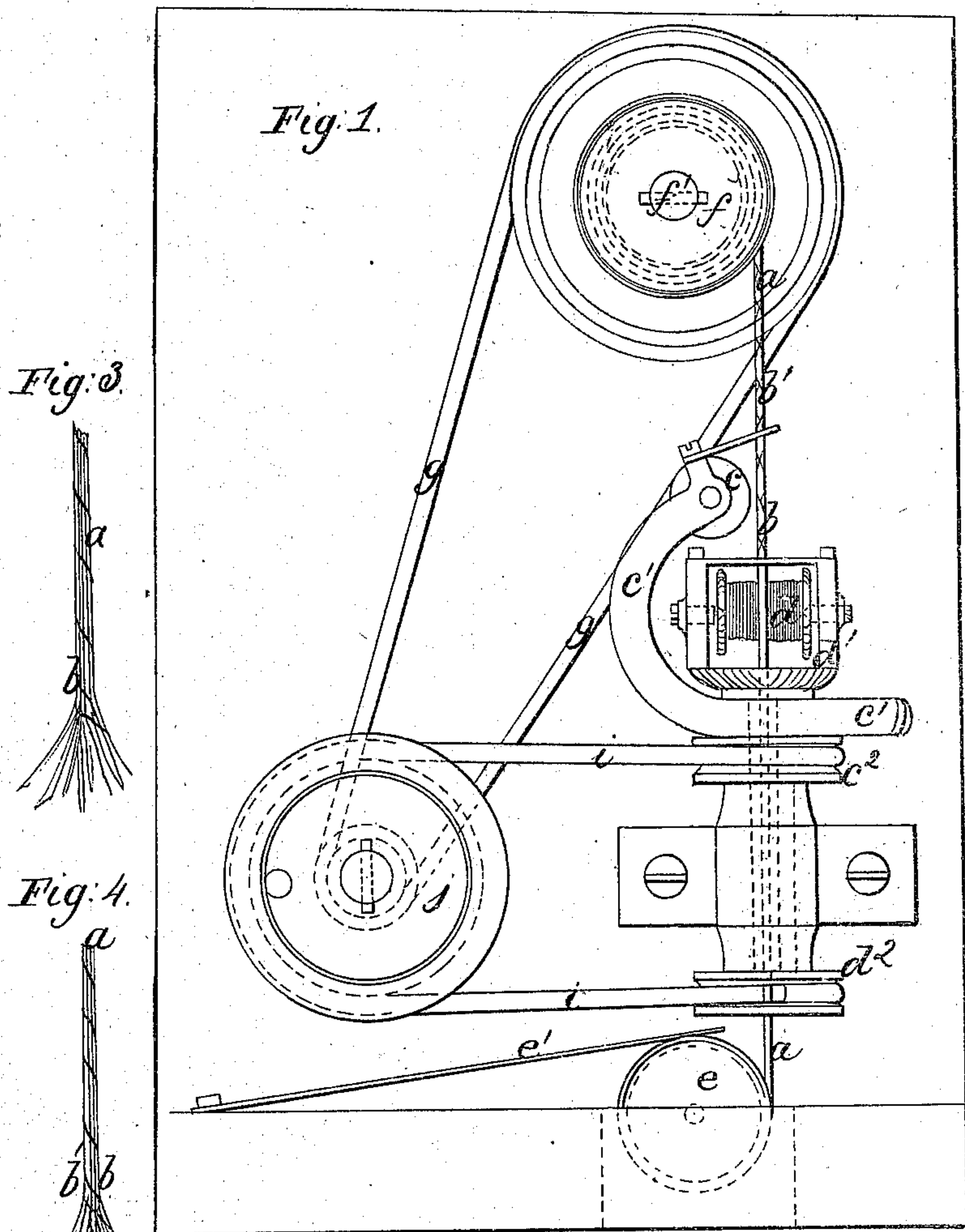
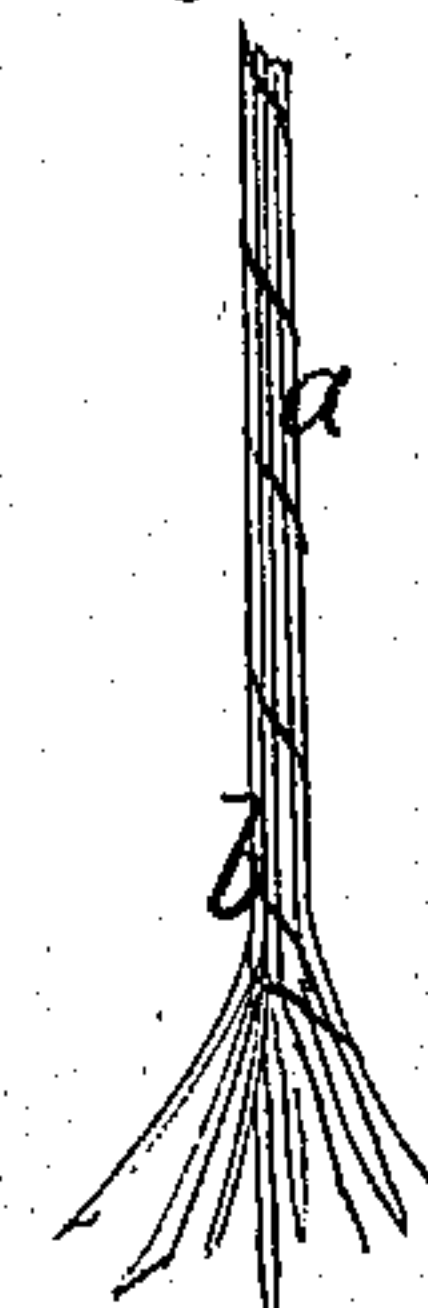


