W. L. TOY.