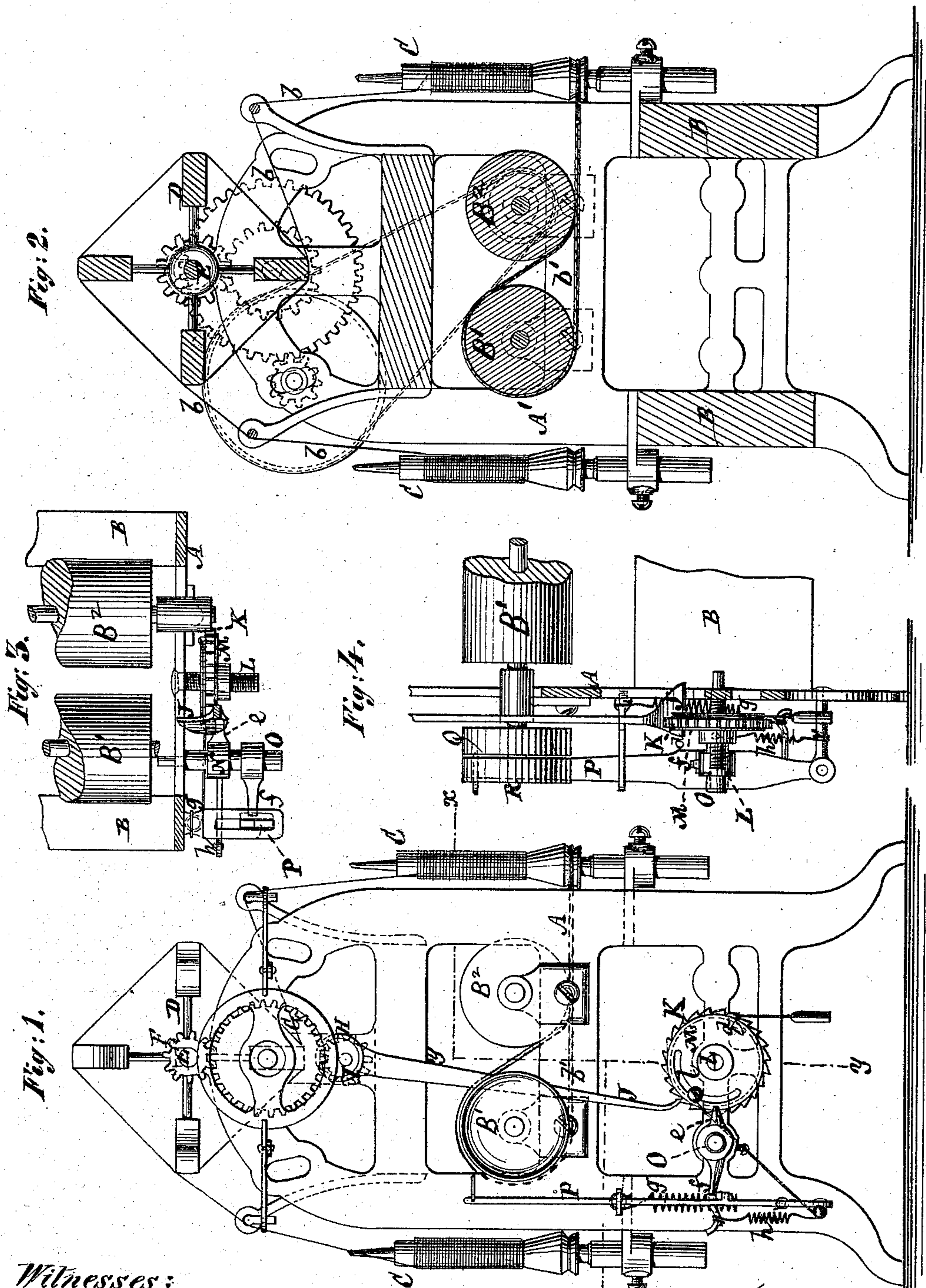


**J. E. ATWOOD.**  
**Silk-Spinning Frames.**

No. 156,525.

Patented Nov. 3, 1874.



Witnesses:

Henry Eichling

Fred. Haynes

John E. Atwood  
 by his Attorneys  
 Brown & Allen



# UNITED STATES PATENT OFFICE.

JOHN E. ATWOOD, OF MANSFIELD, CONNECTICUT.

## IMPROVEMENT IN SILK-SPINNING FRAMES.

Specification forming part of Letters Patent No. **156,525**, dated November 3, 1874; application filed March 17, 1874.