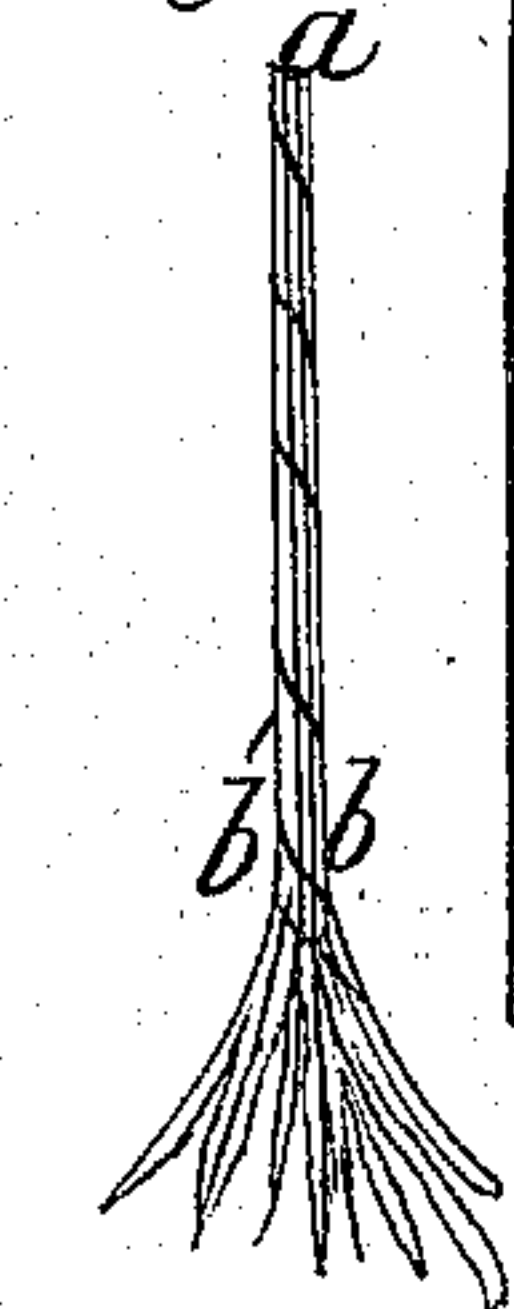
*R. Morrison.*  
*Machine for Preparing Button-hole Twist*  
*Nº 100,548. Patented Mar. 8, 1870.*



