C. Clark.

Spinning Mach.

No. 6,753. Patented Oct. 2, 1849.

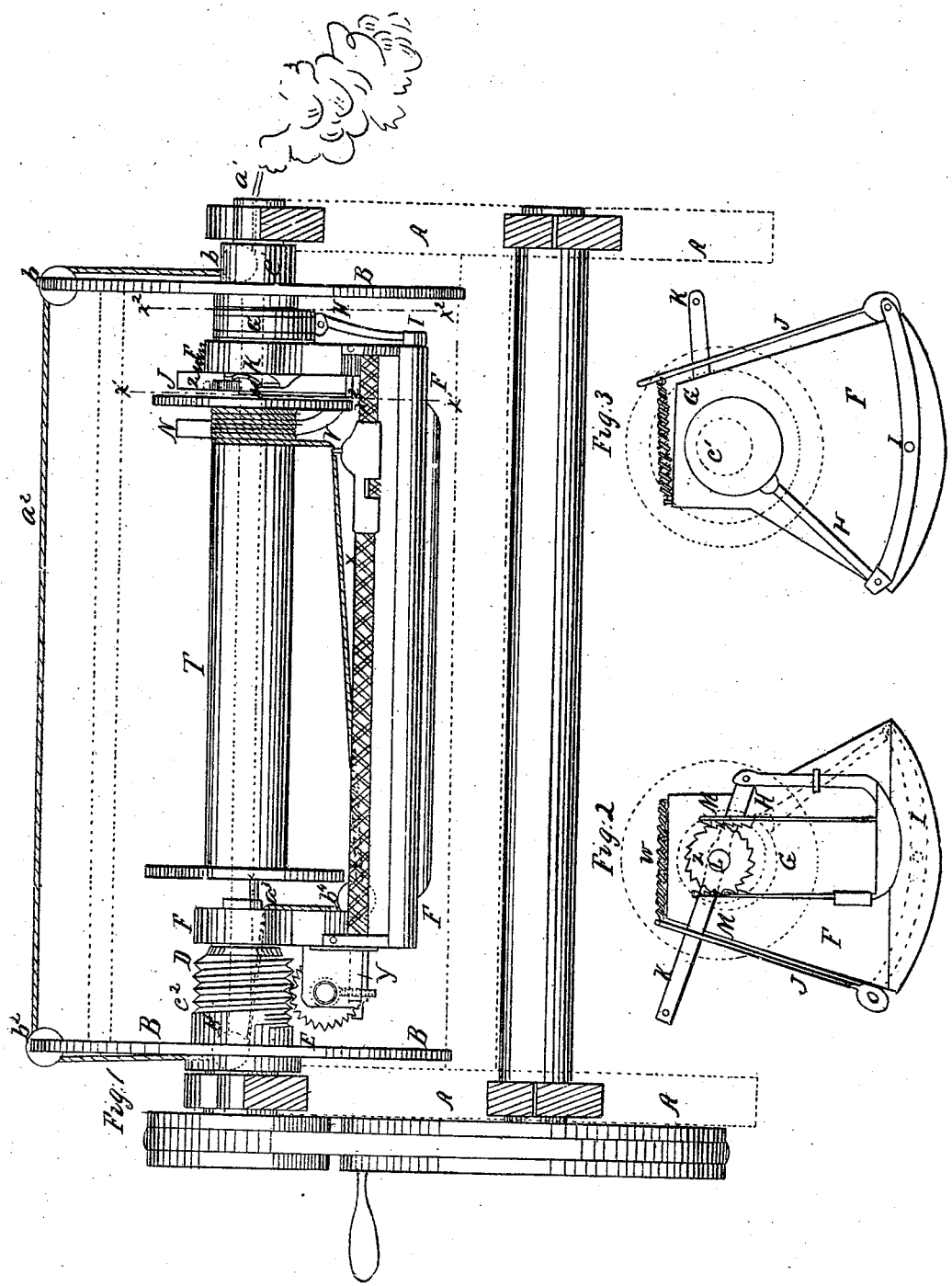

Fig. 1

Fig. 3

Fig. 2

UNITED STATES PATENT OFFICE.

CHARLES CLARK, OF WEST TROY, NEW YORK.

MACHINERY FOR SPINNING FLAX, &c.

Specification of Letters Patent No. 6,753, dated October 2, 1849.

To all whom it may concern:

Be it known that I, CHARLES CLARK, of West Troy, county of Albany, and State of New York, have invented a new and useful Improvement in a Machine for Spinning Flax and Such Like Substances; and I hereby do declare that the following is a full, clear, and exact description.

The nature of my invention and improvement consists in providing what I term a balance frame suspended below and combined with the bobbin or taking up shaft to operate the taking up bobbin by an intermittent motion, so as to make the bobbin wind on the spun yarn with the same regularity and tautness whether there be little or much yarn on the said taking up bobbin; also to give the flax, &c., two twists during one revolution of the flier.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation, reference being had to the accompanying drawings forming a part of this specification.

Figure 1 is a front elevation. Fig. 2 is a transverse section at line x' x' Fig. 1. Fig. 3 is a transverse section at line x^2 x^2 Fig. 1.

The same letters of reference indicate like parts on all the figures.

