

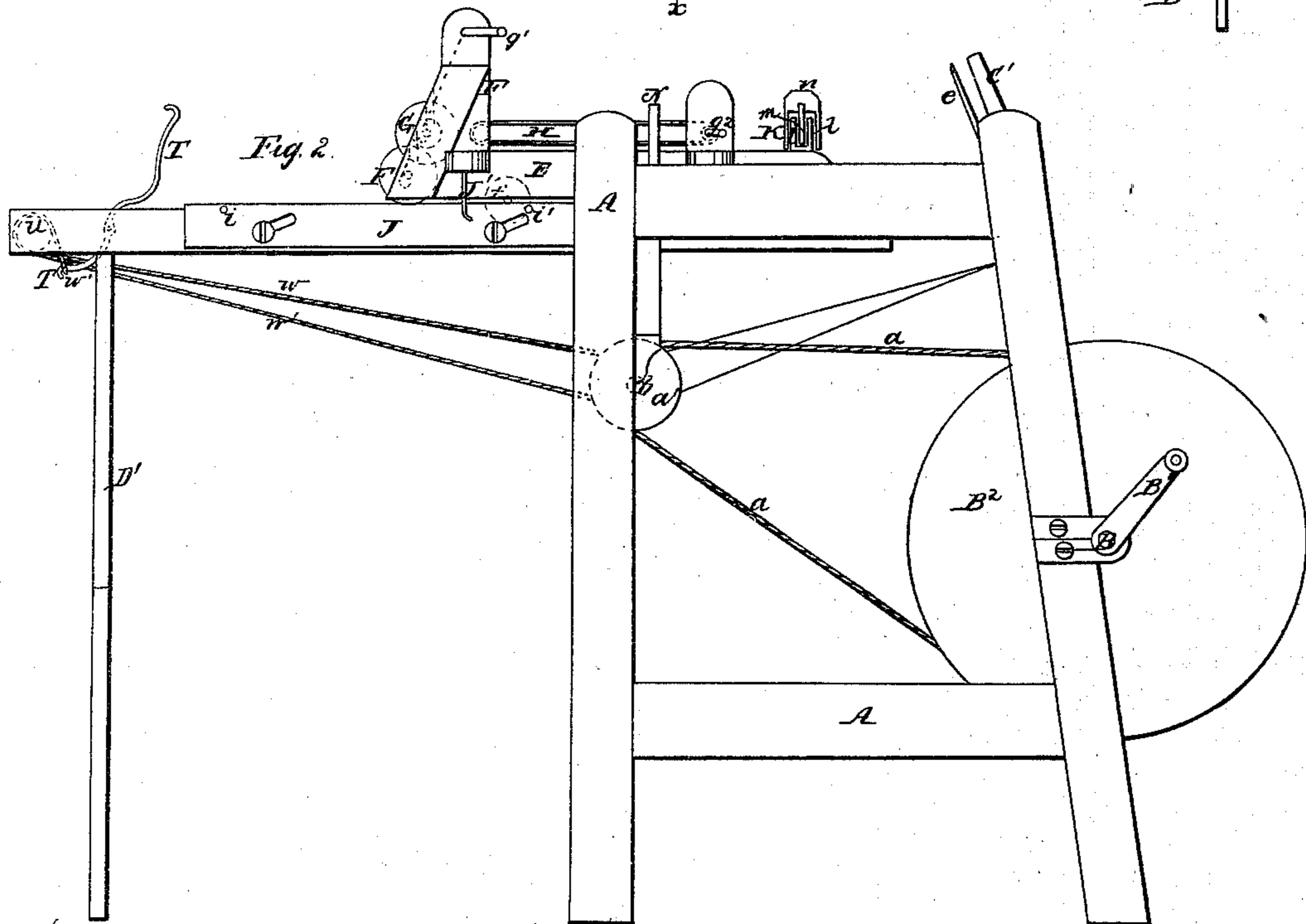
