

Thomas Unsworth & Edward Whalley's *Improved Banding Machine.*

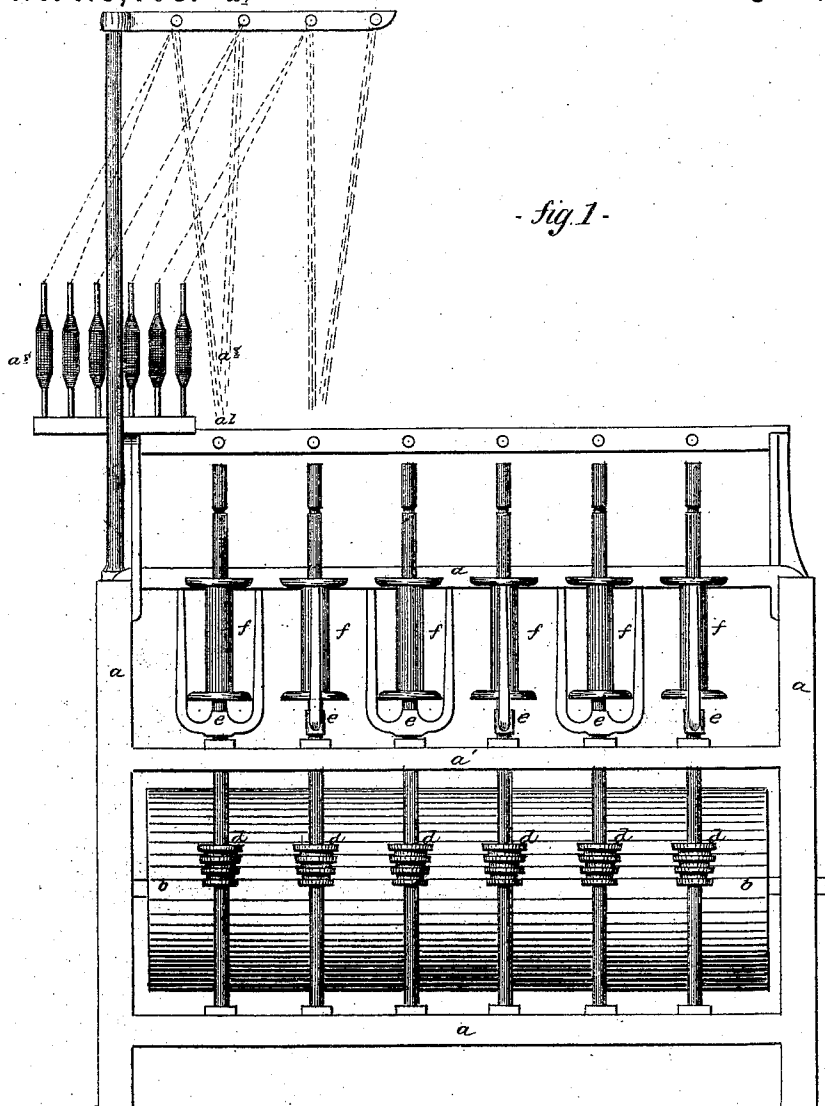
S. Shells

Sheet 1

No. 118,408. *a?*

Patented Aug. 22, 1871.

