T. O'DONNELL & E. K. WALKER.

Stop Motion for Cotton Spinning Machinery.

No. 167,193. Patented Aug. 31, 1875.

Fig. 1

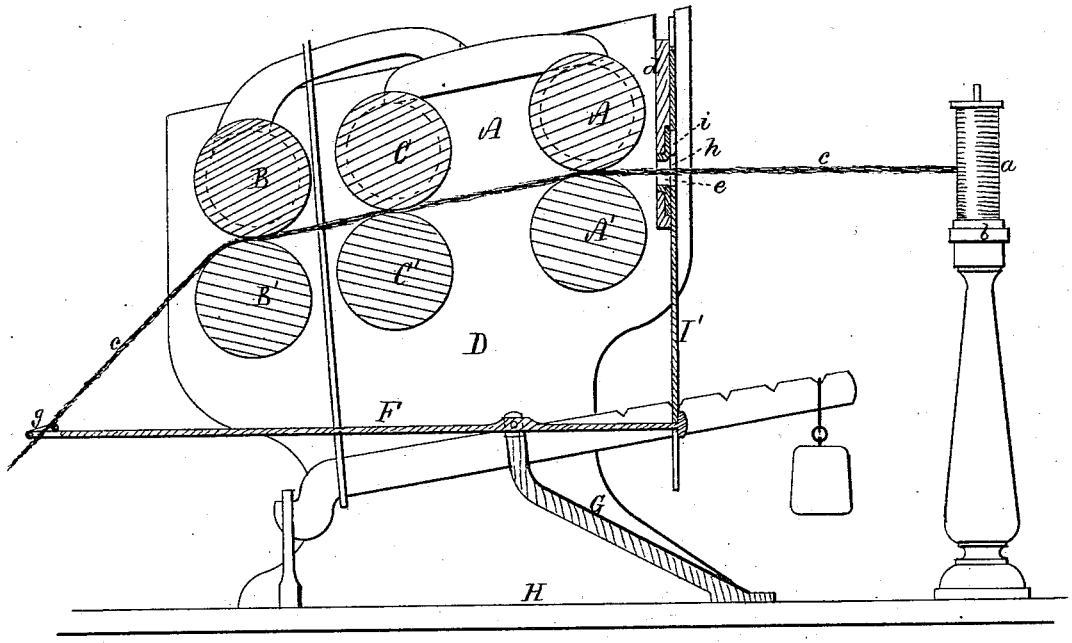
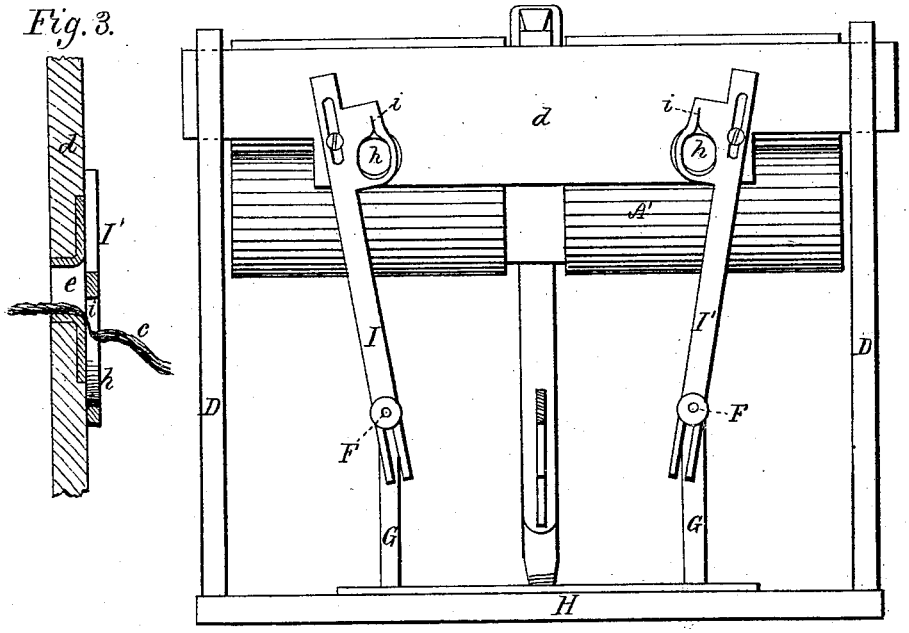


Fig. 2.

Fig. 3.



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TIMOTHY O'DONNELL AND EDWARD K. WALKER, OF EXETER, N. H.

IMPROVEMENT IN STOP-MOTIONS FOR COTTON-SPINNING MACHINERY.

Specification forming part of Letters Patent No. **167,193**, dated August 31, 1875; application filed June 9, 1875.

