W. T. BARRATT.

SINKER WHEEL MECHANISM.

APPLICATION FILED JAN. 2, 1914.

1,140,098.

Patented May 18, 1915.

2 SHEETS—SHEET 1.

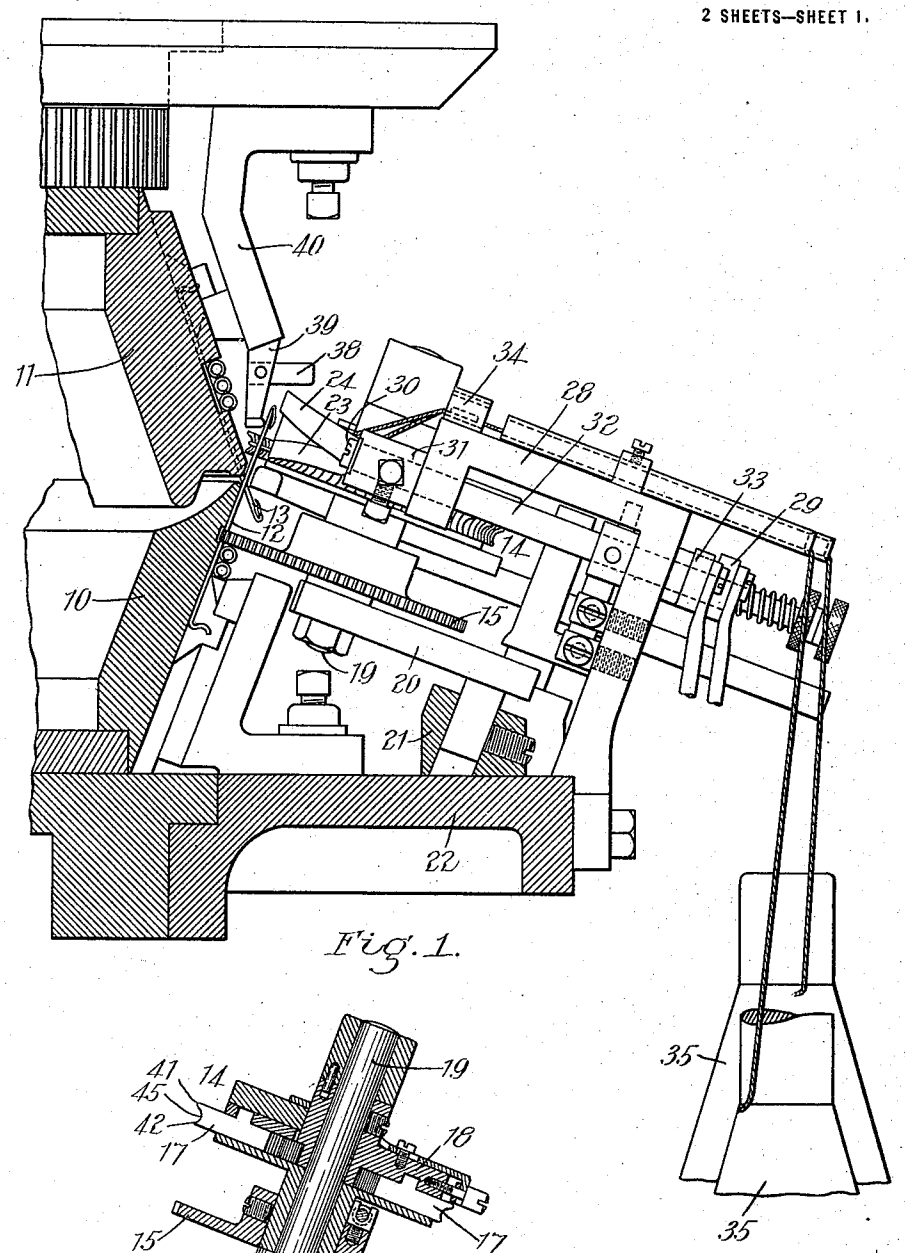


Fig. 1.

Fig. 2.

Witnesses.
Franklin E. Low.
Leonard A. Powell.

Inventor:
William T. Barratt,
by his attorney,
Charles N. Goodwin.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

W. T. BARRATT.

SINKER WHEEL MECHANISM.

APPLICATION FILED JAN. 2, 1914.

1,140,098.

Patented May 18, 1915.

