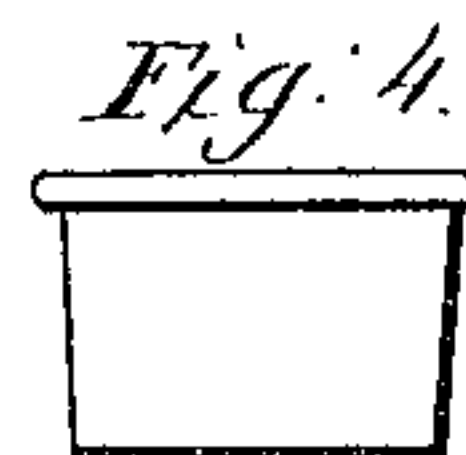
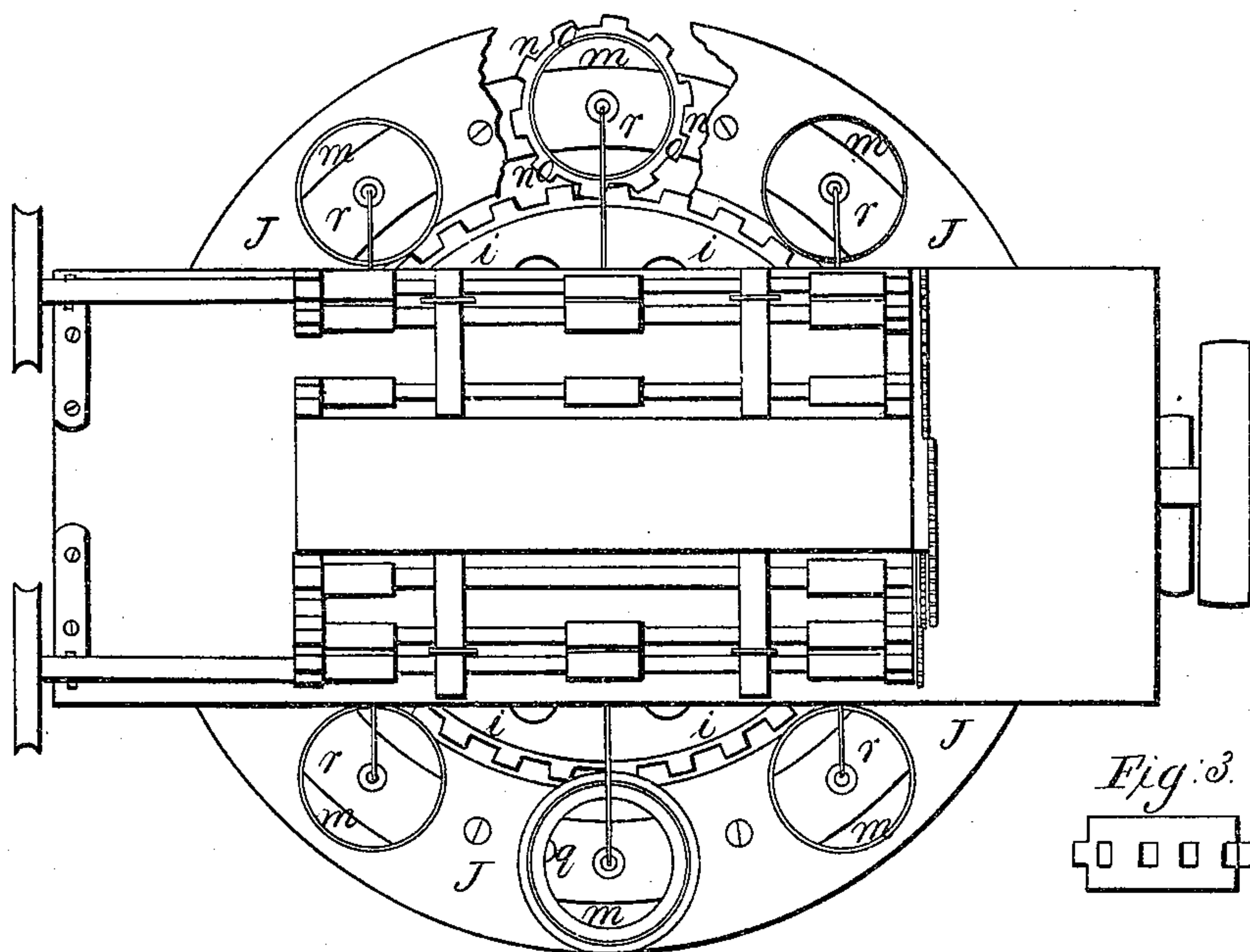
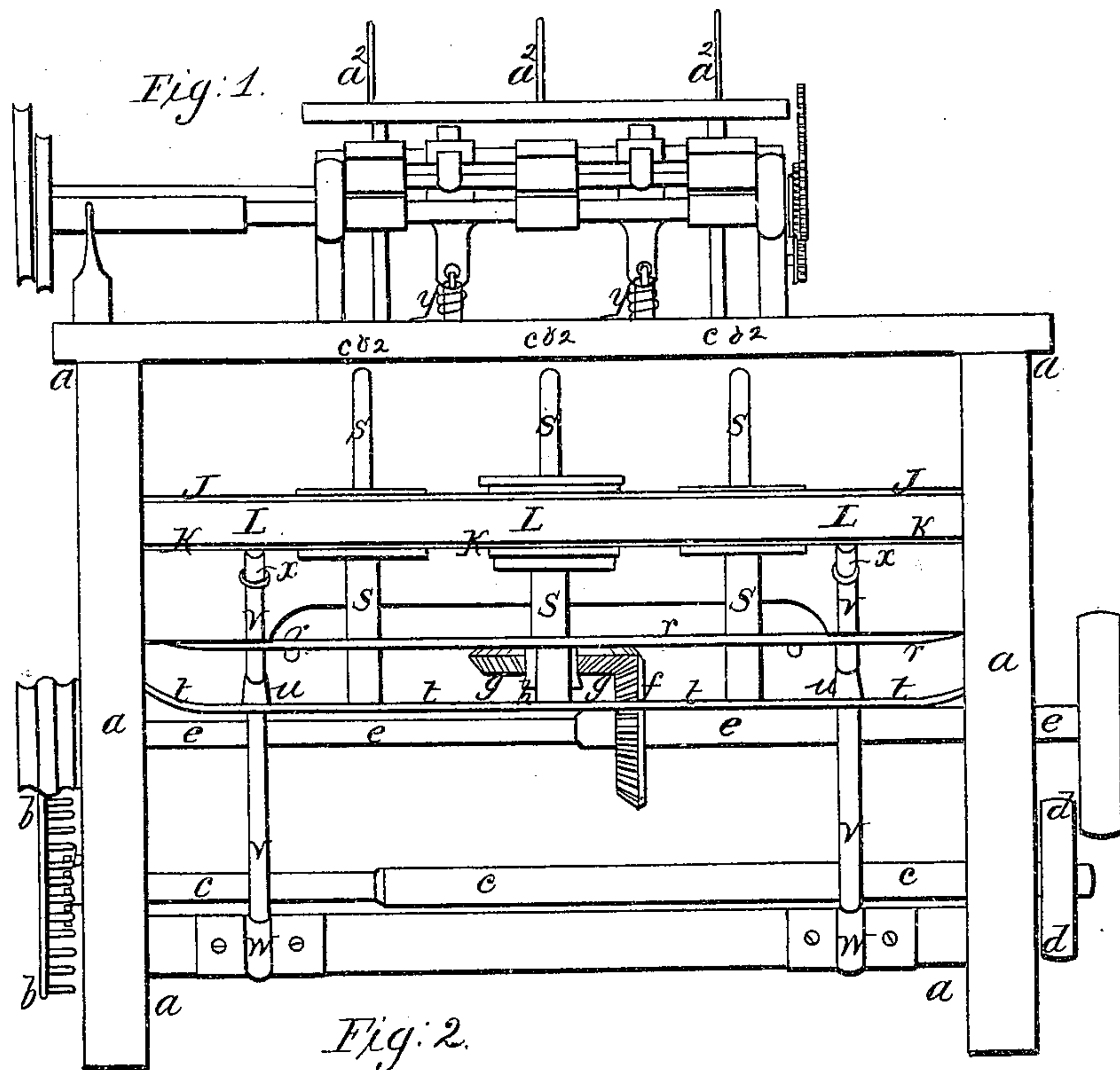


