Nov. 29, 1949

W. HARTLEY

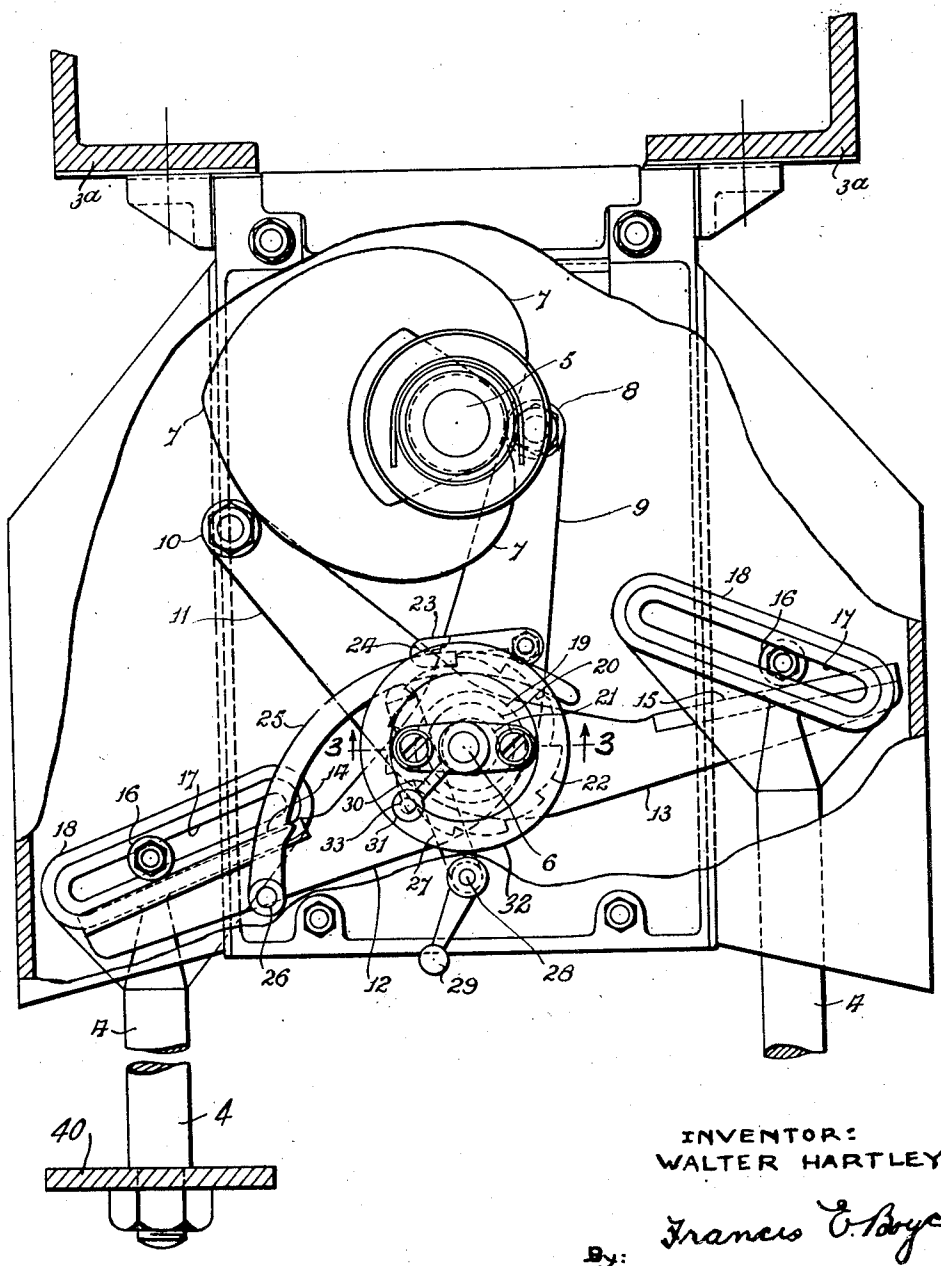
TRAVERSE MECHANISM FOR RAYON POT-SPINNING MACHINES

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2 Sheets-Sheet 1

FIG. 1.