2 SHEETS—SHEET 2.

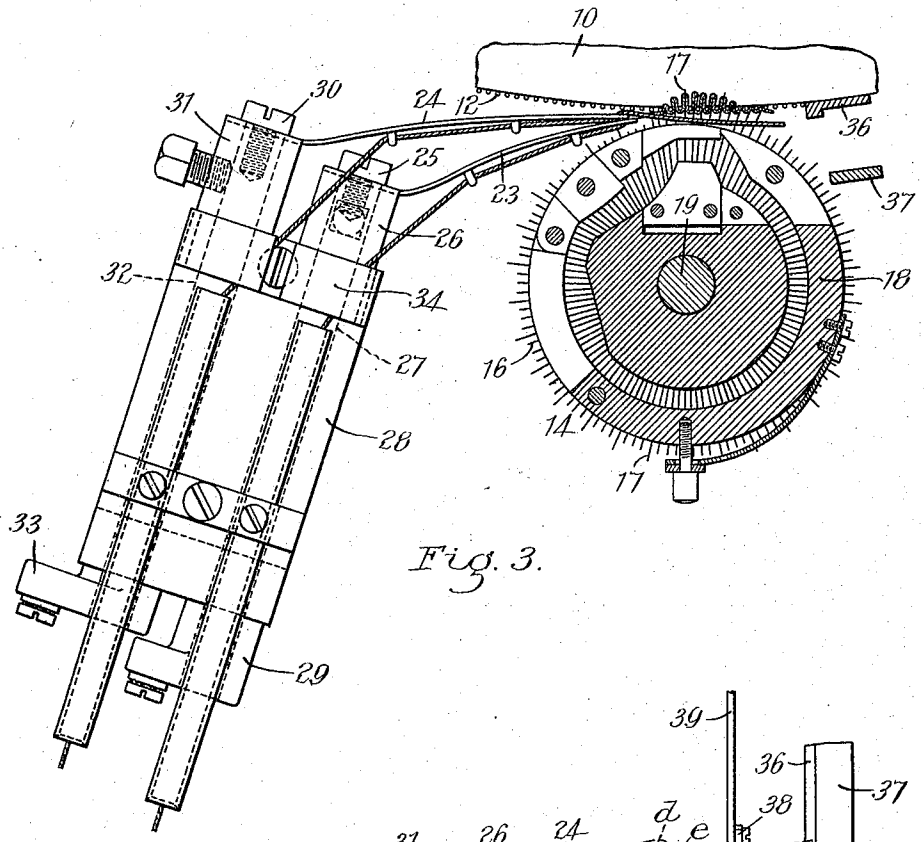


Fig. 3.

Fig. 5.

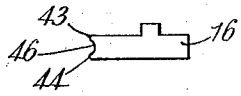


Fig. 6.

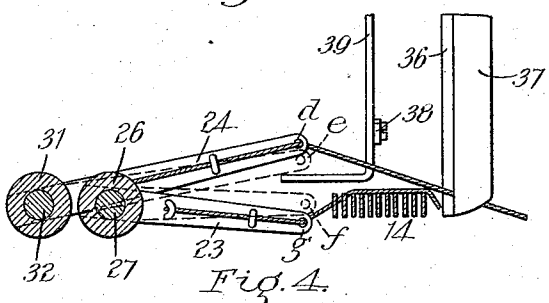


Fig. 4.

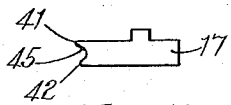


Fig. 7.

Witnesses.

Franklin E. Low.

Leonard A. Powell.

Inventor:

William J. Barratt,

by his attorney, Charles N. Gooding.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM T. BARRATT, OF BENNINGTON, VERMONT, ASSIGNOR OF ONE-THIRD TO ANNIE COOPER, ONE-THIRD TO ALEXANDER J. COOPER, AND ONE-THIRD TO ELIZABETH COOPER STODDARD, ALL OF BENNINGTON, VERMONT.

SINKER-WHEEL MECHANISM.

1,140,098. Specification of Letters Patent. Patented May 18, 1915.

Original application filed October 19, 1912, Serial No. 726,668. Divided and this application filed January 2, 1914. Serial No. 809,897.

To all whom it may concern:

Be it known that I, WILLIAM T. BARRATT, a citizen of the United States, residing at Bennington, in the county of Bennington and State of Vermont, have invented new and useful Improvements in Sinker-Wheel Mechanism, of which the following is a specification.

This invention relates to an improved sinker wheel mechanism and embodies a sinker wheel mechanism which is set forth in a companion application filed by me October 19, 1912, Serial No. 726,668, and is divided out of said case as being of general application.

The object of the invention is to provide a sinker wheel which will pick up the loose end of a yarn leading from a yarn guide and feed the same to the needles of a knitting machine.