To all whom it may concern:

Be it known that we, TIMOTHY O'DONNELL and EDWARD K. WALKER, of Exeter, Rockingham county, New Hampshire, have invented a certain Stop-Motion for Spinning Machinery, of which the following is a specification:

This invention is an improvement upon that portion of cotton-spinning machinery in which the rovings are reduced to yarn; and the purpose of the invention is to instantly stop the passage of a roving from the bobbin at a point in advance of the traverse reciprocating guide-bar, through which the slivers pass to the first pair of draft-rolls, the results gained by such a stoppage of the sliver being as hereinafter explained.

The drawings accompanying this specification represent in Figure 1 a vertical and longitudinal section of so much of the spinning-machinery as is requisite to illustrate the nature and operation of our invention. Fig. 2 is an elevation of the same, taken in rear of the back draft-rollers and the laterally-reciprocating guide-plate. Fig. 3 is a section, on an enlarged scale, of the guide-plate and the roving-breaking plate, which constitute a feature of our invention, this figure showing the position of parts in which the roving is broken.

In these drawings A represents one of a series of pairs of rolls constituting the draft-rolls of a spinning-frame, the purpose of these rolls, which revolve at differential speeds, being, as usual, to reduce or draw out the rovings the requisite diameter to produce yarn. The back pair of rolls are shown at A A′, the front pair at B B′, and the intermediate pair at C C′, while the standards which support them are shown at D D. One of a pair of bobbins, upon which rovings are wound, is shown at *a*, and the horizontal rail or "creel," upon which it is mounted, at *b*, while the laterally reciprocating-bar, through which the rovings *c* pass, prior to entering the back rolls A A′, is shown at *d*, and the eyes or guides of the same at *e e*.

This mechanism being put in motion, the bobbins deliver the rovings to the rollers, and the rollers, after extending or diminishing the rovings by drawing, pass them down to the fliers and spindles, (not shown,) by which they are twisted into yarn.

F F, in the accompanying drawings, represent two twin levers, disposed centrally, one below each half or side of the three lower rollers, A′ B′ C′, such levers being pivoted upon posts G erected upon the beam H, which supports the standards D, and being formed with eyes *g* at their front extremities, through which the rovings *c* pass on their way to the spindle. The rear ends of the levers F F are each swiveled to the lower end of an upright bar, or plate I or I′, which are connected at their upper parts to the rear face of the reciprocating guide-bar *d* by pin-and-slot connections which permit them to play vertically upon such bar, while they are allowed to vibrate laterally with such bar upon the levers F, as pivots. The upper end of each bar or plate I is formed with an eye, *h*, through which the roving passes immediately prior to entering the guides *e*, the said eyes *h*, while the rovings are intact, being coincident with the said guides and presenting no obstruction to such slivers. The upper extremity of each eye *h* terminates in an attenuated slit or saw-kerf, *i*, the purpose of which will be presently explained.

The operation of the above-described mechanism, when in action, is as follows: So long as the rovings are of the proper bulk and tenacity they exert sufficient power upon the levers F to depress the outer or front ends of the latter, and, as a consequence, elevate their rear ends and the plates I I′ into the positions shown in Fig. 2 of the drawings, in which position they exert no action upon the rovings entering the guide-bar. Should a roving become detached from the fliers by breaking, or become weak or attenuated to such an extent as to produce imperfect or worthless yarn, its power over the lever F is weakened to such an extent that the adjacent plate I drops, and its whole weight is exerted upon the roving, the result of which is that such roving is thrown out of its legitimate line of draft, and drawn powerfully into a slot, *i*, and instantly broken. In this manner the breaking of a

roving entails no stoppage of the drawing or spinning machinery, but only of the individual roving—a fact of considerable importance. Another fact of importance in severing the roving prior to entering the draft-rolls is that we avoid entirely liability of the roving coiling or accumulating about the rolls, which results from the breaking of the roving subsequent to the passage of the rolls.

One prominent gain in the use of our invention is the prevention of waste at a point in cotton-spinning machinery where ordinarily much waste is made. This result ensues for the reason that any undue slackening or breaking of a roving is instantly transmitted to the plate I, and the sliver at once broken.

The size and character of the slot *i* are matters of careful calculation, but once properly obtained, no further care is requisite. It should be of such a nature that any slight slackening of the roving or deviation from its legitimate line of draft, which will bring the sliver into contact with the said slot, but will not allow the plate I to exert any considerable portion of its weight upon the roving, will not injure or break the latter. It is only when the roving is forced into a sharp bend by the lowering of the plate I that it is broken, and in order that the said plate may be adjusted perfectly in position with respect to the guide-bar *d* it should be constructed in two parts, the part containing the eye *h* being independent of the other, and confined to the latter by set-screws or their equivalents.

We claim—

1. The combination of the series of plates I, with the traversing guide-bar *d*, and the levers F, adapted to be operated by the roving, as herein explained, whereby any undue slackening or weakening of a roving is transmitted to the plate and the roving broken, essentially as and for purposes stated.

2. The plates I, provided with the eye *h*, through which the roving, when intact, passes without being acted upon, and with the slot *i*, the latter being of such character as to exert no improper action upon the sliver until the plate I is lowered to its extreme limit by undue slackening of the roving, substantially as and for the purposes stated.

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