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FIG 2.

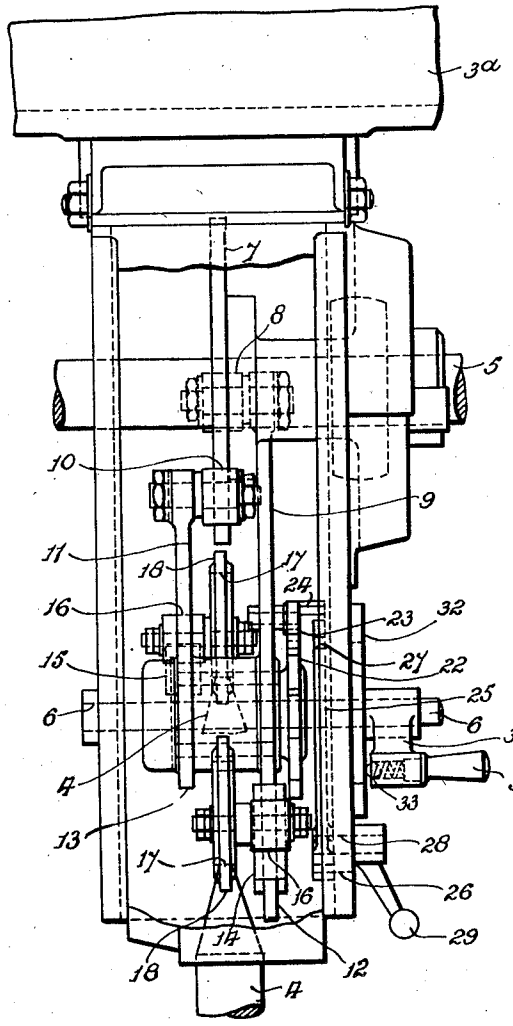
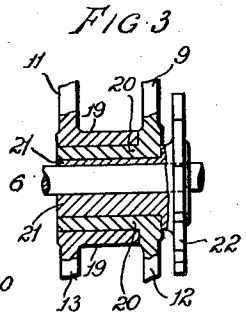


FIG 3



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TRAVERSE MECHANISM FOR RAYON POT-SPINNING MACHINES

Walter Hartley, Radcliffe, England

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4 Claims. (Cl. 242—158)

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This invention has reference to the traverse mechanism of rayon pot-spinning machines, and has for its object to provide an improved means for raising and lowering i. e., traversing, the funnels which feed the yarn into the spinning pots, thus providing a creeping traverse, whereby better cakes or spools of yarn can be built up in the spinning pots than is possible at present, the cakes or spools having a more even density and thickness, with greater firmness and stability which ensure safe handling and improve subsequent processing.

According to this invention the traverse rails of a rayon pot-spinning machine are raised and lowered by mechanism comprising rocking traverse arms which rock on a centre progressively moved in an orbit eccentric to a fixed centre, this movement gradually raising and lowering the terminal points of each stroke of the traverse, the length of the stroke of the traverse rails being adjustable, and also the setting of the lowest point of the stroke.

The invention is more particularly set forth with reference to the accompanying drawings, in which:

Fig. 1 is an end elevation showing part of a spinning frame with the apparatus in position,

Fig. 2 is a side elevation of Fig. 1, and

Fig. 3 is a sectional plan of the eccentric motion on the line 3—3 of Fig. 1.

In the drawings there is shown mechanism which illustrates the invention and is sufficient for a description thereof, but the same mechanism is repeated at intervals throughout the length of the machine. The traverse rails are usually on both sides of the machine, and it is to such a machine that this invention is directed, though it can be adapted to machines having traverse rails on one side.

The traverse rails do not normally extend as one rail for the whole length of the machine, but are arranged end to end in bays or sections so that any one bay or section can be put out of action, and can be stopped without stopping the whole machine.

