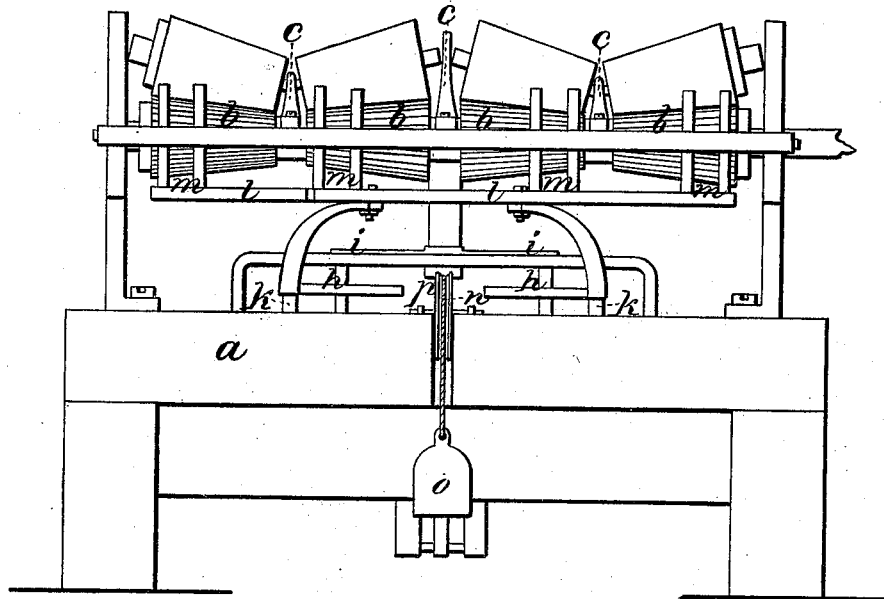


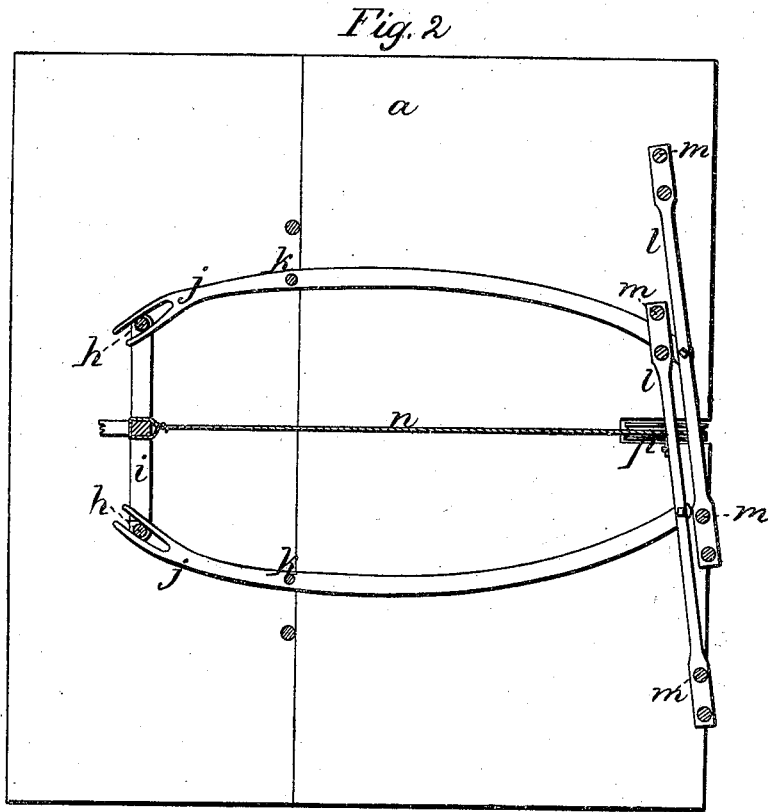
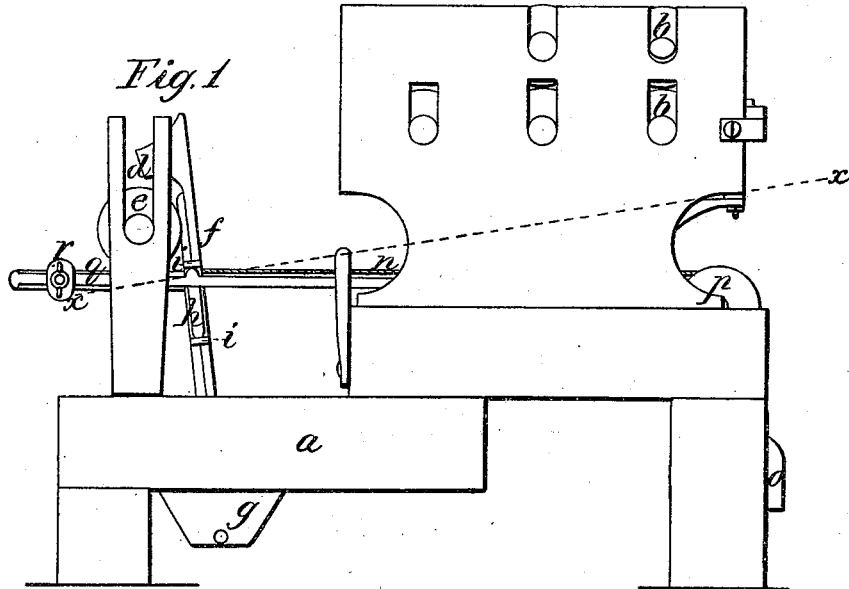
Sheet 2.2 Sheets