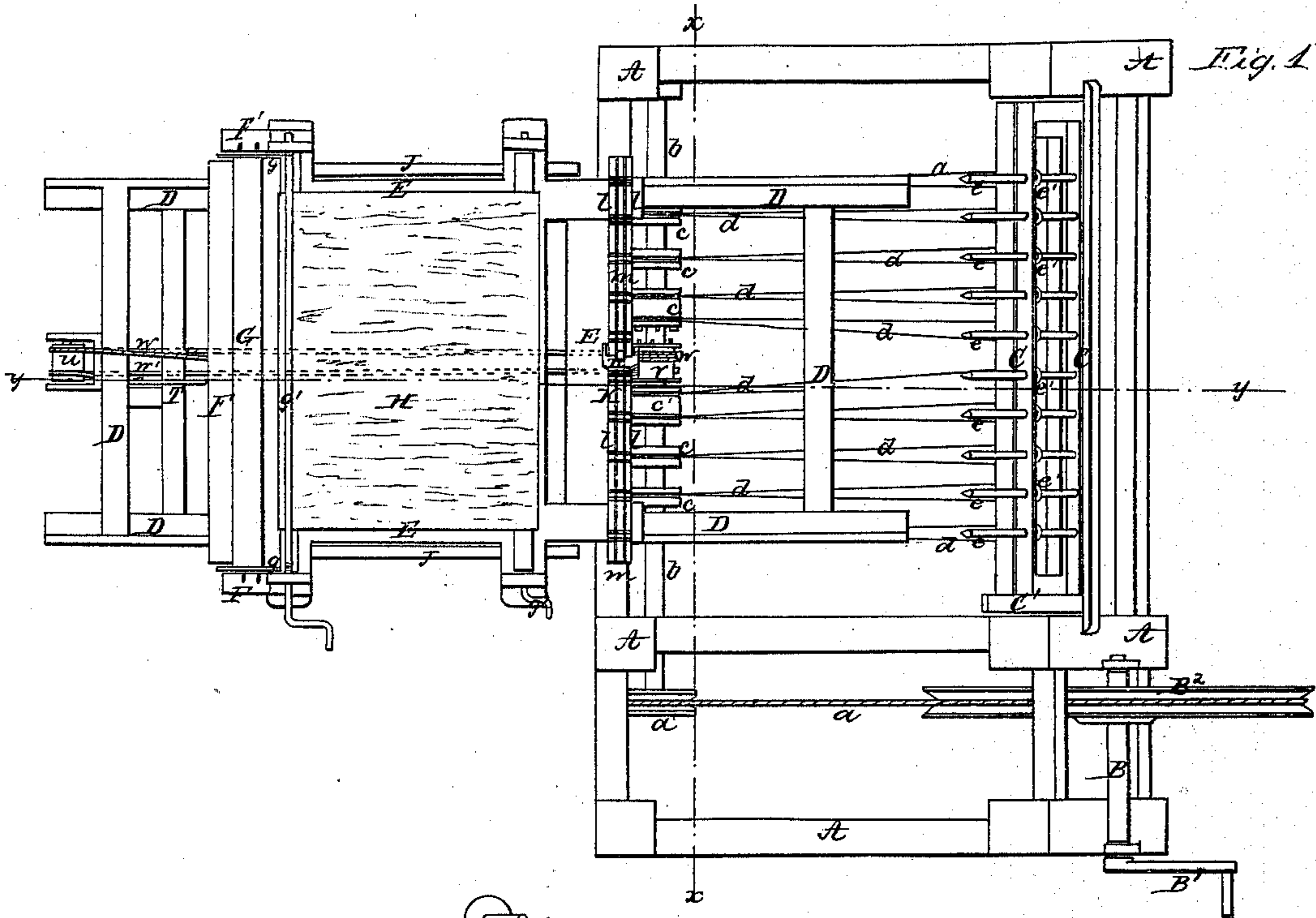
Sheet 1, 2 Sheets.