At each end of each such bay or section there is mechanism according to this invention, though the mechanism at one end has certain features not present in the other.

In the drawings the frame of the machine is shown at 3a, and the traverse rails which are not shown are carried by rods 4.

Mounted on the machine 3a and extending for the full length of the machine over the middle is a shaft 5 which is driven by any suitable mechanism, but usually by an electric motor, and below this is a second shaft 6 for each bay or section.

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On the shaft 5 are heart shaped cams, only one of which, 7, is shown, and against the edge of this cam 7 there bears at one side a bowl or roller 8 carried on, and projecting from, the side of an arm 9. On the opposite side is a similar bowl or roller 10 on an arm 11. The arms 9 and 11 are both arms of bell-crank levers, whose other arms set at an obtuse angle are respectively 12 and 13, each of which has on it a flat top face 14 and 15 respectively.

Resting on the flat faces 14 and 15 are bowls or rollers 16 adjustable in slots 17 in inclined heads 18 of the rods 4 carrying the traverse rails 40, one of which is shown in section in Fig. 1, so that the traverse rails are all supported on the arms 12 and 13 of the bell-crank lever, and pulls the bowls or rollers 8 and 10 into engagement with the heart shaped cam 7.

The bell-crank levers are on bushes or sleeves 19 and 20 (see Fig. 3), which fit into one another so that each bell-crank lever can swing independently of the other, and the inside bush or sleeve 20 is mounted on an eccentric 21 on the geometric center of which the bell-crank levers turn, the eccentric being secured on the shaft 6 and having on it at one end a ratchet wheel 22 on which rests a pawl 23 carried on the side of the arm 9 of one of the bell-crank levers, which pawl has a projecting pin 24 at one side.

The pin 24 projects over a curved arm 25 pivoted at 26, under which is an arm 27 pivoted at 28 and operated by a handle 29, which handle when moved to the right—Fig. 1—will turn the arm 27 to the left, and lift the curved arm 25 which in turn will engage the pin 24 on the pawl and lift the pawl out of engagement with the teeth of the ratchet wheel 22.

On one end of the shaft 6 is an arm 30 operated by a handle 31, which can be moved round a disc 32, which may have slight depressions in it to receive a spring pressed ball 33 which binds on the disc 32 and holds the arm 30 at any position to which it may be turned; by this means the shaft 6 and the eccentrics on it can be turned.

The mechanism so far described is at one end of the shaft 6 of each bay or section and at the other end is similar mechanism, but without the ratchet and pawl mechanism and without the arm 30 for turning the shaft 6. When the machine is in operation the heart shaped cams 7 which are rotating continuously cause the bell-crank levers to swing up and down to impart the

traverse to the traverse rails, the bowls or rollers 16 moving up and down the faces 14 and 15 of the arms 12 and 13, the actual traverse movements being regulated from minimum to maximum by the shape of the cam. The bell-crank levers will, as will be seen, always rock round their own centre.

The pawl 23, when dropped on to the ratchet wheel 22, will, at each outward movement of the arm 9, turn the ratchet wheel 22, and will overrun the teeth, as it comes back, and as the ratchet wheel is secured to, or forms part of, the eccentric 21, it follows that this also will be turned. As the bell-crank levers are mounted on the eccentric, the centre on which they rock, i. e. the geometric center, is slowly moved round in an orbit, and the fulcrum of the bell-crank levers is constantly changing between maximum and minimum positions, and the up and down motion of the ends of the arms 12 and 13 have progressively increasing and decreasing amplitudes within the bounds set by other adjustments and the result is to produce a cheese of yarn laid evenly on the inside of the pot, without the danger of the ends falling in, which at present is a frequent source of trouble.

Before the spinning is begun certain adjustments may be necessary, which may be as follows:

The bowls or rollers 16 may need to be moved up or down in the slots 17 to bring it nearer to or further from the centres of the bell-crank levers, and by doing this the length of the up and down movements of the rods 4 and the traverse rails carried by them can be controlled and varied according to the depth of the pot in which the yarn is to be formed into a cheese.