W. W. Staafford. Spinning Ring.

N^o 19,161.

Patented Jan. 19, 1858.



UNITED STATES PATENT OFFICE.

WILLIAM W. SPAFFORD, OF PETERBORO, NEW HAMPSHIRE.

SPINNING-MACHINE.

Specification of Letters Patent No. 19,161, dated January 19, 1858.

To all whom it may concern:

Be it known that I, WILLIAM W. SPAFFORD, of Peterboro, in the county of Hillsboro and State of New Hampshire, have invented and made certain new and useful Improvements in Spinning-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 is a front view or vertical elevation of the machine. Fig. 2, is a top view of the machine. Fig. 3, is a side view of the bush-gear. Fig. 4, is a side view of the twisting thimble.

The nature of my improvements, consists, in constructing a spinning machine in such a manner, by the special combination of peculiarly formed and arranged gear devices and twisting thimbles as to dispense entirely with the drums, or cord cylinders, the cords, and whirles, the throstles, the fliers, and rings usually employed in spinning yarns, and thereby greatly simplifying, rendering the machines more substantial, and reducing the cost of construction.

The object of my improvements is to overcome the unequal tension, and to prevent the kinking, knotting, and inequalities, of the thread or yarn in spinning, and thereby give a uniform filament in being drawn out from the roping.

