

(No Model.)

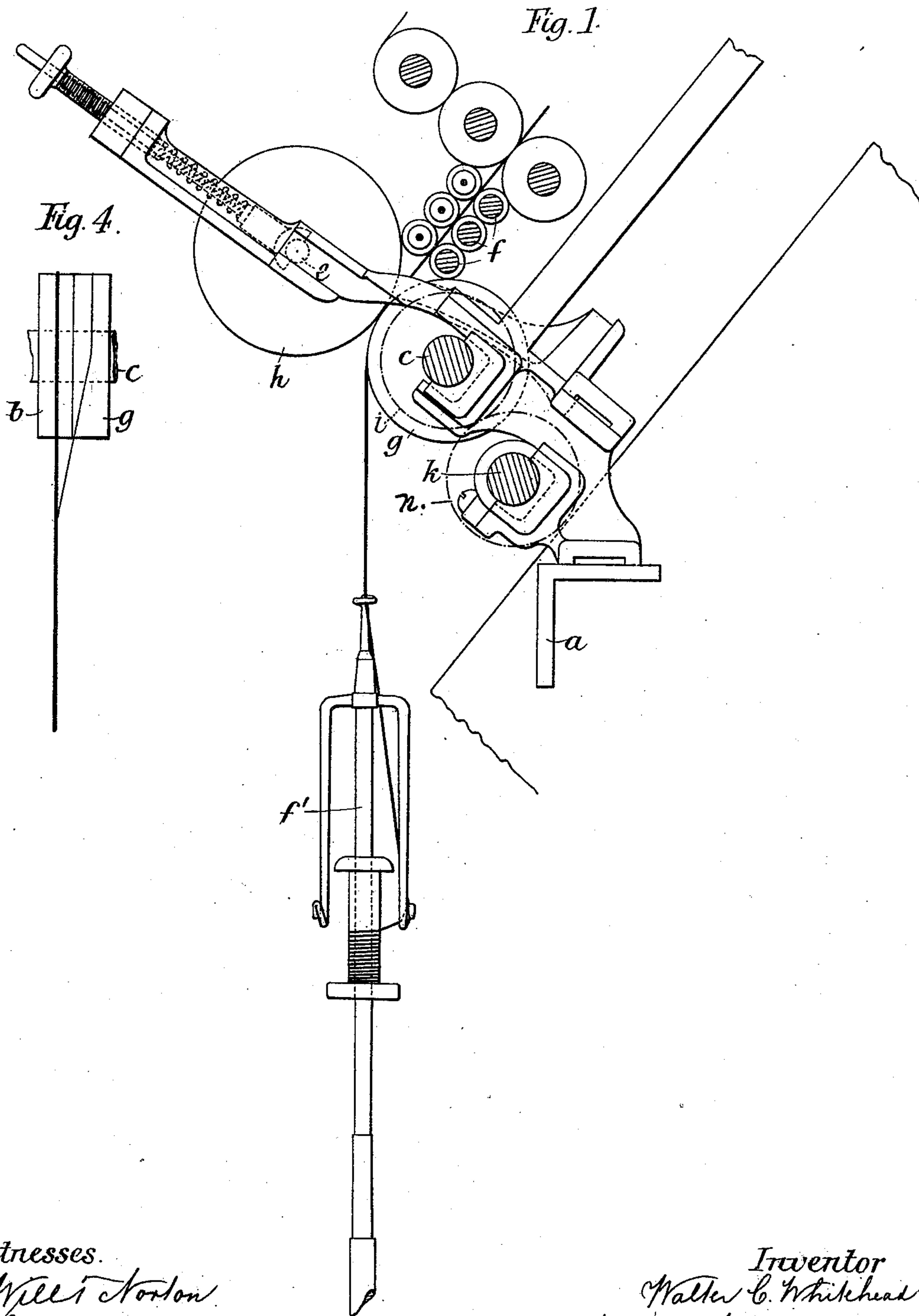
2 Sheets—Sheet 1.

W. C. WHITEHEAD.

DEVICE FOR THE MANUFACTURE OF UNION AND FANCY YARNS.

No. 420,669.

Patented Feb. 4, 1890.



Witnesses.

Williston  
G. M. Coppenhaver.

Inventor  
Walter C. Whitehead  
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his Attys.

