

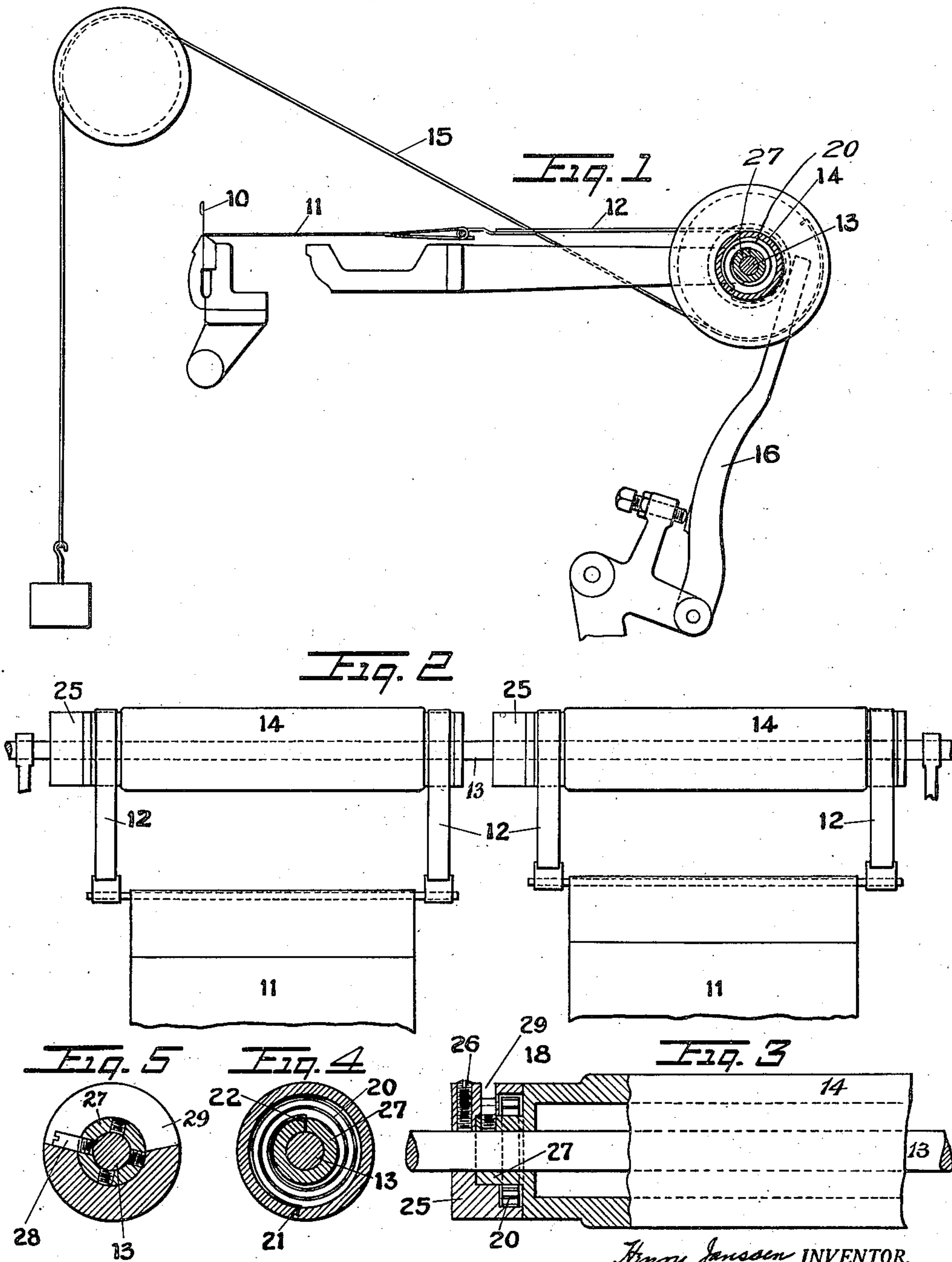
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TAKE-OFF MECHANISM FOR FULL FASHIONED KNITTING MACHINES

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Henry Janssen INVENTOR.

BY *J. H. Stewart*

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UNITED STATES PATENT OFFICE.

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TAKE-OFF MECHANISM FOR FULL-FASHIONED KNITTING MACHINES.

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To all whom it may concern:

Be it known that I, HENRY JANSSEN, a citizen of the United States, residing at Wyomissing, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Take-Off Mechanism for Full-Fashioned Knitting Machines, of which the following is a specification.