J. & S. Hart & J. Reesman.

Domestic Spinning Mach.

No 68,872.

Patented Sept. 17, 1867.



Witnesses,
E. S. Hart
 Walter Hinckman

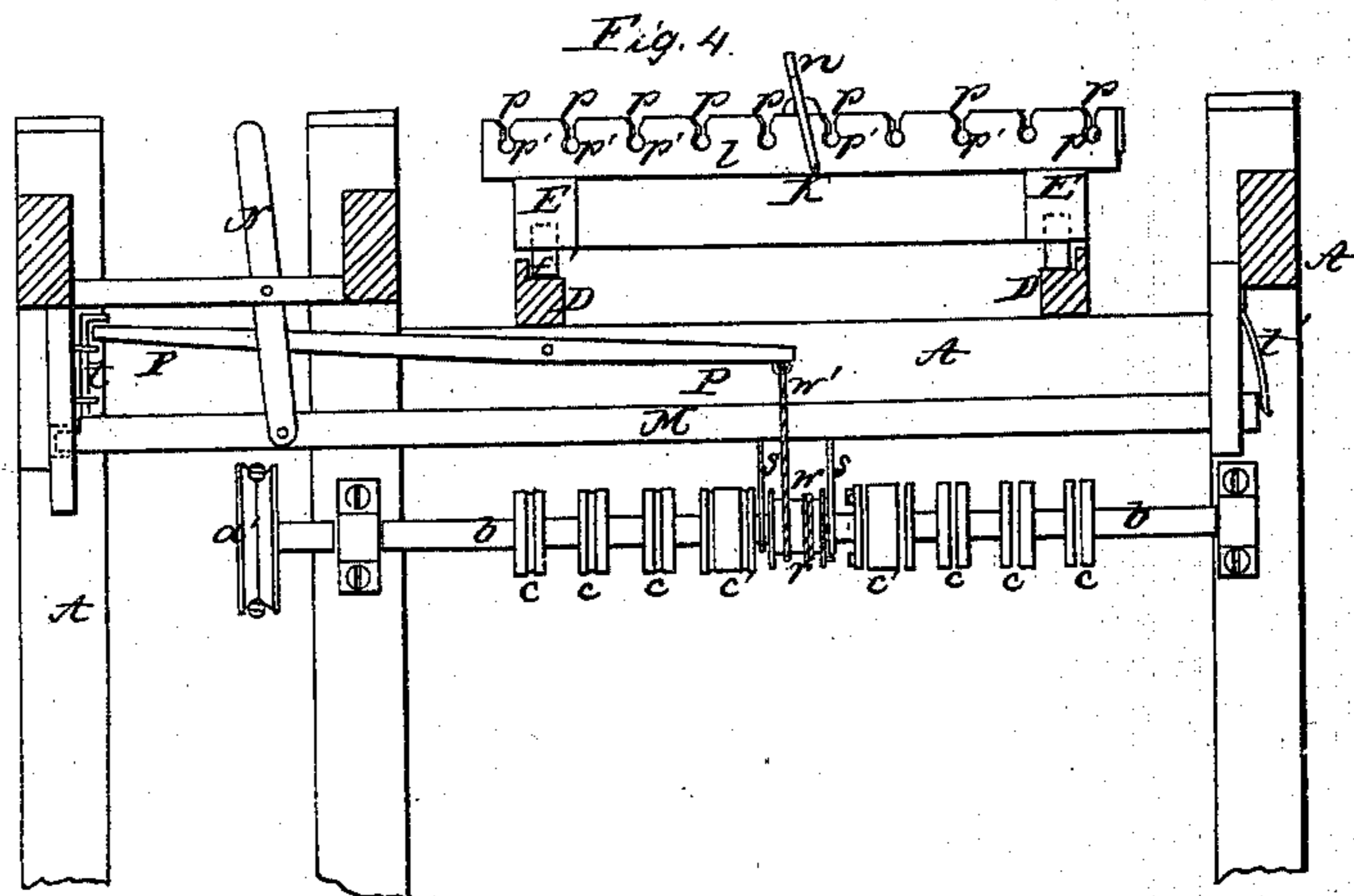
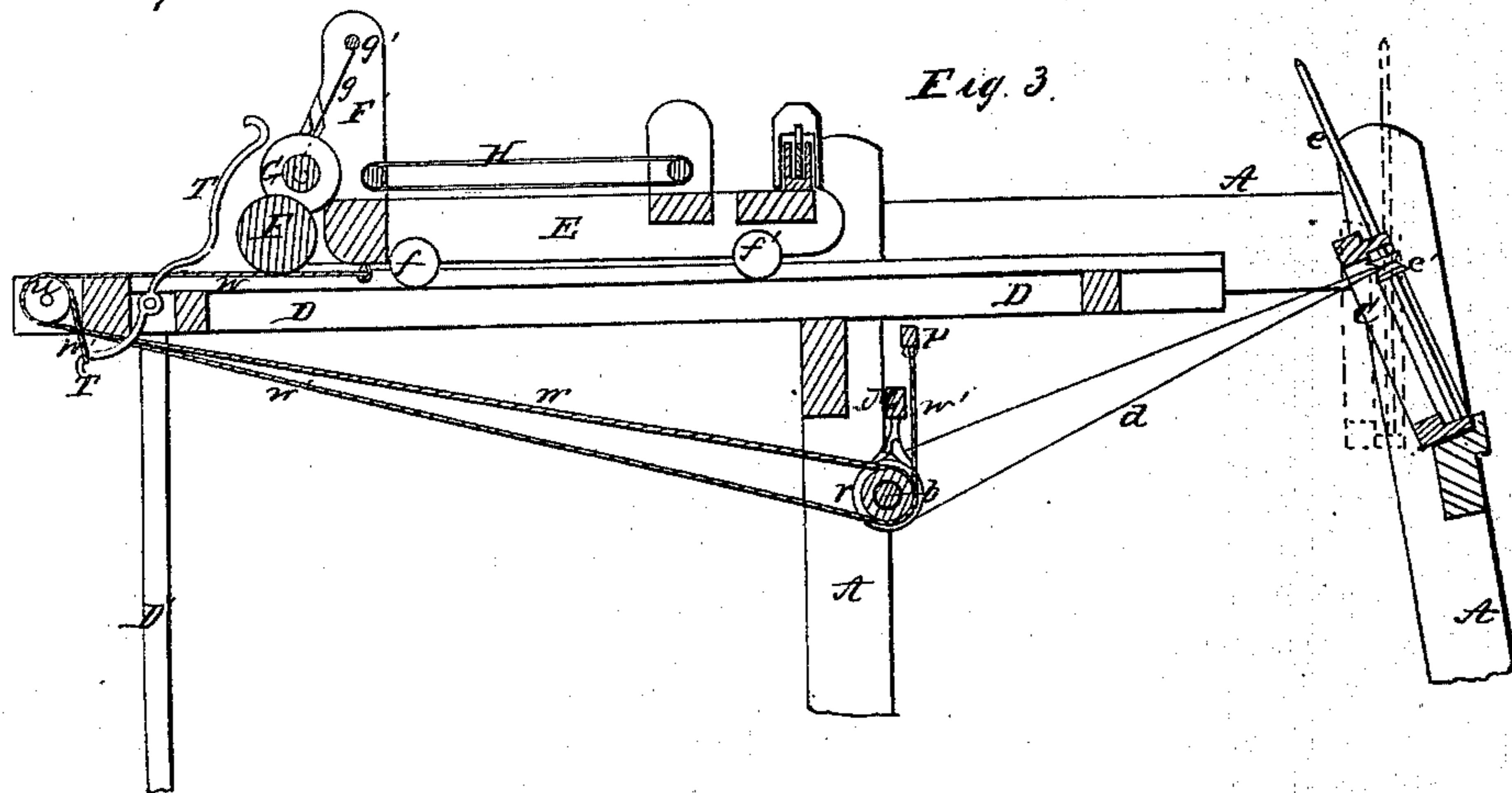
Inventors,
 Joseph Hart, Sarah Hart, John Reesman
 by their Attys
 Mason, Hewick Lawrence