- fig. 1 -



Witnesses.
D. H. Humway
A. J. Tibbitts

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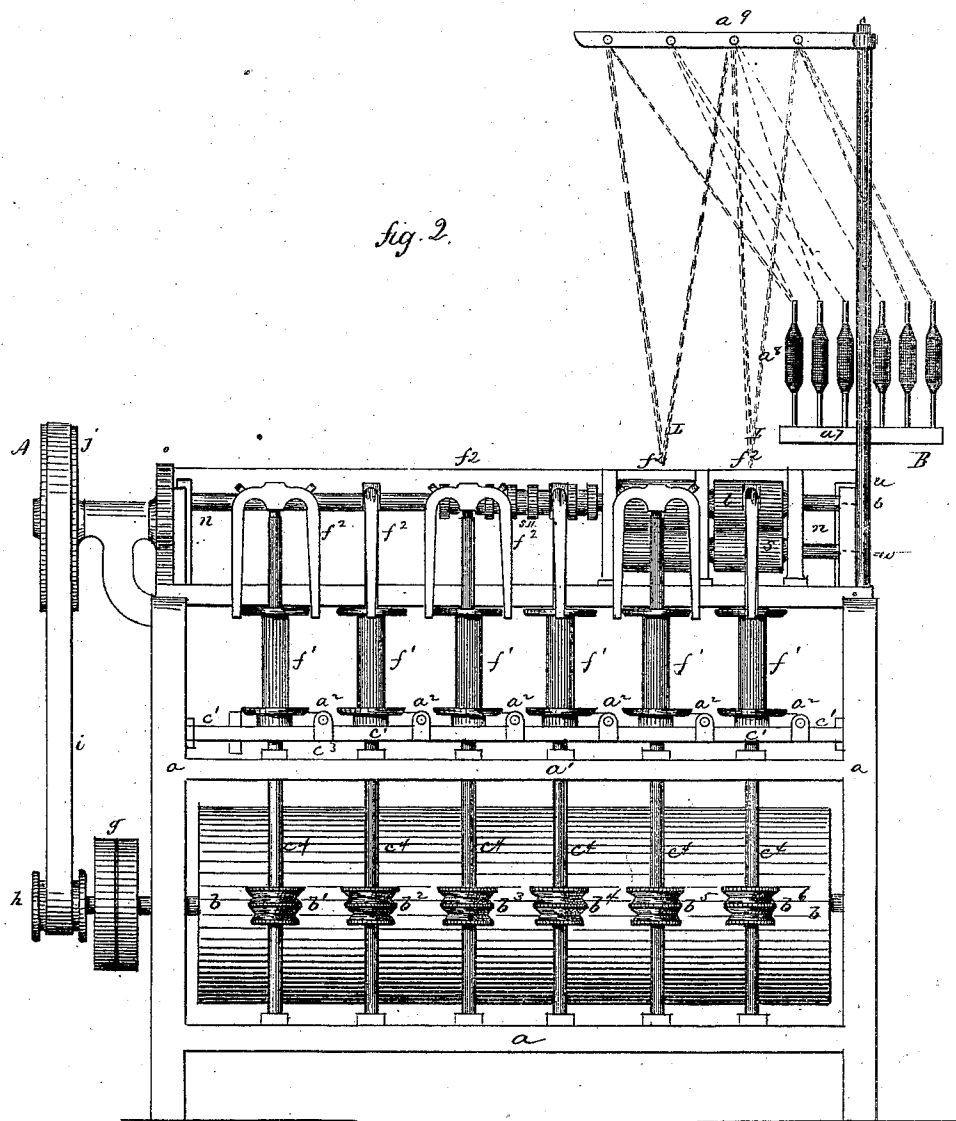
Thomas Unsworth & Edward Whalley's Joint Banding Machine

S. Shuts.

Sheet 2.

No. 118,408.

Patented Aug. 22, 1871.



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Thomas Unsworth & Edward Whalley's Improved Banding Machine.

