

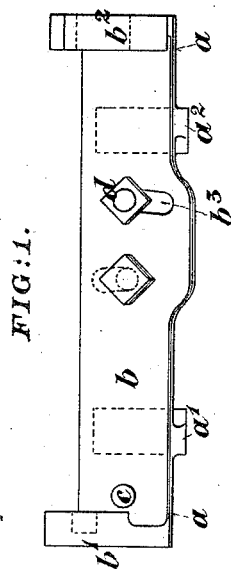
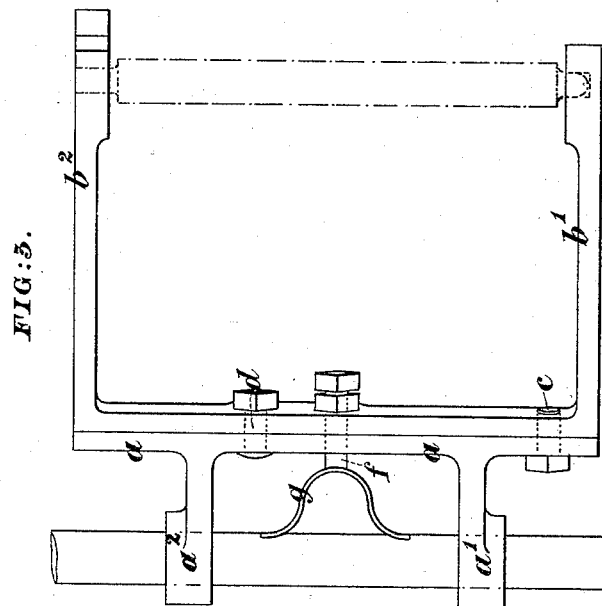
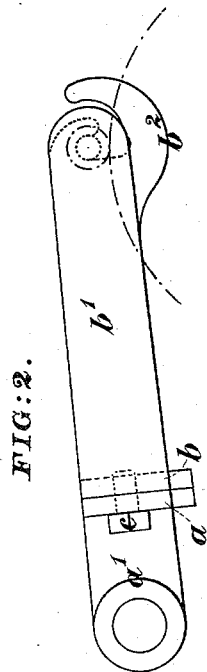
(No Model.)

3 Sheets—Sheet 1.

R. BROADBENT.  
MACHINE FOR WINDING YARN OR THREAD.

No. 493,970.

Patented Mar. 21, 1893.



Witnesses.

James Grace  
S. C. Connor

Inventor.

Robert Broadbent  
by his Attorneys  
Hawes and Hawes

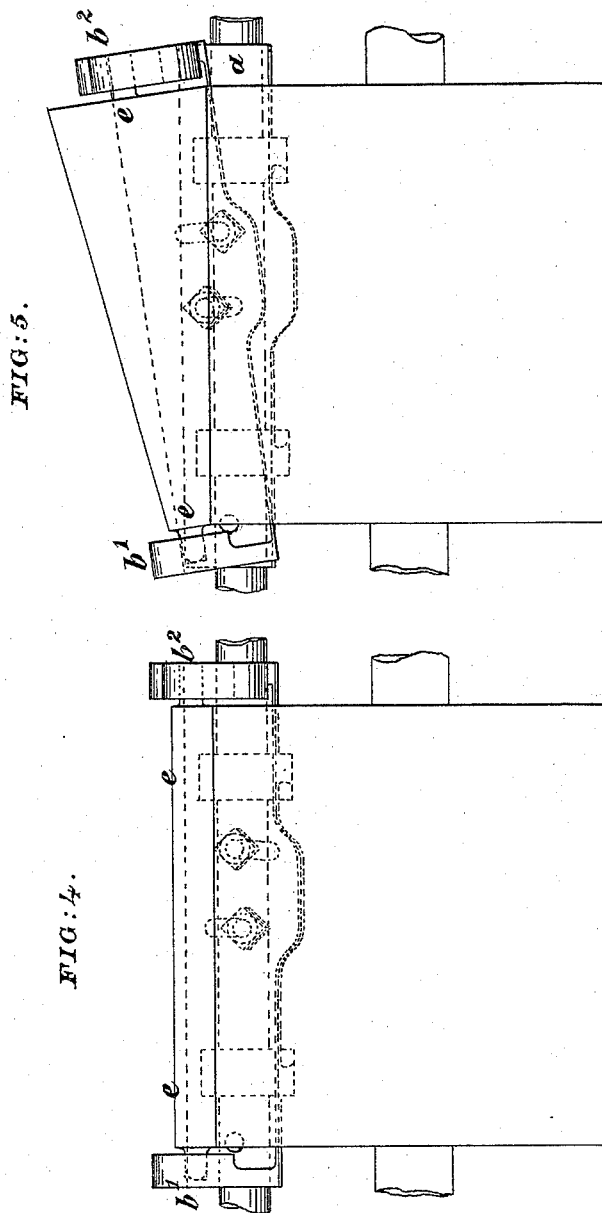
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James Eracir  
S. L. Connor