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United States Patent Office.

JOSEPH HART, SARAH HART, AND JOHN REESMAN, OF FARMINGTON, IOWA.

Letters Patent No. 68,872, dated September 17, 1867.

IMPROVEMENT IN SPINNING MACHINE.

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

TO WHOM IT MAY CONCERN:

Be it known that we, JOSEPH HART, SARAH HART, and JOHN REESMAN, of Farmington, in the county of Van Buren, and State of Iowa, have invented a Domestic Wool-Spinner; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan view of the improved wool-spinner.

Figure 2 is an elevation of one side of the same.

Figure 3 is a longitudinal section taken through the upper portion of the spinner in the vertical plane indicated by red line *y y* in fig. 1.

Figure 4 is a transverse section taken through the spinner in the vertical plane indicated by red line *x x* in fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on domestic or hand-spinning machinery, which are designed for simplifying and rendering such machinery more efficient in its operation.

The nature of our invention consists in a novel means for moving the carriage carrying the roping clamps during the operation of drawing and spinning, and of automatically stopping the motion of said carriage at a proper time for ceasing the drawing operation, as will be hereinafter described.

The invention also consists in a clamp for holding the roping during the drawing and spinning operations, which is so constructed that each roping is embraced between two semicircular jaws, and thus held firmly, so that none of the fibres are allowed to draw through, as will be hereinafter described.

It also consists in providing for unwinding the roping from its spool during a portion of the backward movement of the carriage, by means of side bars which have an endwise and vertical movement, and which are operated by arms upon said carriage, as will be hereinafter described.

To enable others skilled in the art to understand our invention, we will describe its construction and operation.

In the accompanying drawings, A represents the frame of the machine, which is adapted for containing and supporting the several parts employed in the operation of clamping, drawing, and spinning the roping. B is a driving-shaft, carrying a hand-crank, B¹, and a belt-wheel, B², over which latter the belt *a* passes and communicates motion to the pulley *a'* and its horizontal transverse shaft *b*.

The shaft carries upon it a number of grooved pulleys *c c c'*, around which belts *d d* or cords pass that communicate motion to the several spindles *e e*. These spindles *e e* have their upper and lower bearings in a frame, C, which is pivoted at both ends between the uprights of the main frame, so as to oscillate about said pivots as indicated in fig. 3, in which view the dotted lines indicate the frame C in an upright position for winding the twisted yarn upon the spindles or spools placed thereon, and the full lines indicate the frame in an inclined position for spinning and twisting the yarn. In order to allow the frame C to be moved in said positions without causing the bands *d d* to run off their pulleys *c' c'* on spindles *e e*, or becoming loose thereon, we arrange the axis of motion of said frame in line with these pulleys, and thus keep the driving-bands always under proper tension to rotate the spindles, whether the frame C be inclined or in an upright position. The spindle-carrying frame C is inclined during the backward movement of the carriage, to which the ropings are clamped, and during the drawing and spinning operation, and this frame is brought to an upright position for the purpose of allowing the spun yarn to be wound upon the spindles and the carriage to be moved forward by this winding-up operation. A handle or lever, C', upon one end of the spindle-frame C, is used for adjusting this frame, and suitable stops upon the frame A determine its proper positions.

Upon the rear uppermost rail of the frame A, and properly attached thereto, rests a horizontal frame, D, the two parallel side rails of which constitute tracks and guides for the roller *f* and wheels *f'* of a carriage, E, which travels backward and forward, toward and from the spindle-frame, during the operations of spinning, drawing, and winding. The outer end of the track-frame D may be supported upon the standard D' or in any other suitable manner.

The carriage E is provided with a friction feed-roller, F, upon its rear end, having its end bearings in

standards $F' F'$ upon the sides of said carriage, and this roller is arranged so that it will just clear the rail track. Above this roller and resting freely upon it is the spool G , carrying the ropings, the ends of which spool are guided in slots made in the standards F' , so that by means of two cords, $g g$, and a winding crank-rod, g^1 , the spool can be raised and removed from the machine when it is emptied of its ropings.

In front of the roping-spool is an endless apron, H , which passes around rollers, one of which is provided with a hand-crank, g^2 , by which this apron can be turned and the roping moved from the spool up to a clamp, which is used for holding each roping separately during the spinning and drawing operations, as will be herein-after described.

Upon each side of the track-frame D we apply a longitudinal bar, J , which is slotted, and fastened in place in the manner shown, or in any suitable manner which will allow this bar to be moved endwise and at the same time raised and lowered. Upon each one of these bars J , and applied at or near the extremities thereof, pins $i i$ project, which are acted upon by a curved arm, J' , on each side of the carriage E . When the carriage is drawn forward and arrives near the end of its forward stroke, the arms J' strike the pins i' and move both bars J forward and upward, so that, when the carriage is moved backward, the upper edges of these bars J will cause the roller F to revolve, and thus unwind a certain quantity of roping from the spool G , which rests freely upon it, as above described. When sufficient roping has thus been unwound from spool G upon the apron H , the pins i are so arranged that the arms J' strike them, and thus move the bars $J J$ backward and downward out of the way, so that the carriage can proceed backward the required distance without further movement of roller F . Pins $i i'$ may be made adjustable, so that the positions can be changed according as circumstances require.

