

P. ABBOTT.
CAM CYLINDER FOR KNITTING MACHINES.
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933,814.

Patented Sept. 14, 1909.

Fig. 1.

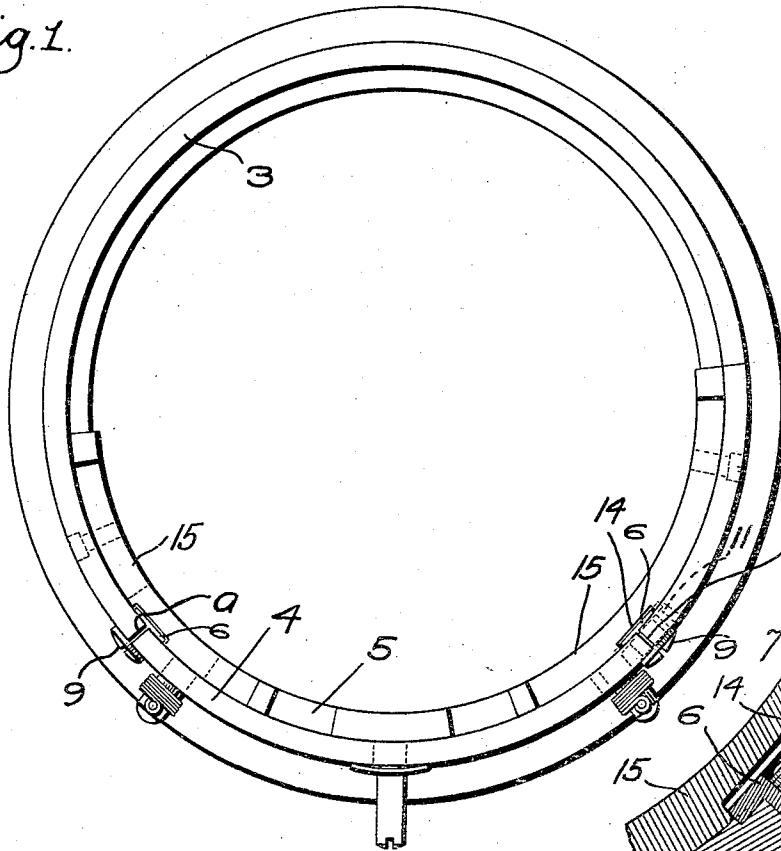


Fig. 2.

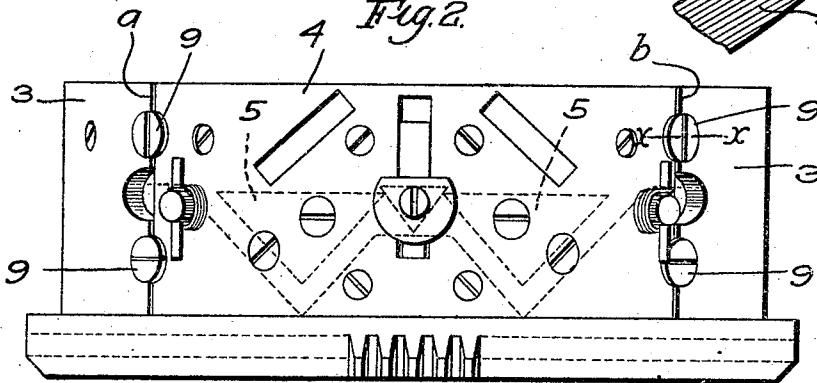


Fig. 4.

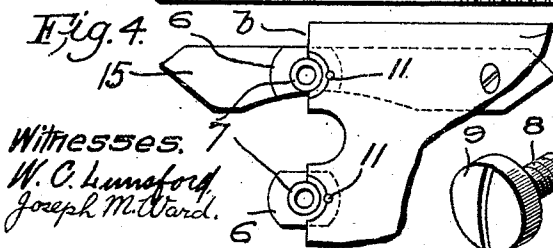
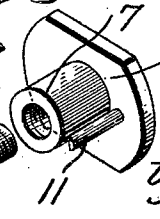


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

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CAM-CYLINDER FOR KNITTING-MACHINES.

933,814.

Specification of Letters Patent. Patented Sept. 14, 1909.

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To all whom it may concern:

Be it known that I, PETER ABBOTT, a citizen of the United States, residing at Franklin, county of Merrimack, and State of New Hampshire, have invented an Improvement in Cam-Cylinders for Knitting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to cam cylinders for knitting machines. It is now the somewhat common practice to make cam cylinders for knitting machines in two sections, one of which is removable from the other, said removable section being that portion of the cam cylinder which has the needle-operating cams and switches located thereon. This construction has been adopted because the needles are apt to jam and become stuck in passing through the raceways of the stitch cams and other needle-operating cams, and by making that portion of the cylinder having said cams thereon removable from the main portion of the cylinder, ready access to the cams can be secured for releasing the jammed needles therefrom by simply removing the removable section from the cylinder.

Furthermore the needle-operating cams are the parts that are subjected to the greatest wear and are most likely to become broken, and by making the section of the cylinder carrying these cams removable, the repair or renewal of the worn or broken parts is facilitated.

Heretofore in making the sectional cam cylinders, it has been customary to first cast the cylinder complete and then to remove a portion thereof at the place where the removable section is to be located and to make the removable section entirely separate from the cam cylinder. This operation necessarily involves the throwing away of the section of the cam cylinder which is removed to form a gap for the removable section, and the subsequent operation of building or making a new cylinder section to fit into the gap in the cylinder. A cam cylinder made in this way is shown in United States Patent No. 360,430, dated April 5, 1887, granted to L. F. Grammes.

