(No Model.)

R. BROADBENT.

MACHINE FOR WINDING YARN OR THREAD.

No. 484,171. Patented Oct. 11, 1892.

FIG. 1

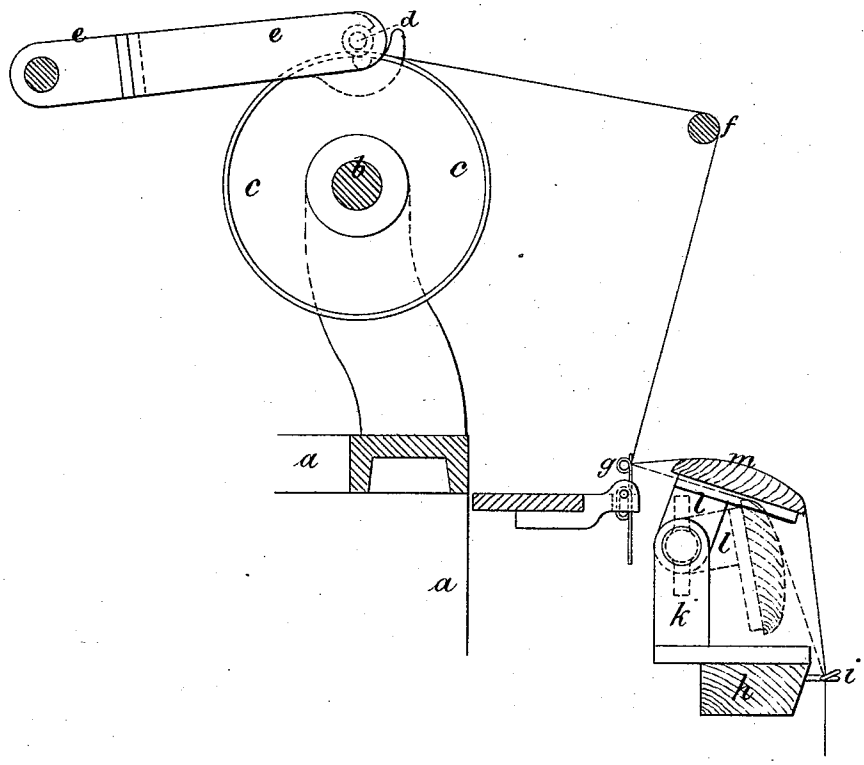
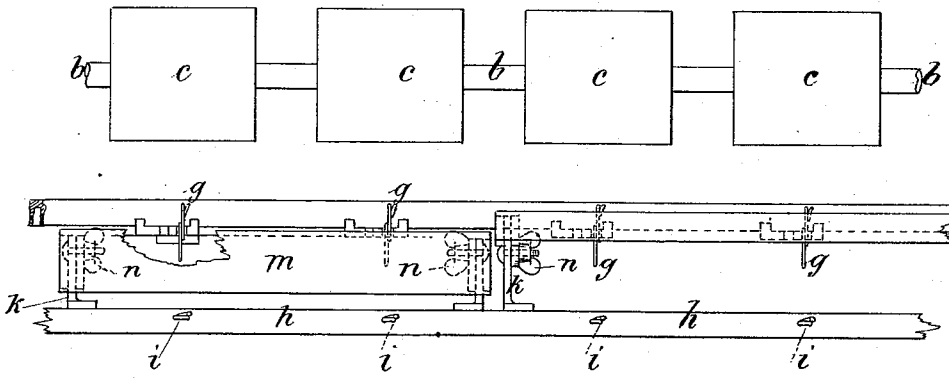


FIG. 2.



WITNESSES.

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ROBERT BROADBENT, OF STALYBRIDGE, ENGLAND.

MACHINE FOR WINDING YARN OR THREAD.

SPECIFICATION forming part of Letters Patent No. 484,171, dated October 11, 1892.

Application filed June 27, 1892. Serial No. 438,109. (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 or Applicable to Machines for Winding Yarn or Thread, of which the following is a specification.

This invention relates to what are known as "drum winding-frames," which are employed chiefly for winding hosiery-yarn; and the objects of the invention are to afford a ready and efficient means for adjusting the tension of the threads on such machines, and, secondly, to afford facility for winding different "counts" of yarn on the same machine at one time. In winding machines or frames of this class the winding-drums are driven by suitable means, and the yarn is wound upon a spindle, which is supported by a carrier or cradle, so that the spindle rests by its own weight upon the surface of the drum and is driven by friction of contact therewith. The threads pass from the bobbins or spools first through or over a tension device, then through what are known as "drop-wires," (the object of which is to stop the machine whenever one of the threads breaks,) and lastly over a light guide-rod to the spindles.

On the annexed drawings, Figure 1 is a vertical section showing the construction of my improved tension device and its application to a drum winding-frame; and Fig. 2 is a partial front elevation of the same, drawn to a smaller scale.

a is a part of the frame of the machine; *b*, the drum-shaft; *c*, drums; *d*, spindle supported by carrier or cradle *e*; *f*, guide-rod, and *g* drop-wires. These are ordinary well-known parts of the machine.

h is a rail, of wood or other material, provided with curls or thread-guides *i* at the front and carrying at suitable intervals brackets *k*, to which are hinged short arms *l*, carrying a rail *m*, of wood or other material, having a rounded surface and covered with felt, flannel, or other suitable substance. The arms *l* are attached to the brackets *k* by means of thumb-screws *n*, so that they can be adjusted and fixed at any desired angle. When these levers or arms *l* are in the perpendicular position, or nearly so, as drawn in full lines at Fig. 1, the frictional surface of the rail *m* is approximately horizontal and the threads pass over in contact with the whole surface, giving in that case the maximum of friction and tension; but by adjusting and fixing the arms *l* in a more or less diagonal or horizontal position, as shown by the dotted lines, the amount of surface with which the threads come into frictional contact will be diminished and the tension proportionately decreased.

Fig. 2 illustrates how I propose by the use of this device to wind at the same time on one machine threads of different counts, when required. For this purpose I make the tension-rail *m* in short sections corresponding to groups of two, three, or more of the winding-drums *c*, so that by adjusting the positions of the rails *m* according to requirements the proper amount of tension may be given to any section or sections to suit the count of yarn being wound by that particular section.

I claim—

A tension device for drum winding-frames, consisting of a rail with rounded surface covered with felt or other suitable substance and adjustable arms or levers supporting the same, so that the angle of inclination of such surface over which the threads pass may be adjusted so as to give more or less friction and tension on such threads, substantially as hereinbefore described, and illustrated by the drawings annexed.

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

ROBT. BROADBENT.

Witnesses:

W. H. VAUDREY,

THO. HUGHES.