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Fig. 3

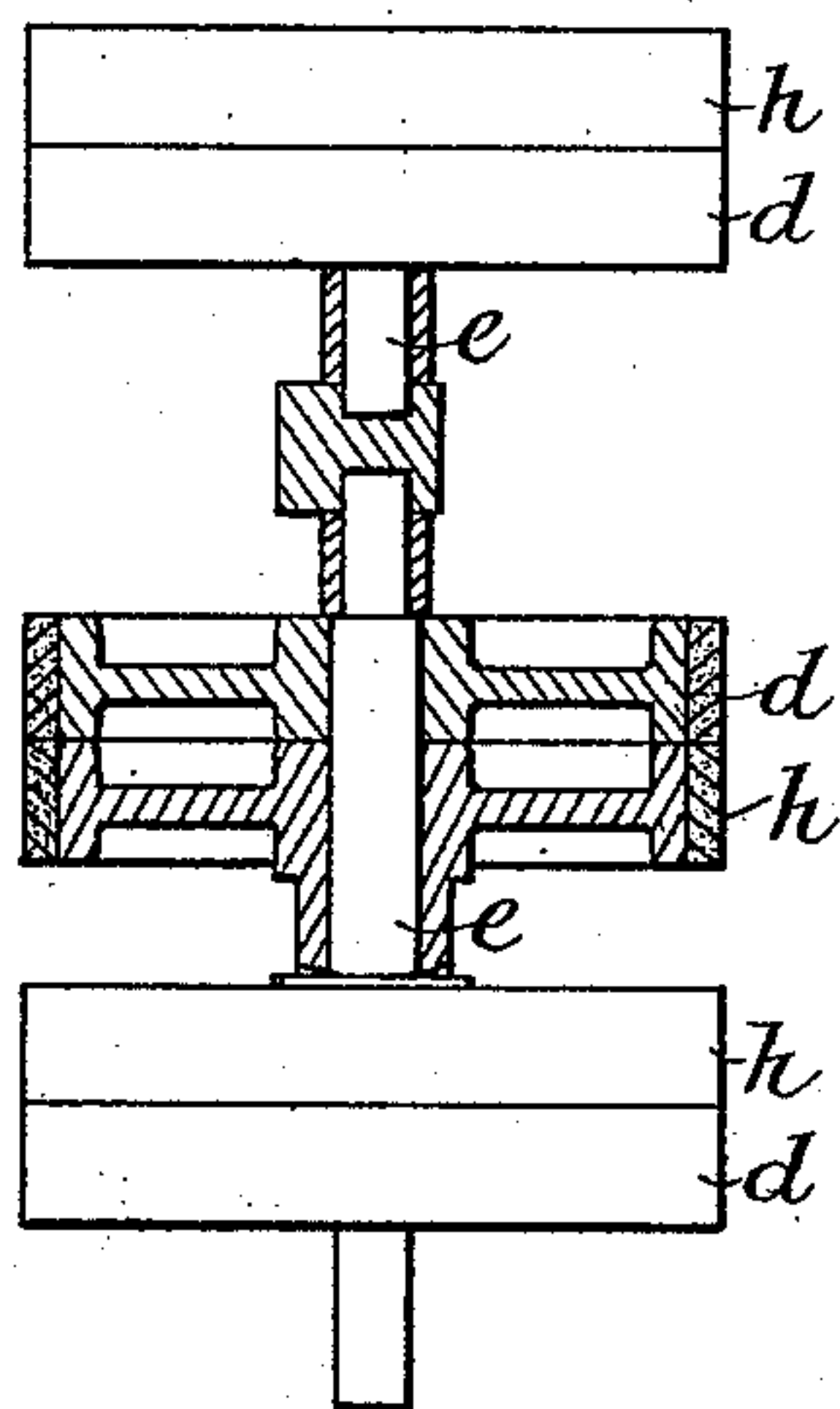
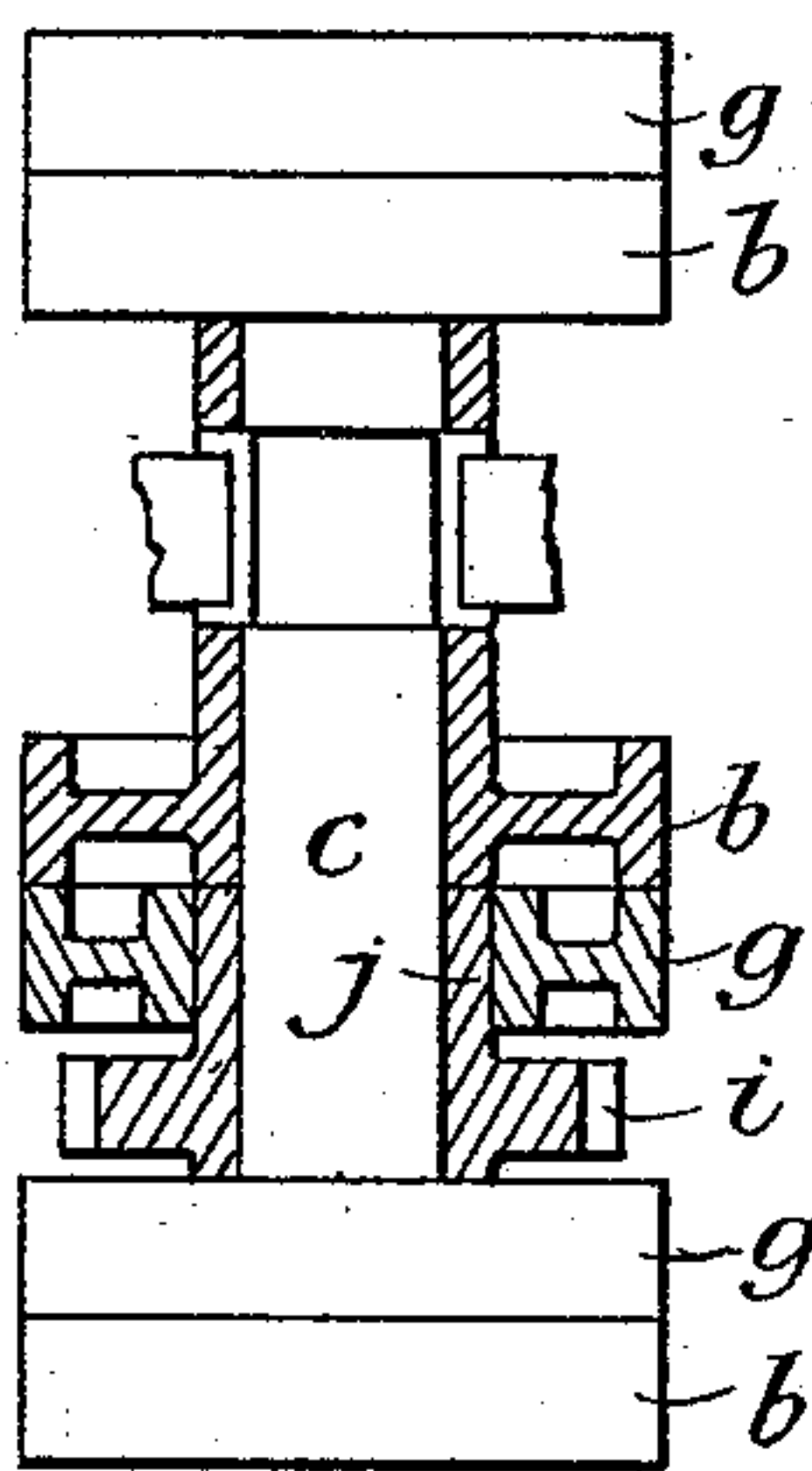