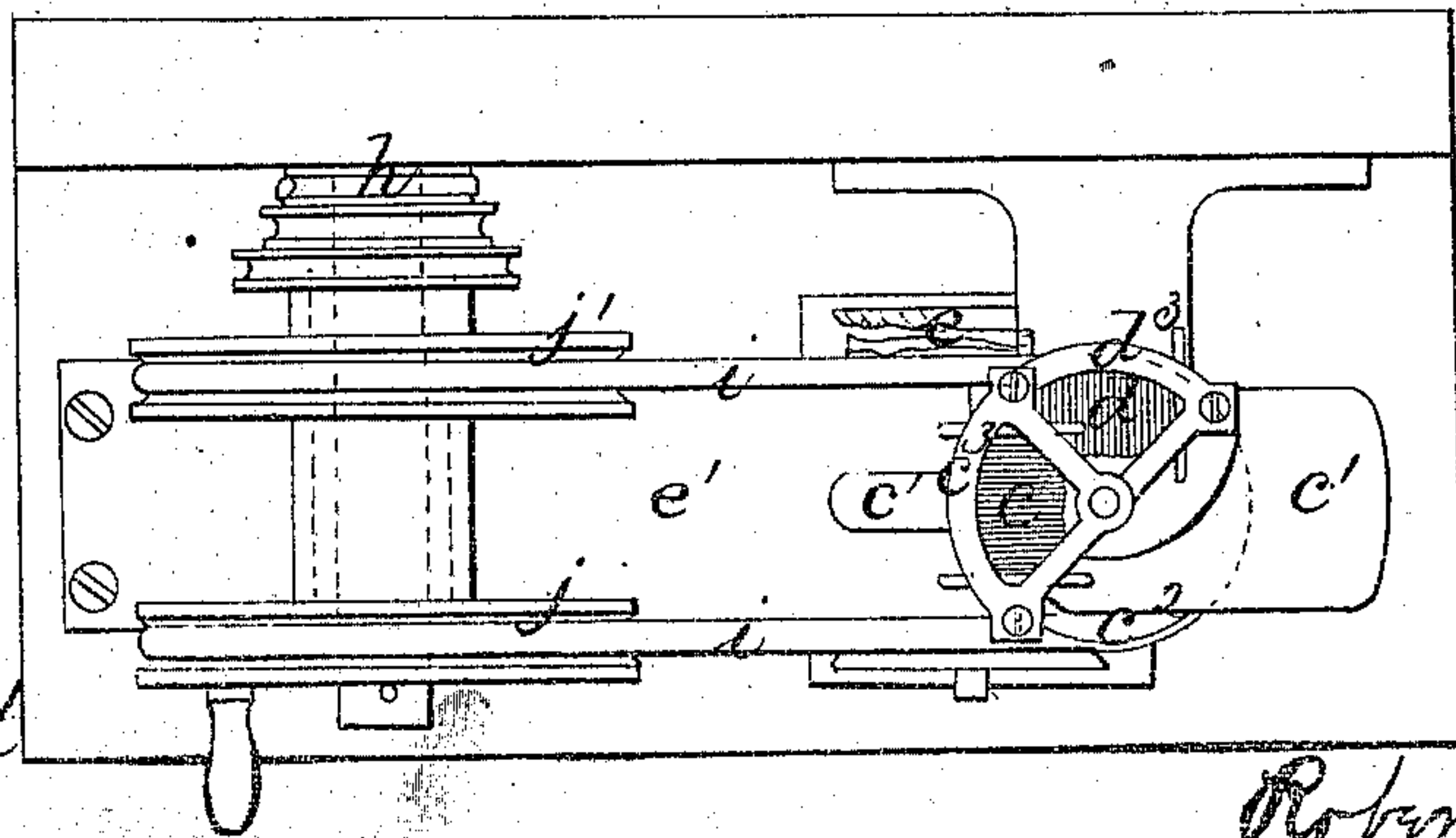
*Fig. 3.*



*Fig. 4.*



*Fig. 2.*



*Witnesses;*  
*Theodore Fitch*  
*John M. Lane*

*Inventor;*  
*Robert Morrison*



# United States Patent Office.

ROBERT MORRISON, OF YONKERS, NEW YORK.

Letters Patent No. 100,548, dated March 8, 1870.

## IMPROVEMENT IN PREPARING BUTTON-HOLE TWIST.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, ROBERT MORRISON, of Yonkers, in the county of Westchester, and State of New York, have invented a certain new and useful Improvement in the Manufacture of Button-Hole Twist; and that the following is a full and correct description thereof, reference being had to the accompanying drawings forming a part of this specification and to the letters of reference thereon.

My invention relates to the preparation of button-hole twist for spooling or winding in balls or other forms, in which it is put up to render it marketable.

