

(No Model.)

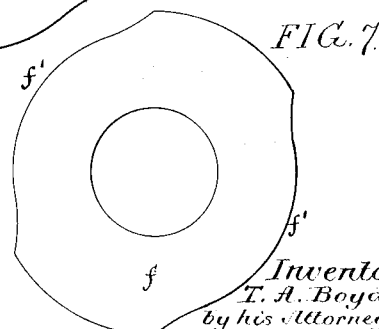
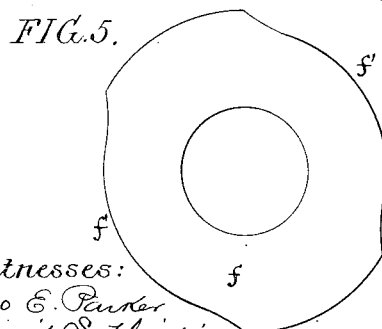
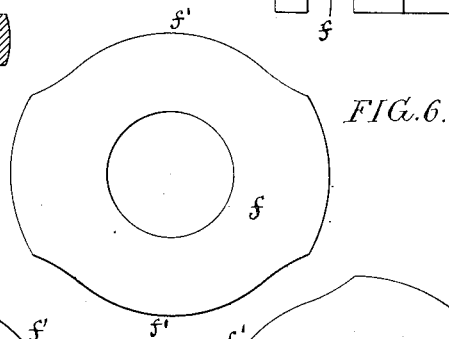
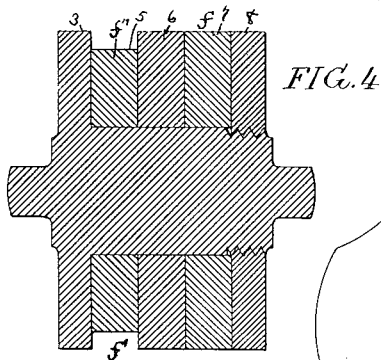
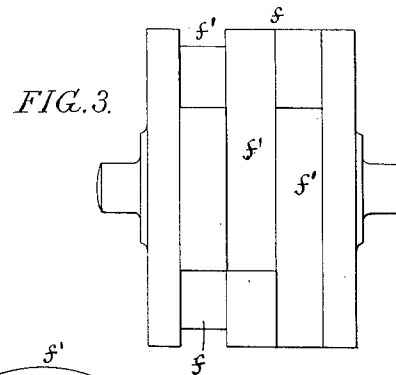
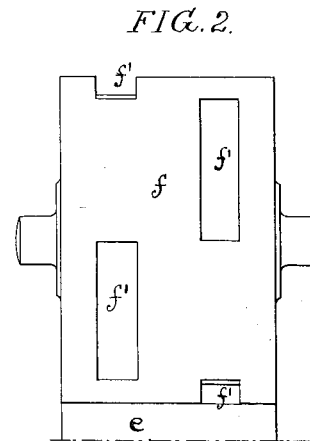
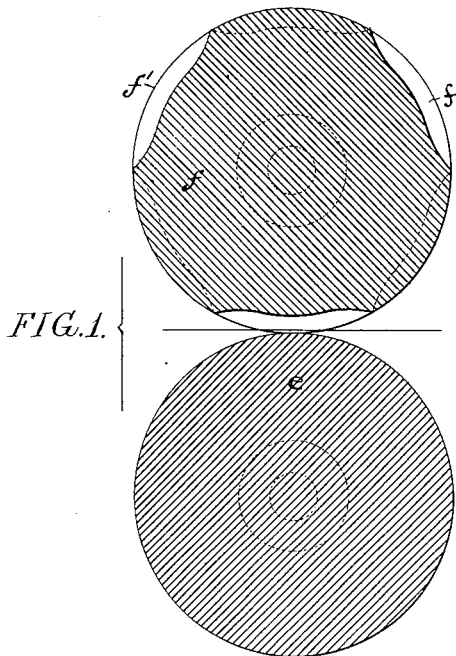
2 Sheets—Sheet 1.

