(No Model.)

A. T. LAWSON.

MACHINE FOR SPINNING FLAX, &c.

No. 390,485. Patented Oct. 2, 1888.

FIG. 1.

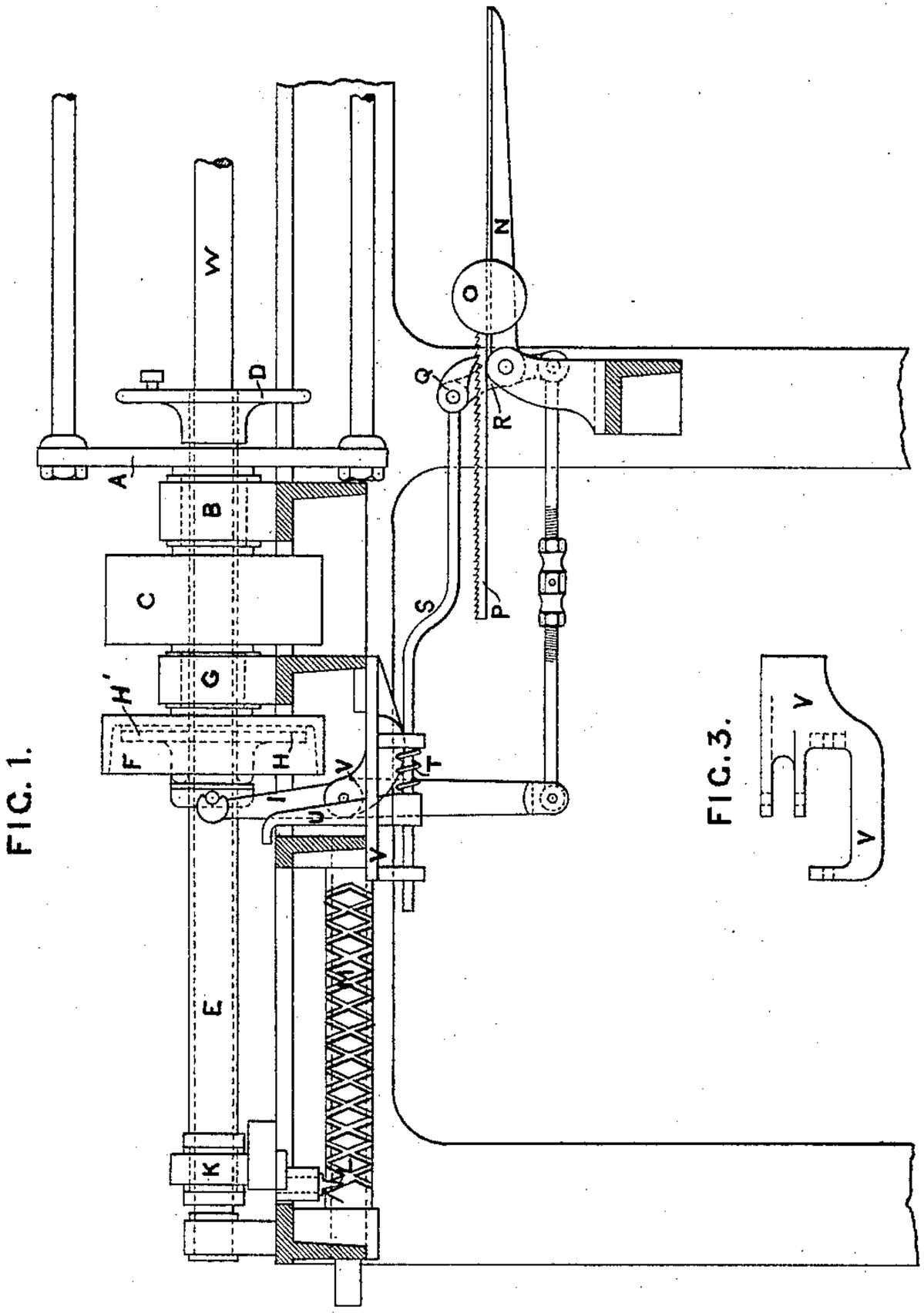
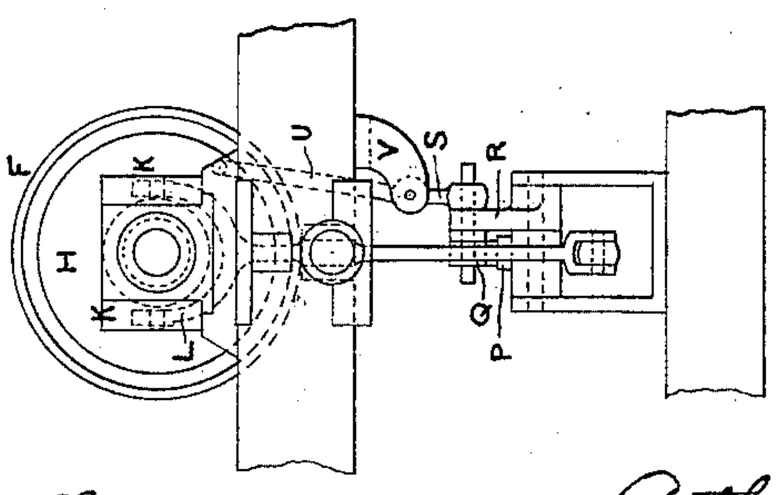


FIG. 3.

FIG. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

ARTHUR TREDGOLD LAWSON, OF LEEDS, COUNTY OF YORK, ENGLAND.