In the manufacture of button-hole twist, it has been the practice to gather the threads from a number of bobbins of finished twist, say eight or twelve, and wind them together, without twisting upon a reel, spool, or bobbin, to be afterward wound upon spools or in balls in the same condition, that is, with eight or twelve threads or strands wound together without twisting. This is done for the convenience of tailors or trimmers, who, knowing the number of strands so wound together upon the spool or ball, can measure at once the requisite length of button-hole twist for a coat, or number of coats, so that in giving out a great number of coats, as in the wholesale clothing manufacture, time is saved, besides the economy of getting at the exact quantity of so expensive an article of silk; but the twist so prepared for use will separate or tangle when cut off from the spool, and therefore it has been the practice to tie it in a knot or wrap it in its length in paper, both of which modes are objectionable.

Braiding the twist has been resorted to, but this is also objectionable, as the operation of braiding by machinery raises a beard or nap which requires to be singed.

The object of my invention is to retain the advantages of the winding of a number of threads or strands together without twisting, and also to keep the strands together, so as to dispense with knotting or wrapping at length in paper, and yet be convenient for use of trimmers and working tailors.

My invention consists in binding the threads of twist together by one or more threads of very fine silk coiled lightly around them, or by coiling one of the threads of twist around the others, preparatory to winding it on spools or balls for the market, substantially as hereinafter described.

Figure 1 of the drawings represents a side elevation of the mechanism for binding the twist.

Figure 2, a plan view, with the reel removed.

Figure 3, view of the bound twist, with one binder coiled around it.

Figure 4, view of the twist, with two binders coiled around it.

Letter *a* represents the bound strands of twist bound by a single binding-thread, *b*, fig. 3, or by two binding-threads *b b'*, fig. 4, the binding-thread or threads being coiled lightly around the straight-laid threads or strands of button-hole twist.

I prefer to use a binding-thread of different color from the twist, but do not limit my invention thereto, as I can accomplish some of the objects of my invention by the use of one of the threads of twist as a binding-thread for the others.

The mode of binding that I prefer is to use two binding-threads of very fine silk, "augenzine" or "tram," the latter preferred, coiled in opposite directions around the twist.

The extreme lightness and softness of this binding-thread causes it to cling to the twist it encircles, and it practically holds the twist without knotting or braiding.

The coils of the binding-threads should not be closer together than as shown in the drawings, and may be further apart, so that they are close enough to practically operate to hold the twist together when a length is cut off.

The coils of the binding-thread must not be drawn tight upon the twist as covering threads upon wire, because it would injure the twist. They must lightly encircle the twist with their gossamer grasp, the object not being to resist a force pulling the threads of twist apart, but merely to lightly hold the threads together when cut off from the spool, the "tram" I prefer to use for a binder being about sixteen miles to the ounce.

Letters *c d* represent two spools containing "augenzine" or "tram," mounted respectively in bracket-bearings *c' d'*, supported by hollow vertical spindles, one of which passes through the other so as to leave a hollow axis through which the twist *a* passes from the supply-spool *e* to a reel or spool, *f*, which turns on a spindle, *f'*, and has a grooved cone-pulley by which it is driven by a round band, *g*, from a smaller grooved cone-pulley, *h*.

The binding-spools *c* and *d* have grooved pulleys *c<sup>2</sup>* and *d<sup>2</sup>* attached to their respective spindles, their driving-belt *i*, driven by the pulley *j*, being looped around both pulleys *c<sup>2</sup>* and *d<sup>2</sup>*, and a loose guide-pulley *j'*, so as to rotate the spools in opposite directions.

The supply-spool has a light tension-spring, *e'*, resting on the twist wound upon it to keep the twist straight while being bound.

Instead of the supply-spool *e*, on which the twist is wound eight or twelve strands together, the re-



quisite number of singly-wound supply-spools may be used and their threads gathered together, so as to pass up through the axis of the binding-spools, and instead of the winding-reel *f*, the usual mechanism for spool or ball-winding may be used.

Each of the binding-spools *c* and *d* has a curved thread-guide *c*<sup>3</sup> and *d*<sup>3</sup>, the curve of the thread-guide being a segment of a circle, the center of which is the axis of the binding-spool, the binding-thread passing over it is prevented from dragging sidewise upon its spool.

I claim as a new article of manufacture, button-hole twist, prepared for winding in balls or upon spools by binding the threads together by one or more binding-threads coiled lightly around the twist, substantially in the manner and for the purpose described.

ROBERT MORRISON.

Witnesses:

THEODORE FITCH,  
JOHN McLAIN.