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Robert Broadbent  
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Horsman and Horsman

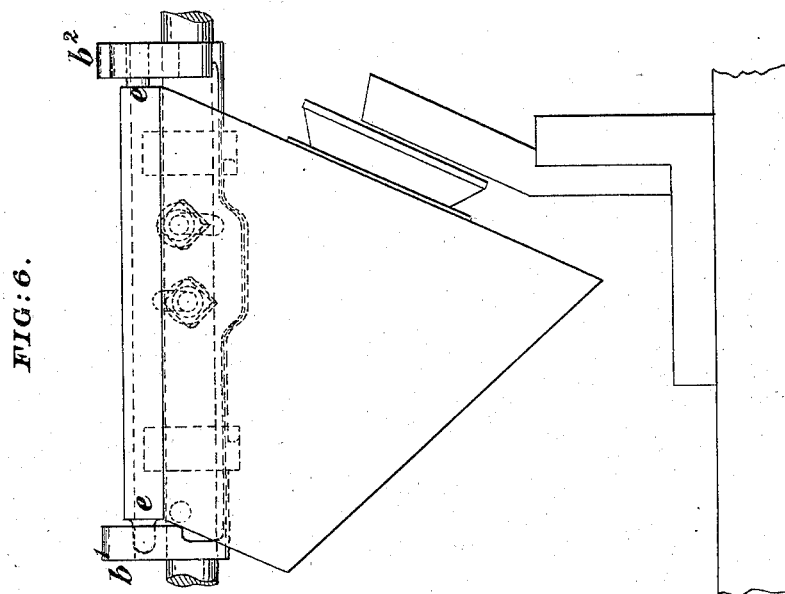
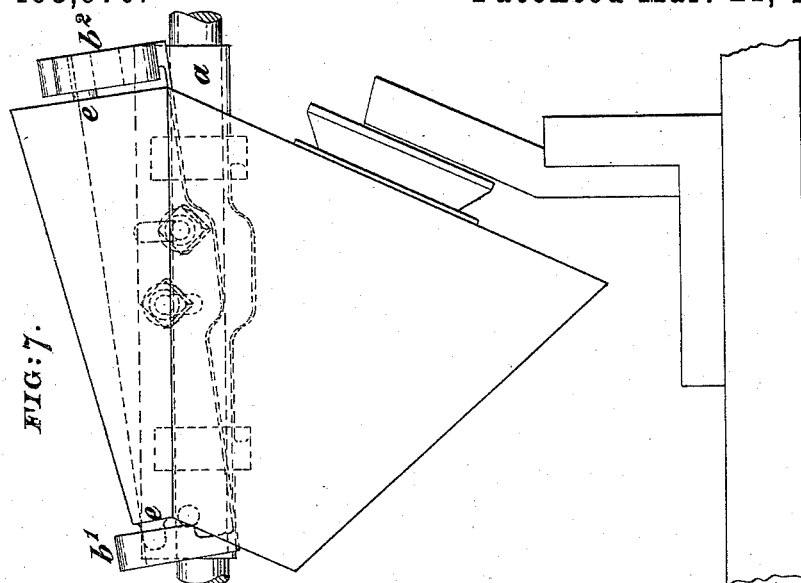
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Witnesses.