Fig. 2.



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# UNITED STATES PATENT OFFICE.

WALTER CHARLES WHITEHEAD, OF BRADFORD, ENGLAND, ASSIGNOR TO  
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## DEVICE FOR THE MANUFACTURE OF UNION AND FANCY YARNS.

SPECIFICATION forming part of Letters Patent No. 420,669, dated February 4, 1890.

Application filed July 22, 1889. Serial No. 318,289. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER CHARLES WHITEHEAD, a subject of the Queen of Great Britain, residing at Frizinghall, Bradford, England, have invented new and useful Improvements in Devices for the Manufacture of Union and Fancy Yarns, of which the following is a specification.

My invention relates to the manufacture of union yarn (that is to say, a yarn the interior or core of which is of lower quality than the exterior or covering) and fancy yarns from silk, wool, cotton, jute, mohair, alpaca, and other fibers, either alone or in combination, and to apparatus therefor.

Hitherto in manufacturing union yarn the silk or other covering commonly has been applied during the twisting or rotation of a yarn or core to be covered, the rotation of the said core in such case being alone depended upon for unwinding the covering material or yarn from the reel or bobbin upon which it was wound. Union yarn manufactured according to this usual method is tight and hard, and the core is often imperfectly covered, owing to the tension of the covering-yarn at the time of its application to the core and to the degree of tightness to which the core must be twisted before it can draw the covering-yarn.