T. A. BOYD.

FEED ROLLERS FOR MAKING FANCY YARNS.

No. 386,623.

Patented July 24, 1888.



Witnesses:  
Jno E. Parker  
David S. Williams.

Inventor:  
T. A. Boyd,  
by his Attorneys,  
Hewson & Hewson.

(No Model.)

2 Sheets—Sheet 2.

T. A. BOYD.

FEED ROLLERS FOR MAKING FANCY YARNS.

No. 386,623.

Patented July 24, 1888.

FIG. 9.

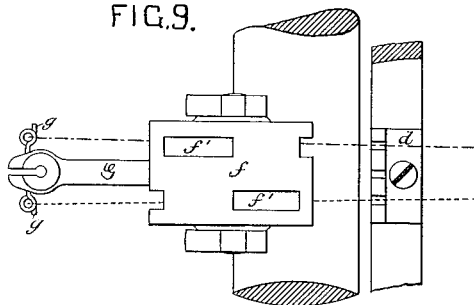


FIG. 8.

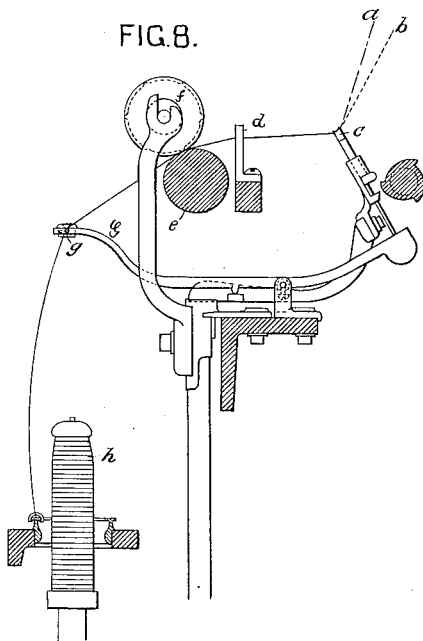


FIG. 10.



WITNESSES:

*B. Reynolds.*  
*W. Chas. Mills.*

INVENTOR,

*Thomas A. Boyd.*

BY

*Howson and Howson.*

HIS ATTORNEYS.

# UNITED STATES PATENT OFFICE.

THOMAS A. BOYD, OF GLASGOW, COUNTY OF LANARK, SCOTLAND.

## FEED-ROLLERS FOR MAKING FANCY YARNS.

SPECIFICATION forming part of Letters Patent No. 386,623, dated July 24, 1888.

Application filed November 10, 1887. Serial No. 254,750. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. BOYD, a subject of the Queen of Great Britain and Ireland, and a resident of Glasgow, county of Lanark, Scotland, have invented certain Improvements in Feed-Rollers for Making Fancy Yarns, of which the following is a specification.

The object of my invention is to provide improved and simplified means for producing variegated or fancy yarns—that is, yarns in which the twisting together of the component strands, instead of being uniform throughout, as with many ordinary yarns, is varied at intervals—as, for instance, that the yarn may vary in thickness or degrees of the twist, or so that when two or more strands are twisted together one or each of the strands may appear more on the surface of the yarn, or at some parts thereof than at others. Strands of such double yarn are very frequently different from each other in color or otherwise; but the same means may be employed where similar strands are used to give varying thicknesses to the yarns at intervals.

In carrying out my invention any suitable machine constructed for doubling or for the combined operation of doubling and twisting may be employed.

The desired effect is obtained by making one or both feed rollers of each pair with interrupted feed-surfaces, this being obtained by making one or more depressions in the surface of the roller or rollers. The two or more strands are guided so as to pass in contact with different portions of the feed-rollers, and the interruptions or depressions in the feeding-surface are made at parts of the roller-surfaces appertaining to the respective strands.