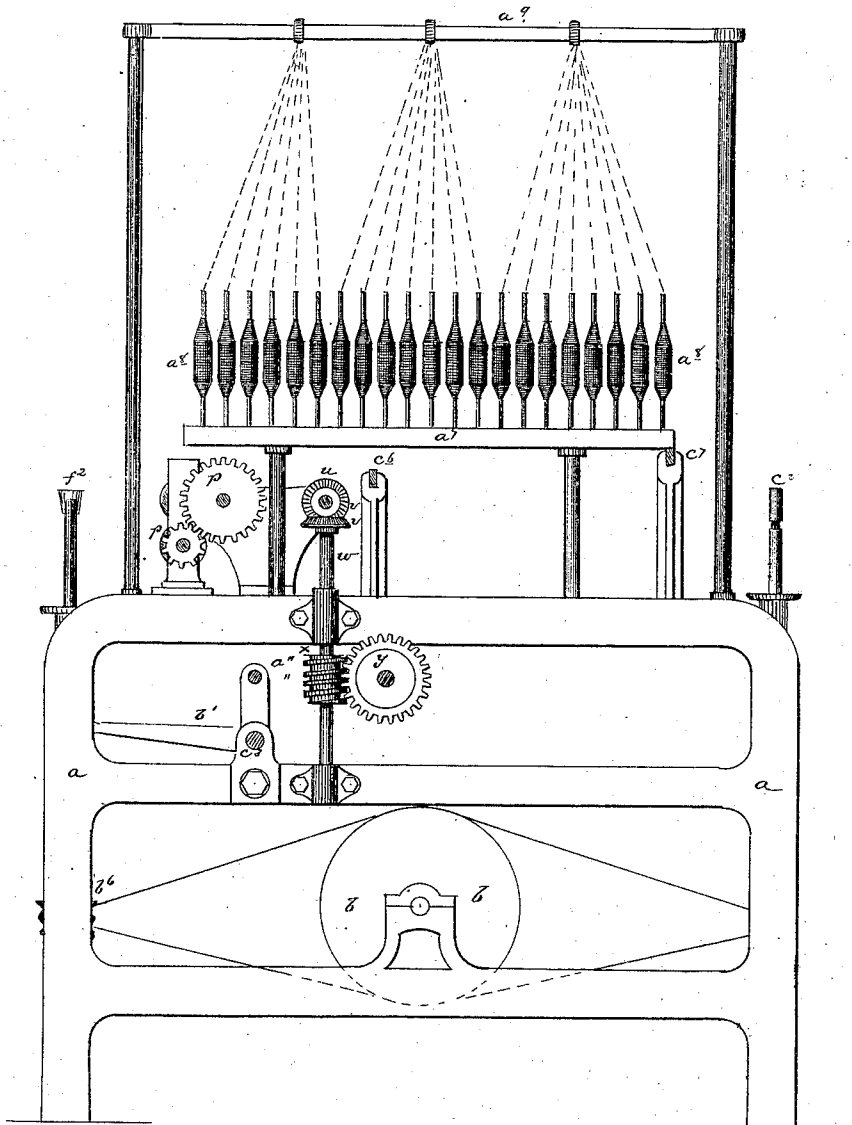
S. Shuls.

Sheet 3.

No. 118,408.

fig 3.

Patented Aug. 22, 1871.



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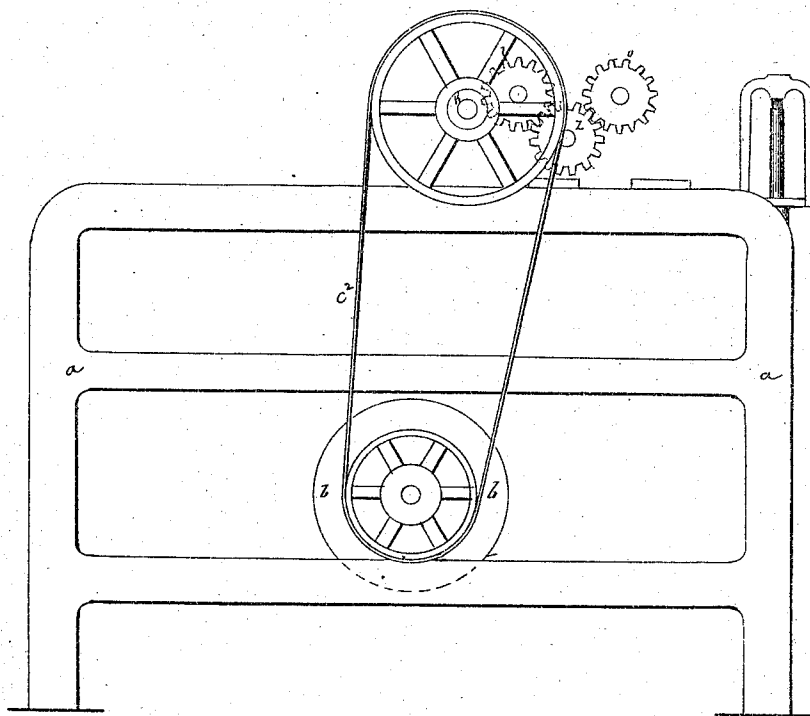
Thomas Unsworth & Edward Whalley's Imp'd Banding Machine.

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Sheet 4

No. 118,408.

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Fig. 4.



Witnesses.