James Gracie  
S. F. Connor

Inventor.

Robert Broadbent  
by his Attorneys  
Hawson and Hawson

# UNITED STATES PATENT OFFICE.

ROBERT BROADBENT, OF STALYBRIDGE, ENGLAND.

## MACHINE FOR WINDING YARN OR THREAD.

SPECIFICATION forming part of Letters Patent No. 493,970, dated March 21, 1893.

Application filed April 18, 1892. Serial No. 429,675. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT BROADBENT, a subject of the Queen of Great Britain and Ireland, residing at Stalybridge, in the county of Chester, England, have invented Improvements in Machines for Winding Yarn or Thread, of which the following is a specification.

This invention relates to what are known as "drum winding frames" employed chiefly for winding hosiery yarn. In winding machines or frames of this class the drums are driven and the yarn is wound upon a spindle which is supported by a carrier so that the spindle rests by its own weight upon the surface of the drum and is driven by friction of contact therewith. The spindle carrier consists usually of an open frame with two arms, hanging by two bosses on a rod or shaft at the back of the drums. Some of these machines or frames are made with cylindrical driving drums and some with conical driving drums, and it is a peculiar distinctive feature of my invention that it can be applied to winding machines or frames having either cylindrical or conical driving drums.

My invention will be readily understood on reference to the accompanying drawings.

Figure 1 is a face view; Fig. 2 a side elevation and Fig. 3 a plan of a spindle carrier made according to my invention; Figs. 4 and 5 illustrate respectively how the said carrier may be adapted to work with either cylindrical or conical spindles on a cylindrical drum; Figs. 6 and 7 illustrate a similar adaptation on a conical drum.

For this purpose I make the spindle carrier in two parts, the one consisting of the two bosses  $a'$ ,  $a^2$ , upon which the carrier hangs, and a straight bar  $a$  uniting the two, and the other, of the two arms  $b'$   $b^2$  (at the ends of which are the bearings for the spindles  $e$ ) and

a corresponding straight bar  $b$  uniting the said arms  $b'$   $b^2$ . These bars  $a$  and  $b$  are surfaced so that they fit together and they are hinged together at or near one end by a bolt, pin or rivet  $c$ . Near the center one of them ( $a$ ) has a round hole, and the other ( $b$ ) a corresponding curved slot  $b^3$ , through which passes the shank of a tightening bolt and nut  $d$ , so that the position of one bar  $b$  can be altered with regard to the other  $a$  so as to obtain the requisite adjustment, and fixed in that position by tightening the nut of the bolt  $d$ , while the arms  $b'$   $b^2$  will still remain always in precisely the same relation to each other, and hence the spindle  $e$  will always run true, and need not vary in length. The screw  $f$  of the carrier spring  $g$  which is fixed to the bar  $b$ , moves in a slot in the bar  $a$ .

I claim as my invention—

1. A spindle carrier consisting of the combination of a straight bar having bosses upon which the carrier hangs, with a second straight bar, provided with arms having bearings for the spindle, the two said bars being surfaced to fit together, and means for firmly securing and adjusting them together in different positions, substantially as described.

2. A spindle carrier consisting of the combination of a bar having bosses upon which the carrier hangs, with a bar provided with arms having bearings for the spindle, the two bars being fitted together, and being hinged together at one end and means for securing the two bars together when adjusted on said hinge, all substantially as described.

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

ROBT. BROADBENT.

Witnesses:

W. H. VAUDREY,  
JNO. HUGHES.