My invention relates to full fashioned knitting machines, and particularly to take-off mechanism for a plurality of stocking fabrics simultaneously knitted upon the several sections of such machines.

These machines commonly comprise a series of cooperating sections upon each of which a separate fabric is knitted from separate bobbin supplies, and a common rotary take-off shaft for all the sections carrying fixed reels for the several fabrics. In actual operation unavoidable differences occur in the several fabrics thus simultaneously produced, particularly as to the lengths of the fabrics, and the object of my invention is to provide improved take-off mechanism in which the take-off reels will be independently turnable upon the common shaft and the pull exerted thereby upon the different fabrics and needles be substantially equalized, notwithstanding such differences in the produced fabric and the usual operation of the common take-off shaft. The invention is fully set forth in connection with the accompanying drawings and clearly defined in the subjoined claims.

Fig. 1 is a diagrammatic view showing the usual relation of the fabric take-off mechanism to the knitting mechanism of a full fashioned machine; my improvement to the former being indicated in cross-section.

Fig. 2 is a longitudinal view of a portion only of the common take-off shaft; the application of my invention thereto being indicated by the showing of two adjacent independently turnable reels thereon with the separately attached fabrics.

Figs. 3, 4 and 5 illustrate the preferred yielding reel connection indicated in Figs. 1 and 2.

Fig. 1 indicates a usual mounting of the knitting needles 10; a knitting fabric 11 extending therefrom to the take-off band or bands 12; and the take-off shaft 13 with a reel 14 thereon upon which said take-off

band or bands are wound. As indicated this shaft 13 is rotated by a weighted drive belt 15; and all the take-off reels are ordinarily fixed rigidly to said shaft so as to exert a uniform take-off action upon all the fabric-attached bands regardless of any differences in the fabrics. The diagram also indicates a cam-operated lever 16 which has been heretofore employed to impart a reverse turning to the take-off shaft for relieving the pull upon the fabrics and needles during the narrowing operation.

This customary positive and uniform turning of all the take-off reels on the common shaft 13, obviously fails to provide for the fabric differences caused by unavoidable variations affecting particularly the lengths of the fabrics; and my invention consists in providing for independent turning of the several reels upon their common shaft whereby the take-off effect of the latter will be properly modified as called for by the separate fabrics simultaneously produced.

As particularly illustrated this relative turning of each reel upon its rotary shaft 13, which characterizes my invention, is permitted and controlled by a spring 20 which connects each loosely mounted reel to the shaft; the opposite terminals 21, 22 of the spring being respectively secured to the reel wall and to the shaft so that the desired relative turning movement of the reel on the shaft may be effected under control of the spring. As particularly illustrated the shaft is provided with a collar 25, which is fixed thereto by a set screw 26 and is recessed on its inner face to receive the spring 20 and engage its outer terminal 21; while the reduced cylindrical end 27 of the reel enters the bore of said collar and engages the inner terminal 22 of the spring; provision being also made for adjusting the normal tensioning of the spring, as by means of a stop 28 variably set in the inserted cylindrical end 27 of the reel and extending into a cross-wise slot 29, of the collar.

It will be readily seen that when the separate take-off reels are mounted upon the rotary shaft 13 so as to enable each to make a controlled independent turning movement on the latter as set forth, such independent turning movements will be automatically

made as are called for to maintain an approximately uniform pull upon the fabrics produced and the needles, notwithstanding differences in the fabrics which are apt otherwise to cause harmful pull upon the needles, as is indicated in Fig. 2 by the difference in the lengths of the two fabrics shown. The yielding of the separate reels in accord with such differences may obviously be provided for otherwise than has been specifically set forth without departing from my invention.

What I claim is:—

1. A fabric take-off mechanism for full-fashioned knitting machines comprising a rotated take-off shaft, a series of take-off reels independently turnable on said shaft, and separate fabric-tensioning reel connections to the common shaft whereby the turning of the several reels thereon is automatically varied to substantially equalize the take-off action of the shaft.

2. In a fabric take-off mechanism for full-fashioned knitting machines comprising a rotated take-off shaft; a series of take-off reels independently turnable on said shaft, each of said reels having a separate tensioned spring connection to the shaft whereby the turning movement of the several reels is automatically variable to substantially equalize the take-off pull of the shaft on the several fabrics.

3. In a fabric take-off mechanism for full-fashioned knitting machines comprising a rotated take-off shaft; a series of take-off reels independently turnable on said shaft, each of said reels having a spring connection to the shaft with means for separately adjusting the same to regulate the tension applied to the attached fabric.

In testimony whereof I affix my signature.

HENRY JANSSEN.