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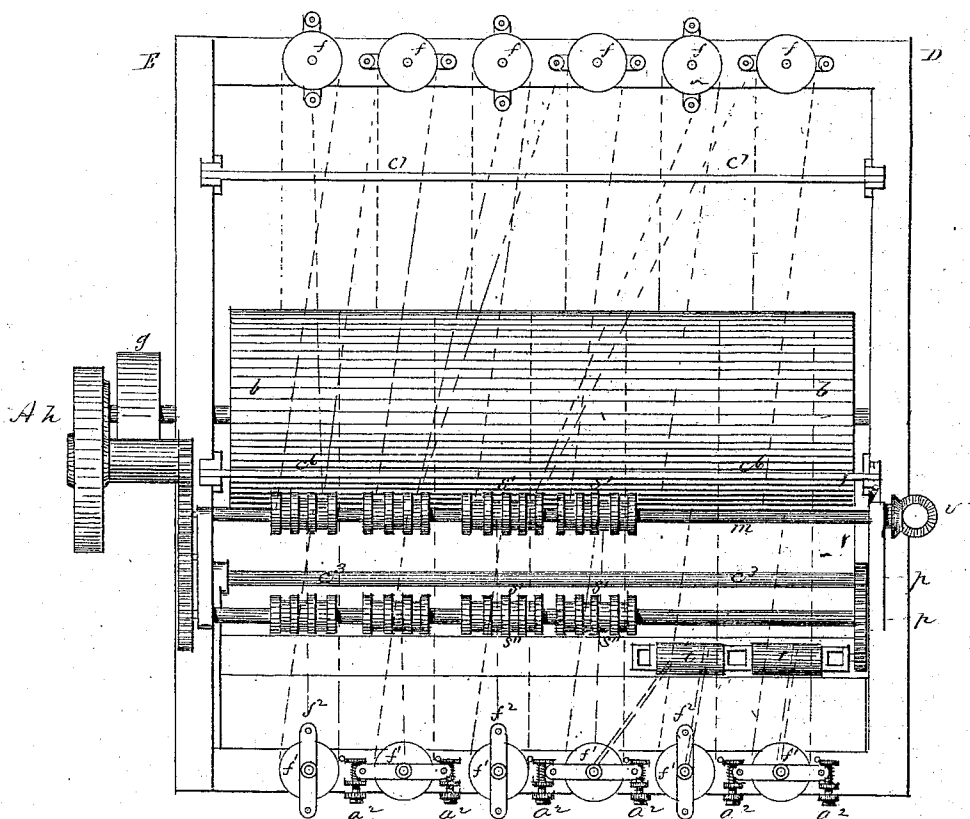
Thomas Unsworth & Edward Malley's Improved Banding Machine.

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Sheet 5.

No. 118,408.

Patented Aug. 22, 1871.

Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS UNSWORTH AND EDWARD WHALLEY, OF PRESTON, ENGLAND,
ASSIGNORS TO THOMAS UNSWORTH.

IMPROVEMENT IN MACHINERY FOR MAKING CORDS OR BANDS.

Specification forming part of Letters Patent No. 118,408, dated August 22, 1871.

To all whom it may concern:

Be it known that we, THOMAS UNSWORTH, of Manchester, and EDWARD WHALLEY, of Preston, in the county of Lancaster, England, have invented a new Improvement in Machinery for Making Banding or Cord; and we do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a side elevation; Fig. 2, the reverse side; Fig. 3, an end view on line C D of Fig. 5; Fig. 4, an end view on line E F of same; and in Fig. 5, a plan at line A B of Fig. 2.

Our invention relates to an arrangement of machinery for twisting into bands or cords sewing-cotton or thread from or out of cotton, woolen, hemp, linen, silk, or wire, or any other pliable material, mixed or separate, and so arranged that strands and bands are made on the same machine and at the same time, the strands being made and wound onto the bobbins, and without removing such bobbins from the machine the strands are passed across, doubled, and twisted into banding, cord, sewing-cotton, or thread, or any such like article.

In Fig. 1, *a* is the frame; *b*, driving-drum, supported in frame; *c c c c c c* are spindles, on which are keyed band speed-pulleys *d*. On the same spindles, at center, are fixed fliers *e*. These fliers are used for unwinding the strands from bobbins *f*, giving such, if required, more twist in crossing the machine. These spindles are driven by drum *b* through pulleys *d*. In Fig. 2, *a* the frame, *b* the drum, as before. In this view are shown both arrangements for making strands and bands. The pulley *h* is driven from drum-shaft by band *i* to pulley *j*, giving motion to shaft *m* in Fig. 5. There are six spindles on this side, with six bobbins, driven in same way from drum *b*. The shaft *n* is driven by wheel *z* through wheel *o*, in Fig. 4. In same figure the wheel *l* drives shaft *m*. In Fig. 5 the same wheel gives motion to shaft *n* through wheel *o*. The wheel *l* will have one tooth more in it than wheel *o*, the object being to run shaft *n* slightly quicker than *m*. On shaft *n* are keyed two rollers *s''*. Two similar rollers are keyed on shaft *m*, marked *s'*. *s* and *t* are a pair of flat-surfaced rollers, through