By a reference to Fig. 1, it will be perceived, that my machine is composed of the usual frame work, *a, a, a, a, a, a, a* arranged upon which, are the well known devices, the mangle wheel *b, b, b*, and shaft *c, c, c*, provided with driving pulley or band wheel *d d*, and in lieu of the cord cylinder or drum, I employ a driver shaft *e, e, e, e*, having a master bevel gear wheel *f, f*, working into a horizontal pinion *g, g*, attached to a short spindle, working in a step place *h*. To the upper end of this vertical spindle, is attached a master gear or central drive wheel *i, i, i, i* Fig. 2. This central wheel is surrounded by two annular plates *J, J, J, J, K, K, K, K*, attached to a rim *L, L, L*, Fig. 1, the bottom plate resting on and confined to the framing rails of the machine, the plates and rim being held together by screws or pins, and forming an annular, or circular recess. These plates have series of suitable size circular openings, *m, m, m, m, m, m* Fig. 2. Within these openings are inserted bush like seats, formed with gear teeth or cogs

as at *n, o, n, o, n, o*, Fig. 2. The inner circumference of the bush is slightly conical or tapering, and these bush-gear Fig. 3 are of sufficient length, so as to extend somewhat above and below the plates in which they are inserted. The teeth or cogs of the bush-gear must be of a size to mesh or work into the cogs of the central gear wheel; and a greater or less number of these bush-gear may be used according to the size of the master or central, gear wheel. Within these bush gear, are fitted thimble-twisters *P, P, P, q* Figs. 1, 2, 4, formed conically so as to fit closely and smoothly in the bush-gear, and to move together. On the inner side of the thimble is inserted an eye loop, or eyelet as at *q* Fig. 2.

On the sides of the framing are arranged segmental plates *r, r, r, r, r, r*, and are attached to the underside of the rails of the machine. These segmental plates are formed with suitable size spindle openings, or holes immediately opposite or beneath the bush-gear, and through these spindle holes, extending upward, pass suitable spindles *s, s, s, s, s, s*, confined at their lower extremities, to adjustable, or elevating and depressing segmental plates *t, t, t*, formed with guide sockets *u, u*, through which pass vertical guide rods *v, v, v, v*, held in place by box caps *w, w*, and staples *x, x*, attached to the side rails of the machine.

To the top, or table part of the machine, is attached the ordinary series of rolls, pulley shafts, gearing and standards, and immediately above the rolls, is the bobbin board, and stationary spindles. In the sides of the top are inserted eyelet wires, or yarn guides, through which the yarn or thread passes down to the bobbin on the spindle.

Another feature of improvement, in my machine is the dispensing with the pendent weights, attached to the levers used to hold down the stirrup plates, and saddles across the rolls, and in lieu of the weights, using spiral springs *y y* hooked on to the ends of the levers, and attached to the table or top part of the machine. The advantages of these springs over the pendent weights are, that they afford a greater elasticity, and less rigidity of friction and pressure of the saddles upon the rolls.

In the operation of my improvement, the roping bobbins are placed in position on the stationary rods or spindle points *a², a²*,

a^2 , the roping being passed through the rolls $b^2—b^2—b^2$, thence down through the eyelets $c^2—c^2—c^2$ and around the bobbin on the spindles s, s, s, s, s, s . The machine is set in motion in the usual manner.

In producing yarn or thread by spinning machines, the desired object is to produce a smooth and equitable motion of the roping bobbin and the yarn bobbin, as well more particularly to carry off the roping with regularity, and forming the filament or thread, with equality of fiber and uniformity of tension. None of which however can with that desired degree of result, be accomplished, when cords, drums, and whirls with throstle, fliers, and ring devices are used; for the very apparent reason, that the action of cords and whirls, varies, and becomes more or less irregular owing to the action of the changes of atmosphere expanding or contracting the cords, which produces various motions and different, irregular action. But no such irregular motion, and irregularity of twist can take place in the operation of my machine, from the fact, that each bobbin is controlled, and moved by the central wheel, and bush-gears and consequently the motion of the roping bobbins, and the yarn bobbins is the same

uniform motion, uniform and very regular in speed likewise, and whereby is produced a perfectly well formed thread or filament, free of all knots and kinks, and being well laid over the bobbins, which through the adjustability of the segmental plates t, t, t elevated and depressed by the action of the mangle wheels the bobbins are made to receive the yarn or thread regularly throughout their extent.

Having described the nature, construction, and operation of my improvement, what I claim as new and desire to secure by Letters Patent of the United States is—

The construction of spinning machines, having series of bush gear wheels $n, o—n, o—n, o$, and twisting thimbles P, P, P, q , combined and working on the circumference of a main central driving gear wheel i, i, i, i , said central driving gear wheel, combined, with the annular plates $J, J, J, —K, K, K$, and the adjustable graduating segment plates t, t, t, t , the whole arranged and operated substantially as described.

WILLIAM W. SPAFFORD. [L. S.]

Witnesses:

JOHN I. HOLLINGSHEAD,
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