In accordance with my invention, I have provided a construction wherein a sectional cam cylinder can be made by first cutting or removing a section of the complete cylinder

and then replacing said removed section back in the cylinder again to form the removable section, said removable section preferably having thereon the needle-operating cams or other parts that are liable to become worn or clogged. In this way a sectional cylinder can be made from the cam cylinder as it is first cast and without discarding or wasting any portion of the cam cylinder.

The invention also involves a novel means of detachably securing in place the section of the cam cylinder which has been cut therefrom, as will be more fully hereinafter described and pointed out in the claims.

In the drawings wherein I have shown the preferred embodiment of my invention, Figure 1 is a plan view of a cam cylinder embodying my invention; Fig. 2 is a front view thereof; Fig. 3 is an enlarged section on the line *x-x*, Fig. 2; Fig. 4 is a view showing one edge of the main portion of the cam cylinder at the point where it joins the removable section; Fig. 5 is a perspective view of the fastening means for securing the two sections together.

The cam cylinder when completed comprises the main section 3 and the removable section 4, and it has on its inside a plurality of needle-operating cams 5 shown in dotted lines Fig. 2, which may have any suitable or usual construction. The cam cylinder is made with the removable section 4 by first casting or otherwise making an integral cylinder and then sawing or cutting said cylinder on the lines *a* and *b* to divide the cylinder into the two sections 3 and 4. After the cylinder has thus been divided into two sections, the section 4 which has been removed from the cylinder is put back in place again and is removably sustained in place by suitable mechanism which will be presently described.

The removable section 4 has on its inner side the usual cams 5 and switches or latches for directing the needles into the raceway between the cams. For connecting the removable section 4 to the main section 3, I have shown the clamping device in Fig. 5 which consists of a nut having a flat head 6 and a hub 7 provided with a screw-threaded opening and a clamping screw having a screw-threaded shank 8 to screw into the hub 7 and a head 9. The clamping nut is secured to and sustained by the main portion of the cylinder 3 at the edge where said cylinder

meets the end of the section 4, said nut being held in such a position that when the two parts of the cylinder are together, the head 6 of the nut will overlie both the main section 3 and the removable section 4 of the cylinder, as seen in Figs. 3 and 4, and the head 9 of the screw is large enough so that when it is screwed into place it will overlie the edges of the main section 3 and removable section 4, as also seen in Fig. 3. The adjacent or meeting edges of the sections 3 and 4 are each provided with half recesses to receive the hub 7. The nut may be permanently secured to the fixed portion 3 by any suitable means, and as one convenient method for securing this end I have shown the head of the nut as provided with a dowel pin 11 which extends parallel to the hub 7 and which extends through an aperture in the main section 3, as clearly seen in Figs. 3 and 4. Any number of these clamping devices necessary may be used, and I have herein shown four, two on each side of the removable section. Each clamping device has the construction shown in Fig. 5. It will be noted that the heads of both the nuts and the screws are comparatively flat, so that when the clamping devices are in place, they do not appreciably project beyond the cam cylinder, nor do they interfere in any way with the placing of the needle-operating cams in any desired position.

As shown in Figs. 1 and 3, a cam 15 overlies both the main section 3 and the removable section 4, said cam also overlying the head 6 of the clamping nut. Where it is necessary to thus position the cam, the said cam may be cut out or recessed slightly, as at 14, to receive the head 6, but the presence of the clamping member does not interfere in any way with the proper use of the cam.

Whenever it is desired to remove the section 3 for any purpose, it is simply necessary to unscrew the clamping screws from the clamping nuts, when the section 4 is free to be removed from the cylinder. The removing of said section, however, does not disturb the positions of the clamping nuts as they are permanently secured in the main section 3 of the cylinder by the dowel pins 11. With my invention, therefore, it is possible to make a sectional cylinder out of an integral cylinder by simply cutting the integral cylinder at the desired points to form a removable section of the desired size and then securing the portion of the cylinder thus removed back in place again by means of the clamping mechanism shown.

I have not attempted to illustrate herein all embodiments of my invention, but have shown in the drawings merely the preferred

embodiment which is sufficient to illustrate the principle of the invention.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a cam cylinder for knitting machines, the combination with a main section and a removable section, of a clamping nut carried by the main section and adapted to engage the removable section and a clamping screw cooperating with said nut and having a head to engage both sections of the cylinder.

2. In a cam cylinder for knitting machines, the combination with a main section and a removable section, of a clamping nut having a shank occupying a recess formed partly in the edge of the main section and partly in the edge of the removable section and having a head overlying both the main and the removable section, and a clamping screw engaging said nut and having a head to engage the outer face of the two sections.

3. In a cam cylinder, the combination with a main section and a removable section, of a plurality of clamping devices for detachably securing the removable section to the main section, each clamping device comprising a clamping nut having a flat head to overlie the inner sides of the main and removable sections and an internally-threaded shank received partly in a recess formed in the edge of the main section and partly in a recess formed in the edge of the removable section, and a clamping screw engaging said shank and having a head to engage the outer faces of the main and removable sections.

4. In a cam cylinder, the combination with a main section and a removable section, of a plurality of clamping devices for detachably securing the removable section to the main section, each clamping device comprising a clamping nut having a flat head to overlie the inner sides of the main and removable sections and an internally-threaded shank received partly in a recess formed in the edge of the main section and partly in a recess formed in the edge of the removable section, a clamping screw engaging said shank and having a head to engage the outer faces of the main and removable sections, and a dowel pin extending from the head of the nut into the main section.

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

PETER ABBOTT.

Witnesses:

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STEPHEN S. JEWETT.