which the yarn or other material passes from the cops *a'* over cross-bar or guide *a''* through such rollers to flier-eye down the leg to bobbins *f'*. *c'* is a moving rail, which is worked up and down during the process of winding on the bobbin, the fliers *f''* putting the twist in the strands L L. The four first fliers *f''* are for twisting bands from the before-mentioned strands across the machine through the rollers *s'* and *s''* from the strand-bobbins taken from the two last-named fliers to the other side of the machine. Such bobbins are marked *f*. The shaft *n*, in Figs. 2 and 5, gives motion through wheel *p*, in Figs. 3 and 5, to wheel *r* on shaft *q* in the latter figure. On such shaft the rollers *s s* are keyed. The two top rollers *t t* are driven from the friction of rollers *s s* at the end of shaft *m*. In Figs. 2, 3, and 5 is a miter-wheel, *u*, working into another miter-wheel, *v*, giving motion to vertical shaft *w*, on which is a screw-worm, *x*, which slowly turns wheel *y* in Figs. 3 and 5. On the other end of spindle-carrying wheel *y* is a cam, which gives motion to connecting-rod *a''*, in Fig. 3. In the same figure *v'* is a lever, one end of which communicates with connecting-rod *a''* and the other end to bobbin-winding rail *c'*. There is another lever at the other end of bobbin-winding rail *c'*. These two levers work on a fulcrum-shaft, *c''*. The spindles *c'* are driven by bands from drum *b* to the several pulleys marked *b'*, *b''*, *b'''*, *b''''*, *b''''''*, and *b''''''''*. On the spindles *c'* are bobbins *f'* and fliers *f''*. *a'* is a guide-bar, same as in Fig. 1. *a''* are screws with spiral or other springs acting on a brake or friction-pulley at the bottom end of bobbins *f'*. This effectually winds the strands and bands firmly on the bobbins. In Figs. 1, 2, and 3 are shown cop or other board, *a'*, on which we have shown by preference ranges of cops *a''*, the threads from which are carried to guide-bars *a''* over, down, and through another guide-bar, *c''*, at the back of rollers *s* and *t*, in Figs. 2 and 5; from thence through and round before-mentioned rollers to fliers in front of such rollers, marked *f''*, to bobbins *f'*. *c'* is a guide-bar, through which the strands pass from bobbins *f*.

In making strands by our improved machine we take as many threads as required and pass them over the guide-bar *a''* to the rollers *s* and *t*, round top rollers *t*, in order to stretch or lay the threads. They then pass from rollers *s* and *t* to the eye of the flier *f''*, thence down the leg to the

end, and so on to the bobbin. Thus the strands are made by the two right-hand spindles in Fig. 2. When such strand-bobbins are full they are removed to the opposite side of machine to spindle *c*. As many strands as required to make the cord or band are then taken and passed through holes provided in guide-bars *c*⁷ or *c*⁶, or both, as required, to the grooved rollers *s*' and *s*'', round both of which they pass. The rollers *s*'' revolve slightly quicker than *s*', which brings it up tight to fliers *f*², which twist the bands from the strands so passed. The fliers for twisting strands run in an opposite direction to those for bands, thus having the usual effect of locking each twist.

Having fully described our invention and the way in which it is worked, we may say, in conclusion, that we do not confine ourselves to the precise details we have had occasion to refer to,

as many variations can be made in such without deviating from the principle; but

What we claim as novel, and wish secured to us herein, is—

The combination of the rollers *s* and *t*, around which the threads are led from the cops *a*⁸ to the fliers *f*², thence to the bobbins *f*¹, with spindle *c* upon the opposite side of the machine to receive said bobbins when wound, and the grooved rolls *s*' *s*'', having a differential movement, around both of which the threads from said bobbins pass to the fliers *f*², substantially as and for the purpose specified.

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Witnesses:

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