In the accompanying drawings, Figure 1 is a vertical section of a pair of feed-rollers embodying my invention, the upper one of the pair being shown as having the interruptions or depressions described. Fig. 2 is a face view of the upper roller and a portion of the lower roller. Fig. 3 is a face view of a roller built up of several parts in accordance with my invention for feeding three strands. Fig. 4 is a vertical section of the same. Figs. 5, 6, and 7 are views of the different disks of which the roller is built up. Fig. 8 is a partly-sectional view of sufficient of a ring twisting-machine to

illustrate the application of my invention. Fig. 9 is a broken plan view showing the feed-rollers and guides for the yarn drawn to a larger scale. Fig. 10 is a front view of the upper feed-roller and the bracket which carries it.

Referring to Figs. 8, 9, and 10, the two threads *a* and *b*, which are drawn from suitable cops or bobbins, (not shown,) and each slightly spaced, are kept separate until they pass through the curl-eyes *g* on the end of an arm, *G*, forming in this instance part of the stop-motion, (which it is not necessary to describe.) This arm projects in front of the feed-rollers *e* and *f*. The threads, after leaving the cops or bobbins, first pass separately through detectors *c* of the stop-motion, and then through the slots in the guide *d* and between the continuously-revolving roller *e* and the top roller, *f*. They then pass through the curl-eyes *g* and onto the twisting-bobbin *h*. The top roller, *f*, of the feed-rollers has two sets of interruptions or depressions, *f'*, alternating with each other, as shown in these figures, and also in Figs. 1 and 2, so that when the twisting is proceeding and the top roller, *f*, resting on the under roller, *e*, the yarns are delivered, excepting where the recesses or interruptions come, over the roller *e*. Then, the grip on the yarn being released, the yarn remains stationary for a short time until the interrupted portion comes over the lower roller and grips the yarn again. The effect of this is to give an intermittent delivery and produce a fancy yarn. The two sets of interruptions on the upper feed-roller being arranged to alternate with each other for the two yarns, the intermittent feeding of the two yarns also alternates, resulting in the production, by means of twisting or doubling, of a yarn with alternating variations.

The depressions in the feed roller or rollers may be variously arranged, and may be made to produce a great variety of effects. For instance, in Fig. 3 I have shown the roller as having three sets of depressions or interruptions for three yarns, the depressions for the different yarns being out of coincidence.

The roller may consist of a single piece, as illustrated in Figs. 1 and 2, or may be built up each of a number of disks or pieces, as illustrated in Figs. 3, 4, 5, 6, and 7; or there may be a distinct roller for each of the several

strands of a set which are to be twisted together; but in all cases the interruptions or depressions in the feed-surfaces for the different yarns are out of coincidence with each other.

When the roller is built up of a number of disks or pieces, they may be secured together by forming on an end disk, 3, or attaching to it, a spindle, 4, and then slipping onto the spindle the disks 5, 6, 7, and 8, which last is threaded to be screwed onto the threaded end of the spindle to hold the intermediate disks, 5, 6, and 7, which are formed with interruptions or depressions in them, as shown in Figs. 5, 6, and 7.

Thus, if two different-colored strands are being twisted together and are arranged to be acted on by feed-rollers with depressions for one strand coinciding with the undepressed parts for the other strand, the strands will be fed forward alternately. When one strand is being fed forward, the other is left stationary, in consequence of which the fed strand will be twisted around the unfed strand and will show more on the surface. As the twisting

and winding proceed the continued rotation of the feed-rollers will cause the feeding and non-feeding actions to be interchanged as regards the strands, and the strand which showed most on the surface will then become what may be termed the "inner" strand and the previously inner strand will become the outer one.

I claim as my invention—

1. The herein-described feed rollers for doubling or doubling and twisting machines, one or both of said rollers having interrupted feed-surfaces, the interruptions for the different yarns being out of coincidence.

2. The herein-described feed rollers for doubling or twisting and doubling machines, one or both of said rollers having two or more sets of depressions out of coincidence with each other for different yarns.

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

T. A. BOYD.

Witnesses:

ALEXANDER D. YOUNG,  
JAMES J. INGLIS.