The clamp K , which confines the ropings during the drawing and spinning operations, consists of two parallel plates, $l l$, secured together so as to leave a narrow space between them, in which is placed a sliding-plate, m , that is moved in a direction with its length by a short vibrating arm, n , shown in the figs. 1, 3, and 4. The upper edge of this clamp is notched, as shown at $p p$, the notches corresponding in number and distance apart to the spindles $e e$, and these several notches terminate in circular holes p' , which are made through the three plates forming the clamp. When the intermediate notched and perforated plate m is adjusted so that its notches and holes are in lines with those in the plates $l l$, the ropings are drawn into said holes through the notches and confined at such points by moving the plate m . By thus confining each roping strand between circular clamps, all the fibres of each strand will be closely held, and all the strands will be uniformly clamped.

For moving the carriage backward during the drawing and spinning operations, we employ an automatic contrivance for stopping the movement of said carriage when it reaches a position far enough for the spindles. This contrivance is as follows: Upon the horizontal shaft b , and between the two double pulleys $e' e'$ thereon, a loose drum, r , is placed, which has a number of holes made in one end for receiving studs that project from one end of one of the grooved pulleys e' when said drum is moved up to this pulley. When thus engaged with the pulley e' , the drum r will turn with its shaft b . Two forked arms $s s$ project down from a horizontal transverse rod, M , at both ends of said drum r , as shown in fig. 4, so that, by giving this rod an endwise movement, the drum r will receive a corresponding movement, whether at rest or rotating, and thus the drum can be engaged or disengaged at pleasure.

The rod M has a lever, N , applied to it, by means of which a person standing near the hand-crank B' can move the rod forward, and thus bring the loose drum r into gear with its fast pulley e' ; at the same time the hooked pin t will drop down and hold the rod M and drum r in the adjusted position.

Directly over the rod M is a lever, P , which is pivoted to the frame A , so as to vibrate freely. One end of this lever P is arranged beneath the hooked end of pin t , and the other end has a cord, w' , fastened to it, which passes under the drum r and is carried backward around a pulley, u , at the rear end of the track-frame D , and attached to the lower end of the lever T , shown in fig. 3, sheet 2.

One end of a cord, w , is attached to and wound around the drum r , and the other end is passed under and over the pulley u and attached to the bottom of the carriage-frame D , as shown in fig. 3. When the drum r , its rod M , latch-pin t , and lever P are in positions above described, and shaft b is turned, the cord w will be wound upon drum r , and the carriage E moved backward until it strikes the upper arm of lever T , when this lever, through its cord w' , will draw down the inner end of lever P , and thus raise the latch-pin t . When this pin t is raised so as to release the rod M , a spring, t' , shown in fig. 4, will force this rod backward and release the drum r from its pulley e' , so that the carriage E will stop. The carriage having been stopped, the spindle-frame C is brought to an upright position, as indicated in dotted lines, fig. 3, which will cause the spindles to wind up the spun yarn, and thus move the carriage back to a position for commencing the operation of drawing and spinning again.

We are aware that it is not new to employ parallel bars as clamps for holding roping during the operation of drawing and spinning, and we do not claim such contrivances as our invention. The clamp which we have herein shown and described is so constructed that each roll is clamped and held separately but uniformly, and is embraced by semicircular edges, so that all the fibres will be held firmly, whereas with straight-edged clamps this is not the case.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the combined clutch and drum r , for controlling the motion of the carriage, with the spindle-driving shaft and its pulleys, substantially as described.
2. The tripping-lever T , cord w' , lever P , latch-pin t , and spring-rod M , carrying arms $s s$, in combination with a drum, r , which is provided with a clutching device, all being arranged and constructed in such manner that when the carriage presses against the lever T , the drum r will be made loose upon its shaft, and this carriage caused to stop further backward movement.

3. The roping clamp K, constructed of plates *l l* and an intermediate sliding-plate *m*, notched and perforated, substantially as described.

4. Providing for unwinding the roping from its spool G, during a portion of the backward movement of the carriage E, by means of a friction-roller, F, and vertically and endwise movable bars J J, which latter are actuated by the arms J' on the carriage, substantially as described.

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