The object of my invention is to produce union yarn which is soft and yielding, and the covering of which is well and evenly laid and looped, Astrachan and other fancy yarns; and to this end I provide for positively feeding the covering or loop yarn at any desirable speed, as hereinafter described.

In the accompanying drawings, Figure 1 is a sectional end elevation of part of a throstle-spinning machine having applied thereto mechanism suitable for carrying out my invention. Figs. 2 and 3 are sectional plans of parts of such mechanism. Fig. 4 is a view of a detail.

Similar letters of reference indicate corresponding parts throughout the drawings.

*a* indicates so much of the frame of the machine as is necessary to illustrate the application of my invention thereto.

*b b*, Fig. 2, are lower front roller-bosses,

which are mounted on the shaft *c* and adapted to rotate therewith.

*d d*, Fig. 3, are presser-rollers loosely mounted on the shafts *e e* and covered with leather or other suitable material.

*f f* are drawing-rollers, and *f'* is a spindle, all the said parts being of ordinary construction.

*g g*, Fig. 2, are auxiliary bosses, which, according to my invention, are arranged beside the bosses *b b*; and *h h*, Fig. 3, are auxiliary presser-rollers similar to the rollers *d d*, running freely on the shafts *e e* in conjunction with the rollers *g g*. The rollers *g g* are advantageously arranged in pairs, each pair being driven through the medium of a gear-wheel *i*, as shown in Fig. 2, the roller-bosses being carried upon the hub *j* of the said wheel, which is elongated upon both sides. Motion is communicated to the gear-wheels *i* from gear-wheels *n* on an intermediate shaft *k*, as indicated in Fig. 1.

In operation each yarn to be covered or have loops formed upon it is led between one pair of rollers or bosses—say *b d*—and the covering-yarn or the yarn to be looped through the other pair—say *g h*—the two yarns or threads as they come from between the rollers being united or twisted together, as shown in Fig. 4, by a spindle, as shown in Fig. 1. It is obvious that as the bosses *b b* are driven by the shaft *c* and the auxiliary bosses *g g* from the shaft *k* the bosses *b* and *g* may be driven at any required speeds relatively to each other. The two yarns to be united can thus be delivered at their proper relative speeds, according to the amount of silk or other covering material to be laid upon a given length of core, or to the number of loops to be formed on a given length of yarn.

The drawing-rollers and other rollers through which the threads pass may be divided or arranged in conjunction with auxiliary rollers in the manner hereinbefore described.

In manufacturing union yarn I prefer to employ a twisted yarn for the core, and in applying the covering to slightly untwist the said core, (by winding on the said covering in the opposite direction to that in which the



core is twisted,) so that the natural tendency of the core to retwist itself slightly untwists the covering-yarn, which thus lies lightly yet tenaciously upon the core.

5 Although I have described my improvements as applied to a throstle-spinning machine, it is to be understood that they are equally applicable to roving, doubling, and  
10 twisting machines and to mule-spinning machines working on what is known as the "French system," and indeed to any style of spinning-frames in present use.

Having now particularly described and ascertained the nature of my said invention  
15 and in what manner the same is to be performed, I declare that what I claim is—

1. In a spinning-machine, the combination, with the shaft *c* and with the ordinary bosses or rollers thereon, of auxiliary bosses arranged  
20 beside the same on shaft *c* and adapted to deliver the yarns or threads to be twisted at any desired speeds relatively to each other, and of means for driving said bosses, substantially as set forth.

25 2. In a spinning-machine, the combination,

with the shaft *c* and with the ordinary bosses or rollers thereon, of auxiliary bosses arranged beside the same on said shaft and adapted to deliver the yarns or threads to be twisted at any desired speeds relatively to each other, 30 pressure-bosses, and means for driving the auxiliary bosses, substantially as set forth.

3. The combination, with a spindle, of the shaft *c*, carrying the bosses *b b*, and the gear *i*, fitted to turn upon said shaft and having 35 the bosses *g g* connected therewith, as described.

4. The combination, with a spindle, of the shaft *c*, carrying the bosses *b b*, the gear *i*, fitted to turn upon said shaft and having the 40 bosses *g g* connected therewith, the shaft *e*, carrying the bosses *d d*, and the bosses *h h*, fitted to turn upon said shaft *e*, as described.

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