I first construct a stout frame of a square or rectangular form. On each end of this frame (or it may be termed a table) I erect two strong upright bearings or posts A A, distinguished by dotted lines. In the bearings of A, A, is suspended a reel B, of the common flier form, the circular ends of which are distinguished by dotted lines in Figs. 2 and 3. This reel or flier has a divided or two short axles C′ C². C′ is a hollow axle and receives the raw material a' which passes through the hollow part and comes out over a pulley b, outside of the circular side or end B of the reel, and then passes over a pulley b' on the periphery of B, twisting the material a^2 as the reel revolves. The other bearings or axle C² of the reel has a screw D cut on the inside of B the circular end, and the material flax, &c., a^2 passes over another pulley b^2 on the periphery of the circular end B of the reel, then down and through an opening in the axle C² of the reel, and around a pulley b^3, and through the hollow part inside of the axle C² of the reel, indicated by the red lines. The red lines show the inside or interior movement of the flax, &c., when the material a' is first received into the eye or hollow part of C′ and also into and passing through the hollow part of C² and behind the guiding worm screw—a right and left hand one.

It will be observed as represented in Fig. 1 that the material has a continuous twist given to it, when passing through the eye or hollow part of the hollow axle C′. After it has received this twist, it receives a second twist when passing through the axle C² and is then designated by a^3. The flax therefore receives two twists during every revolution of the axles C′ and C².

I will now explain the manner in which I wind up the spun yarn a^3 on the bobbin.

I provide what I term a suspended balance frame F F, made of cast iron. This is suspended on the inner ends of the axles C′ C², of the reel or flier. This frame is secured firmly to the said axles in any common way, hanging on the said axles, to have no lateral motion, but to allow the axles to revolve freely in openings made in the ends of the said balance frame, as will be understood by the section views. This balance frame by its gravity and fixedness on the axles, guides or directs two ratchets, which operate a ratchet wheel, to move the take up bobbin the exact distance required, during every revolution of the flier, to take up the exact quantity of spun yarn. This is done as follows: Fig. 2, is the section looking from the inside outward toward the right of Fig. 1, and Fig. 3, is the section looking inward; G is an eccentric secured to the axle C′ outside of that place on which the balance frame is suspended, as represented in Fig. 3. To this eccentric, is connected a reciprocating lever H, which is attached to a rocker I, which is secured to the end of the balance frame by a pin of such a diameter, as will allow the rocker to vibrate on the said pin as an axis. This rocker is attached to a guide bar J, which extends upward, and has a slot in it, near its top, through which projects the ratchet lever K. This lever K, has notches formed on its upper edge to prevent it from moving out of the slot in the bar J, except when its upper end is depressed.

L, Fig. 2, is a spindle, which passes through an opening in the ratchet lever K. On this spindle is a ratchet wheel Z, into which meshes two ratchets or ratchet rods M M, the which are connected to the lever K,

as represented in Fig. 2. The ratchet wheel is placed inside of the eccentric and inside of the end of the balance frame; and in the spindle L I construct a recess to receive the end of the bobbin spindle. The guide bar J, is attached by a cross piece to an upright bar N, which always leans on the yarn wound on the bobbin T, as represented in Fig. 1. This bar N, guides the lever K, to make the bobbin's circumference move through the same space continually, to take up the spun yarn regularly, whether there be more or less yarn on the bobbin. The bobbin is of the same form as those in use. It is placed in the flier as represented in Fig. 1, and it is easily put in and taken out. It is not placed in the axles of the flier, but in the spindle or bearings in the suspension frame. The bobbin has an intermittent rotary motion. The bobbin being fixed in its place, and motion communicated to the machine, the said bobbin, receives motion by the ratchet rods M M, giving an intermittent rotary motion to the ratchet wheel Z. The bar N, by always leaning against the greatest circumference of the bobbin, keeps the guide bar J, either farther from or nearer to the end of the lever K; and as the guide bar J is vibrated by the eccentric H on the axis C′, the ratchets M M, will receive a shorter stroke when the bar J, is placed nearer the end of the lever K, than when farther in or nearer its axis of vibration; therefore the spindle of the bobbin will be moved according to the distance the wheel Z, is moved by each stroke, long or short, of the rods M M.

The rope spinning machines in use at present have their bobbins revolving with their fliers. The bobbin, to perform its office correctly, must take up the exact amount of yarn spun, and no more, and it must make the spun yarn, wind taut on the bobbin without any slacking. The guide bar J, is retained firmly in its place to prevent it from springing, by a coiled spring W attached to it, at one end, and to the balance frame at the other.

The spun yarn a^3, is conducted from the hollow part of C^2 down over a grooved pulley b^4 fixed on the balance frame, and then through a ring of the traveler V. This traveler is operated backward and forward on the worm screw X which is cut right and left, and there is a small dog on the traveler which changes the motion in the usual way, and therefore need not be further described. The worm X is driven by a thread D, cut on the axle C^2 the which thread drives the pinion E, on a small transverse axle, which is suspended in bearings on the end of the balance frame. This small transverse shaft has a screw cut on one end of it which meshes into a thread Y cut on the end of the worm X, as represented by the red lines in Fig. 1. This is the way by which motion is communicated to the worm X. The flier may be driven by a band from any kind of power that may be applied.

Having thus described my invention, I claim—

1. The balance frame F, constructed substantially as described and suspended on the axles of the flier.

2. I also claim the combination of the eccentric G, with the rocker I, the balance frame F, the guide bar J, the regulating bar N the ratchet lever K, the ratchet rods M, M, and the ratchet wheel Z, on the spindle which moves the bobbin, to move the said bobbin in the manner substantially as herein described.

CHAS. CLARK.

Witnesses:
A. S. CONVERSE,
S. V. THORN.