MACHINE FOR SPINNING FLAX, &c.

SPECIFICATION forming part of Letters Patent No. 390,485, dated October 2, 1888.

Application filed December 13, 1887. Serial No. 257,776. (No model.) Patented in England December 20, 1886, No. 16,725, and in France November 17, 1887, No. 187,055.

To all whom it may concern:

Be it known that I, ARTHUR TREDGOLD LAWSON, engineer, a subject of the Queen of Great Britain, residing at Hope Foundry, Leeds, in the county of York, England, have invented certain new and useful Improvements in Machines for Spinning Flax, Hemp, and other Fibers, (for which I have received Letters Patent in Great Britain, No. 16,725, of December 20, 1886, and in France, No. 187,055, of November 17, 1887,) of which the following is a specification.

This invention has for its object improvements in machinery for spinning yarns from flax, hemp, and other fibers.

This apparatus consists of a revolving surface or friction-plate mounted in its bearing. On the outer edge it is formed as an ordinary pulley to be driven by a belt or gearing. This is driven at a fixed speed. Against this revolving friction-plate a loose friction plate or surface is made to work, and between the two surfaces leather or other substance is used. Through the boss of the loose friction-plate is fixed a feather or key, and through the boss the traverse-tube slides. This tube has a longitudinal keyway, into which the feather-key in the loose friction-plate fits. Fixed at the end of the traverse-tube is a bobbin-plate with a catch-pin to hold the bobbin in the process of the yarn being wound on from the flier. As the yarn on the bobbin increases more pressure is required against the loose friction-plate to cause its speed of revolution to approximate more closely to that of the flier. This is obtained with an automatic arrangement by a lever on a fulcrum. One end of this lever is pressed against the loose friction-plate, and the other end is connected with a swing-lever on which is a weight. This weight, which causes the pressure upon the friction-plate, is made to slide on the swing-lever, and the farther it is set from the fulcrum of the lever the greater is the pressure. Connected with the weight there is a rack or ratchet, and the pair are moved by a catch working in the teeth of the ratchet. The catch is actuated by the traverse slide-block and moves the weight a short distance outward from the fulcrum at the end of each traverse. By this arrangement the pressure is increased on the friction-plate at every traverse of the bobbin.

Figure 1 is a side elevation, with the frame-work in section, of machinery constructed as above described. Fig. 2 is an end elevation of the same. Fig. 3 shows the bracket V separately.

A is the flier, fast on a hollow axis, A′, which turns in bearings in a block, B, and has fixed upon it a band-pulley or gear-wheel, C, by which it can be driven.

D is the bobbin-plate on a hollow axis or traverse-tube, E, which passes through the hollow axis of the flier, and is also supported by the spindle W.

F is a friction-pulley or gear-wheel on a hollow axis, which is carried in bearings in the block G. As shown in the drawings, it is a band pulley and is driven by a band which travels at a speed somewhat less than the speed of the band which drives the flier.

H is a loose friction-disk through which the traverse-tube E passes. The boss of this friction-disk has a feather projecting inward from the interior of its boss and entering a keyway cut lengthwise of the traverse-tube. The friction-disk is, as shown, pressed against the face of the friction-pulley F by a lever, I. The upper end of the lever is forked, as shown at Fig. 2, and bears against two pins which project from opposite sides of a collar which is loose upon the tube E and bears against the end of the boss of the disk H, a disk, H′, of leather or such like material, being interposed between the two friction-surfaces. The axis of the lever I is carried by a bracket, V. (Shown separately at Fig. 3.)

K is a slide, to which the end of the traverse-tube is coupled. L is a neb or tooth projecting downward from the slide and engaging with the traverse-screw M in order that the traverse-tube may be moved to and fro by this screw, which is revolved in any ordinary manner.

The lever I, which presses the friction-disk against the friction-pulley, is at its lower end coupled by a link to the short vertical arm of a lever, N.

O is a weight mounted upon the longer and horizontal arm of this lever and capable of being slid along it.

P is a toothed rack extending from the weight.

Q is a pawl which engages with the teeth of the rack, and is carried by an arm, R, which turns freely around the axis of the lever N.

S is a sliding rod coupled to the arm R and acted upon by a spring, T, to draw the arm backward away from the weight.

U is a finger projecting from the rod S. The traverse-slide as it is slid to and fro strikes against this finger, and thereby shifts the rod S endwise and causes the pawl to shift the rack and weight along the horizontal arm of the lever N. In this way, as the accumulation of yarn upon the bobbin increases in diameter, the friction-holding between the friction-disk and its driving-pulley is increased, thus giving greater driving power, so that the difference between the number of revolutions made by the bobbin and by the flier is gradually diminished.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

The combination of the flier, its tubular axis, its driving-pulley fixed on this axis, the bobbin-holder, its tubular stem free to turn within and move endwise through the hollow axis of the flier, the slide to which the tubular stem is coupled and by which it is moved endwise, the loose driving-pulley through which the stem passes freely, the friction-disk through which the stem can move endwise but cannot turn, the lever I, by which the disk is pressed against the side of the loose driving-pulley, the lever N, to the vertical arm of which the lever I is coupled, the weight O, capable of being slid along the horizontal arm of this lever, the toothed rack P, extending from the weight, the rocking arm R, the pawl Q, carried by it and engaging with the teeth of the rack, the rod S, to which the arm R is jointed and which is moved endwise a distance by the slide coming against it at each end of its traverse, and the spring T, which moves it back again.

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