The device of this invention is particularly adapted to be used in machines in which there is a plurality of yarn guides which alternately feed yarn to the needles of the knitting machine in order to obtain a striped effect in the knitted goods. Heretofore it has been customary in spring needle knitting machines for producing striped goods to cut the yarn off and hold the end of the yarn thus cut when the change is made from one yarn to another, but the device of this invention is capable of picking up the loose free ends of the yarns from the different yarn guides without its being necessary to hold said free ends, and this is accomplished by making the projections on the upper ends of some of the sinkers longer than the projections on the sinkers adjacent thereto and by suitable movements of the yarn guides the free ends of the yarn will be gathered in by these projections on the sinkers and carried into alinement with the remainder of the sinkers, whereupon said free ends of the yarns will be fed to the needles of the machine.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a sectional elevation of a portion of a knitting machine with my improved sinker wheel mechanism attached thereto. Fig. 2 is a detail sectional elevation of the sinker wheel and stand. Fig. 3 is a sectional plan of the sinker wheel with the yarn guides and a portion of a needle cylinder shown in connection therewith, together with the cutters which are also shown in section. Figs. 4 and 5 are sectional elevations illustrating the yarn guides in different positions. Fig. 6 is a front elevation of one form of sinker; and Fig. 7 is a front elevation of another form of sinker used in my improved sinker wheel.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 and 11 are the needle cylinders and 12 and 13 the needles thereon. Said needles are operated to slide in grooves in the needle cylinders in a manner well known to those skilled in the art.

The sinker wheel 14 is substantially the same in construction and operation as that set forth in Patent No. 864,354 issued to me August 27, 1907, to which reference may be had. Said sinker wheel is rotated by means of a gear 15 which meshes into the needles 12 and is driven thereby. The sinkers 16 and 17 are moved in the grooves of the sinker wheel by the rotation of said sinker wheel and by a cam 18 which is fastened to a stud 19 supported upon a stand 20, this stand being fastened to a bracket 21 which, in turn, is fastened to the frame 22 of the machine.

The particular construction and arrangement of the sinkers 16 and 17, whereby the loose end of the yarn is carried by the sinkers 17 into the path of the other sinkers 16 and in between the needles constitutes the novel feature of my invention; said novel feature further consists in the combination of the sinkers with the yarn guides and the particular manner in which said sinkers cooperate with the yarn guides to feed a loose end of the yarn to the primary needles. In this embodiment of my invention there are two yarn guides 23 and 24. The yarn guide 23 consists of a thin strip of metal fastened by a screw 25 to a hub 26. Said yarn guide is fastened, as a whole, to a rock-shaft 27 adapted to rock in suitable bearings in the bracket 28 which is, in turn, fastened to the frame of the machine. A rocking movement is imparted to the rock-shaft 27 by suitable mechanism connected to an arm 29 fast to said rock-shaft, whereby a vertical

rocking movement is imparted to the yarn guide 23. The yarn guide 24 consists of a thin strip of metal which is fastened by a screw 30 to a hub 31 which, in turn, is fastened to a rock-shaft 32 adapted to rock in bearings provided in the bracket 28 and to which a rocking movement is imparted by suitable mechanism connected to a rocker-arm 33, which is fast to said rock-shaft 32. A suitable tension device 34 is fastened to the bracket 28 intermediate the yarn guides and the bobbins 35. This tension device serves the purpose of preventing the yarn from feeding too freely to the yarn guides and also, after the yarn has been cut by the severing device hereinafter referred to, prevents the weight of the yarn from the bobbin pulling said yarn out of position to be operated upon when it is desired to again feed the same to the needles.

It will be understood that when one of the yarn guides carries its respective yarn out of operative position relatively to the needles, said yarn is cut off, and this cutting operation is performed by a cutting mechanism consisting of a stationary blade 36 and a movable blade 37. The movable blade is operated by suitable mechanism, not shown in the drawings but fully illustrated in said application hereinbefore referred to.

In order to prevent the free end of the yarn after it has been severed by the cutting mechanism from springing upwardly and being thrown over one of the yarn guides 23 or 24, a yarn guard 38 is provided which is fastened to a needle support 39 which, in turn, is fast to a bracket 40. When the yarn is cut by the mechanism hereinbefore described, the free end of said yarn will drop downwardly into substantially the position illustrated in Figs. 3 and 5 and the yarn thus cut off is held out of the path of the sinkers by the raised position of its respective yarn guide.

In order to insure the yarn being fed to the needles when the yarn guide is lowered and in proper position therefor a certain number of the sinkers, namely, the sinkers 17 are constructed with a projection 41 thereon. This projection 41 is provided on each of the sinkers 17 and extends beyond the outer ends of the sinkers 16 adjacent thereto. Preferably every fourth sinker in the device of this invention is made with the projection 41 in accordance with the construction illustrated in Fig. 7, while the other sinkers are made in the usual manner and as illustrated in Fig. 6. Thus a plurality of sinkers on the sinker wheel 14 have a projection on their outer ends adjacent to the upper edge thereof, which projection is longer than the projections on the sinkers adjacent thereto and preferably each of the sinkers is provided with two projections, 41 and 42 on the sinkers 17 and 43 and 44 on the sinkers 16 with a notch 45 between the projections 41 and 42 and a notch 46 between the projections 43 and 44, the upper projection on the sinkers 17 being longer than the lower projection and longer than the upper projections on the ends of the sinkers 16.