Pray & Stafford
Spinning Drawing Frame.
N^o 4847. Patented Nov. 12, 1846.

Fig. 3



Pray & Stafford
Spinning Drawing Frame
N^o 4,847 *Patented Nov. 12, 1846.*



UNITED STATES PATENT OFFICE.

JOS. PRAY AND C. STAFFORD, OF EAST KILLINGLY, CONNECTICUT.

DRAWING-FRAME.

Specification of Letters Patent No. 4,847, dated November 12, 1846.

To all whom it may concern:

Be it known that we, JOSEPH PRAY and C. STAFFORD, of East Killingly, in the county of Windham and State of Connecticut, have
5 invented new and useful Improvements in Drawing-Frames for Regulating Yarn, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other
10 things before known and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

15 Figure 1 is an end elevation of the drawing frame; Fig. 2, a horizontal section taken at the line (X X) of Fig. 1; and Fig. 3, a back elevation.

The same letters indicate like parts in all
20 the figures.

The nature of our invention consists in making each section of the first or back set of rollers conical that the supply of cotton, &c., to the other rollers may be more or less
25 to increase or decrease the draft on the fibers and thus regulate the size of the yarn; and also, in combining with this, guides connected with the condensing tube, which is on the upper end of a vibrating arm, the
30 connection between the guides and arm of the condensing tube being made by means of levers so arranged that when the yarn is too large and binds the tube shall be drawn toward the calender rollers, which
35 operates the guides to carry the roping toward the smaller diameter of the conical rollers to diminish the supply, and when it is small, to permit it to be drawn back by a weight or spring to move the guides back
40 toward the larger diameter of the rollers.

In the accompanying drawings (a) represents a drawing frame of the usual construction except that the back or first set of rollers (b) are made with each section conical, the bed as well as the upper rollers, the
45 latter of which are made with each section independent, the bearings of each running in supports (c, c, c). The condensing tube (d) that delivers the yarn to the calender
50 rollers (e, e) is of the usual form and attached to the upper end of an arm (f) that vibrates on journals in the brackets (g, g). Two small rollers (h, h), parallel to this

arm, turn in projections (i, i) therefrom, and are each embraced by the end of a horizontal lever (j, j), the part of each lever that embraces the rollers being forked for that purpose and bent from the general line of the levers so that when the arm of the tube vibrates toward or from the calender
60 rollers the levers (j, j) vibrate horizontally, and as they turn or fulcrum at (k, k) and are attached at the other end each to a bar (l) that carries the guides (m, m) two for each bar, making one for each division of the
65 conical rollers, the guides are made to traverse in front of the rollers to guide the roving. A cord (n) with a weight (o) is attached to the arm of the tube and passes over a pulley (p) for the purpose of draw-
70 ing the tube from the calender rollers to resist the tendency of the yarn, in being drawn through the tube by the calender rollers, from drawing it toward them; but this weight should be so small as to be
75 drawn up the moment the yarn becomes too thick, so that the weight and the resistance of the yarn in passing through the tube shall act against each other and thus regulate the size of the yarn by regulating
80 its passage between the conical rollers. An arm (q) projects from the arm of the tube and has a sliding weight (r) on it with a temper screw to set it at any distance for the purpose of balancing in part the weight
85 on the cord and to regulate the force with which it draws the tube from the calender rollers.

It will be obvious that instead of having two of the guides operated by each of the
90 levers, all the guides may be operated by one lever, or each guide by a separate lever, and that the connection between the tube and guides may be variously arranged, as we wish to leave this to the judgment and
95 fancy of the constructor, we having described and represented the above arrangement merely as one of the means which we have devised for the purpose of applying the principle of our invention. It will be
100 manifest that the principle is applicable to the working of any kind of drawing frame for all sorts of fibers worked thereon.

What we claim as our invention and desire to secure by Letters Patent is
105 1. Making each section of the first or back

set of draw rollers of a drawing frame conical for the purpose of regulating the size of yarn or roping, substantially as herein described.

2. We also claim the vibrating condensing tube in combination with the conical draw rollers for the purpose of operating the guides to guide the roving in its passage to

the conical rollers, substantially as herein described.

JOSEPH PRAY.
C. STAFFORD.

Witnesses:

ALDEN C. ANGELL,
R. BISHOP.