In order to set the lowest point to which the funnels will descend into the pots at the beginning of the spinning, the handle 29 is turned to lift the curved arm 25 and the pawl 23 which thus disconnects the eccentric 21 and the shaft 6 from the bell-crank levers, so that the shaft and the eccentrics at both ends of the shaft can be turned by the handle 31 to the desired position.

It will be appreciated that as the traverse rails with all they carry hang on the rods 4, the lifting movement only is done by the heart shaped cam 7, as the weight on the arms 12 and 13 will pull them down, and in so doing will hold the bowls or rollers 8 and 10 in engagement with the cam.

What I claim as my invention and desire to secure by Letters Patent is:

1. Traverse mechanism for rayon pot-spinning machines comprising a shaft driven by power, a heart shaped cam on said driven shaft, a second shaft vertically below said driven shaft, an eccentric on said lower shaft, forming a bearing and secured to said lower shaft, a pair of bell-crank levers rockably mounted on said eccentric and about its geometric center, one end of each of said bell-crank levers bearing on said heart shaped cam, rods for supporting traverse rails connected to the other ends of said bell-crank levers, and means for progressively rotating the eccentric to move in an orbit, the geometric center of said eccentric thereby gradually raising and lowering the terminal points of each stroke of the traverse.

2. Traverse mechanism for rayon pot-spinning machines comprising a shaft driven by power, a heart shaped cam on said driven shaft, a second shaft vertically below said driven shaft, an eccentric on said lower shaft, forming a bearing and secured to said lower shaft, a pair of bell-crank levers rockably mounted on said eccentric, one end of each of said bell-crank levers bearing on said heart shaped cam, a traverse rail connected to the other ends of said bell-crank levers, a ratchet wheel on said lower shaft, a pawl on one of said bell-crank levers engaging said ratchet and moving it round, when swinging in one direction and over-running in the opposite direction whereby said shaft and said eccentric are progressively turned, thereby causing the centre about which said bell-crank levers rock to be moved in an orbit and raise and lower the terminal points of each stroke of the traverse.

3. Traverse mechanism for rayon pot-spinning machines comprising a shaft driven by power, a heart shaped cam on said driven shaft, a second shaft vertically below said driven shaft, an eccentric on said lower shaft secured thereto and forming a bearing, a pair of bell-crank levers rockable on said eccentric bearing, a roller at one end of each bell-crank lever pressing on an edge of said heart shaped cam, a flat face on the top of each other end of said bell-crank levers, a roller resting on each of said flat faces, a slotted head wherein each of said rollers is adjustable, a vertical rod connected to each of said slotted arms, a traverse bar hanging on said vertical rods, a ratchet wheel on said lower shaft, a pawl on the face of said bell-crank levers, engaging said ratchet moving it round and over-running in the opposite direction to turn the eccentric and progressively move in an orbit the centre about which said bell-crank levers rock, said pawl having on its side a pin, a curved pivoted arm lying at one end under said pin, a handle operated arm under said curved pivoted arm whereby said pawl can be lifted clear of said ratchet wheel.

4. Traverse mechanism for rayon pot-spinning machines comprising a shaft driven by power, a heart shaped cam on said shaft, a second shaft vertically below said driven shaft, an eccentric on said second and lower shaft secured thereto and forming a bearing on said second and lower shaft, a pair of bell-crank levers freely rockable on said eccentric, a ratchet wheel on said second and lower shaft, a pawl on one bell-crank lever to move said ratchet wheel in one direction and to over-ride in the other means for lifting said pawl off said ratchet wheel, an arm on said second and lower shaft at one end, a machine frame, a disc carried by said machine frame over which said arm can be moved to turn said second and lower shaft when said pawl is disengaged from said ratchet to set the lowest point at which spinning is to start, means being provided to hold said handle at its adjusted position on said disc.

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