The yarn guides during the different movements of the knitting machine occupy four positions indicated as *d*, *e*, *f* and *g* in Figs. 4 and 5. During the operation of the machine when one of the yarn guides is in operative position and the other in inoperative position, said yarn guides will occupy the positions *e* and *f*, as illustrated in full lines (Fig. 5). At that time the yarn guide occupying the position *f* is feeding yarn to the sinkers and needles, while the yarn guide occupying the position *e* is out of operative position and the yarn is hanging down with its free end lying along the tops of the sinkers. When the change in position of the yarn guides hereinbefore described occurs, the yarn guide occupying the position *f* is carried upwardly to the position *d*, thus carrying the yarn between the cutters ready to be cut; immediately after arriving at the position *d*, the yarn guide will drop to the position *e* and at this time the severing of the yarn will take place. While this operation is taking place with one of the yarn guides the other yarn guide will move from the position *e* to the position *g* and this carries the free end of the yarn down into the position illustrated in Fig. 4, so that it will be engaged by the projection 41 on the sinker 17 and held down in the path of the sinkers adjacent thereto. As soon as the yarn has been engaged by said projection 41 and carried into the path of the sinkers adjacent thereto, the yarn guide will rise from the position *g* to the position *f* and the yarn will then be taken by the sinkers 16 and 17 and fed to the needles in the usual manner.

The different positions of the yarn guides hereinbefore referred to are obtained by means of suitable cams embodied in the mechanism whereby the yarn guides are operated and in said operation the yarn guide is first raised to the position *d* and then dropped to the position *e*, the purpose of this throw being to insure the yarn which is thrown out of operation being lifted out of path of the needles and the returning slight movement of the yarn guide to the position *e* is for the purpose of giving the yarn slack while it is being cut by the cutters 36 and 37.

It will be understood that after the yarn has been severed the loose end thereof will fall approximately into the position illustrated in Fig. 5, the free end of the yarn falling over the ends of the sinkers and along their upper edges. If when the yarn has been severed, as hereinbefore set forth, the free end should fly upwardly instead of falling downwardly, then said free end

would strike the yarn guard 38, as illustrated in dotted lines (Fig. 5), which would keep said free end from being thrown over the yarn guides 23 or 24, as the case might be, and subsequently the free end of the yarn would drop down into the position illustrated in Fig. 5 and lie along the upper edges of the sinkers. Each time that the yarn guides change position one yarn is cut off by the cutters.

Having thus described my invention, what I claim and desire, by Letters Patent, to secure is:

1. A sinker wheel constructed and arranged to feed yarn to the needles of a knitting machine, a plurality of sinkers thereon, each of said sinkers having a projection on its outer edge adjacent to the upper edge thereof, said projection on a plurality of said sinkers being longer than the projection on the sinkers adjacent thereto whereby the free end of a yarn may be gathered in and carried by said sinkers having the longer projection into the path of the others of said sinkers.

2. A sinker wheel constructed and arranged to feed yarn to the needles of a knitting machine, a plurality of sinkers thereon, each of said sinkers having two projections on its outer edge with a notch therebetween, the upper projection on a plurality of said sinkers being longer than the upper projections on the ends of the sinkers adjacent thereto whereby the free end of a yarn may be gathered in and carried by said sinkers having the longer projection into the path of the others of said sinkers.

3. A sinker wheel constructed and arranged to feed yarn to the needles of a knitting machine and a plurality of sinkers thereon, a plurality of said sinkers each having a projection on its outer edge extending beyond the outer edges of the sinkers adjacent thereto whereby the free end of a yarn may be gathered in and carried by said sinkers having the longer projection into the path of the others of said sinkers.

4. A circular knitting machine having, in combination, a needle cylinder, a set of needles therefor, a sinker wheel constructed and arranged to feed yarn to said needles, a plurality of sinkers thereon, a plurality of said sinkers each having a projection on its outer edge extending beyond the outer edges of the sinkers adjacent thereto and a yarn guide adapted to guide yarn having a free end extending therefrom, into line with the ends of said sinkers, whereby said free end will be gathered in and carried by said sinkers having the projection aforesaid into the paths of the others of said sinkers.

5. A circular knitting machine having, in combination, a needle cylinder, a set of needles therefor, a sinker wheel constructed and arranged to feed yarn to said needles, a plurality of sinkers thereon, each of said sinkers having two projections on its outer edge with a notch therebetween, the upper projection on a plurality of said sinkers being longer than the upper projections on the outer edges of the sinkers adjacent thereto whereby the free end of a yarn may be gathered in and carried by said sinkers having the longer projections into the path of the others of said sinkers.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM T. BARRATT.

Witnesses:
ANNA V. MURPHY,
CHARLES S. KEHOE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."