### CASE A.

*To all whom it may concern:*

Be it known that I, JOHN E. ATWOOD, of Mansfield, in the county of Tolland and State of Connecticut, have invented certain Improvements in Spinning-Frames, of which the following is a specification:

This invention mainly relates to frames for "up-spinning;" and is more especially designed for warp or organzine. This invention consists in a combination, with the upright spindles on both or opposite sides of the frame, of duplicate intermediate horizontal spindle-drivers, having their belts or bands arranged to pass from the one driver under the other for each opposite spindle or set of spindles, and a single take-up reel for both sides of the frame, whereby the latter may be made cheaper, lighter, steadier, and more compact than when duplicate reels on opposite sides of the frame are used. This arrangement of the spindle-drivers and their belts admits of a most effective driving-belt surface and proper line of draft for the belts within a narrow frame. The invention also consists in a novel and advantageous stop mechanism for automatically stopping the spinning-frame when a given quantity of yarn or warp has been taken up on the reel, said mechanism comprising an adjustable cam-plate on a ratchet-wheel receiving its motion from the reel, and an adjustable sleeve with attached finger, operated by the cam-plate for actuating the ship-lever.

In the accompanying drawing, Figure 1 represents an end elevation of a spinning-frame for up-spinning, having my invention applied; Fig. 2, a vertical transverse section of the same through the reel; Fig. 3, a horizontal section, in part, on the irregular line *x x*; and Fig. 4, a longitudinal section, in part, mainly on the line *y y*.

A A' are the end or supporting standards of the frame, and B B the spindle rails or girts, carrying spindles C C on opposite sides of the frame. D is the single reel, arranged overhead between the two sets of spindles, and rotated by gearing in any suitable manner, E being the reel-shaft. Said reel it is preferred to build up in sections of any de-

sired length, united by couplings which will provide for the independent removal of the sections by simply lifting them from their places, but when in operation they virtually form a single reel and rotate in common, and in the same direction. The yarn *b b* runs off onto the upper side of the reel from the spindles C on the one side of the frame, and onto the lower side of the reel from the spindles C on the other side of the frame, as shown. Thus using a single reel is a great advantage in many respects, but principally in the reduction which it makes in space, and in the size and weight of the frame. This will readily be seen when it is understood that ordinarily forty-inch reels have been used in pairs, one reel on either side, which consequently requires a very wide frame.

By using a single reel I obtain a narrow frame, and in order to properly drive the spindles in a frame reduced in width as much as possible, I employ duplicate intermediate horizontal spindle-drivers B<sup>1</sup> B<sup>2</sup>, with belts or bands *b'*, (one only of which latter is here shown, but the arrangement is similar for each,) and each spindle-driver B<sup>1</sup> or B<sup>2</sup> serves to operate the spindle or spindles on the side of the frame farthest from it, each belt *b'* passing under the other spindle-driver. This gives a most effective belt-surface, and the draft of the belt is at right angles to the spindle.

The stop mechanism is constructed as follows: F is a pinion on the reel-shaft, giving motion to a wheel, G, which, in its turn, actuates a pinion, H. On or connected with this pinion H is an eccentric, I, which gives motion to a toothed rod or dog, J, for the purpose of operating a ratchet-wheel, K, one or more teeth at a time for each revolution of the pinion H. The ratchet K has a screw-threaded eye or socket, which forms its bearing on a screw-stud, L, so that as the ratchet is moved by the dog J it travels along the screw-stud, and in due course, or after a certain amount of motion, causes a tooth or projection, *d*, on a plate, M, which may be termed a cam-plate, carried by the ratchet, to act on a finger, *e*, of a sleeve, N, fast to a free stud or sleeve, O, and so to rock the latter. This causes an-



other finger or catch, *f*, on the sleeve *O* to be released from its hold of a belt-shipper, *P*, which latter then flies back by the agency of a spring, *g*, and throws the driving-belt from the fast pulley *Q* onto the loose pulley *R*, and so stops the machine. The fingers *e f* are held in position prior to action by the cam-plate *M*, by a spring, *h*. The finger *e* or sleeve *N* carrying it is adjustably secured, by set-screw or otherwise, on the rocking sleeve *O*, so that it may be moved in or out along the latter, for the purpose of changing the time of the tripping-action on the belt-shipper *P* relatively to the motion, as regards whole revolutions of the ratchet *K*, by causing the cam-wheel *M*, as the ratchet is screwed along the stud *L*, to come sooner or later in contact with the finger *e*. To provide for stopping the machine at different points in a whole revolution of the ratchet *K*, the cam-plate *M* is made adjustable on the face of the ratchet by means of a screw and curved slot, *l*, which accordingly throws the tooth *d* farther forward or back.

I claim—

1. The combination, with the spindles *C*, on both or opposite sides of the frame, and a single take-up reel, *D*, arranged to receive the yarn onto its upper and lower sides from the spindles on the opposite sides of the frame, of the duplicate intermediate horizontal spindle-drivers *B<sup>1</sup> B<sup>2</sup>*, and their belts or bands *b'*, arranged as shown, so that each spindle is driven from the driver on the opposite side of the frame, substantially as specified.

2. The combination, in a stop mechanism, of the toothed rod or dog *J*, deriving its motion from the reel, the ratchet-wheel *K*, having a screw-bearing, *L*, the adjustable cam-wheel *M*, the adjustable finger *e* or sleeve *N* carrying it, the rocking stud or sleeve *O*, and the finger or catch *f* for release of the belt-shipper, essentially as described.

JOHN E. ATWOOD.

Witnesses:

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