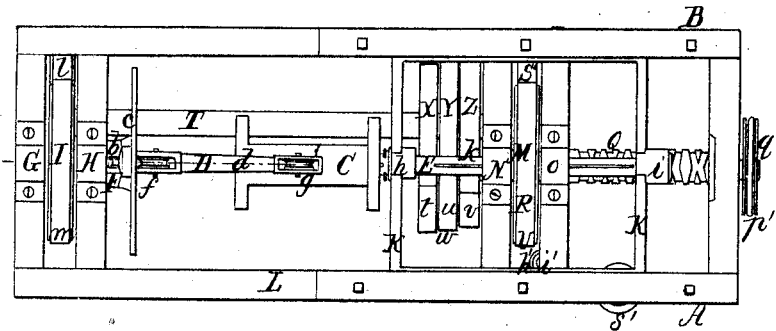


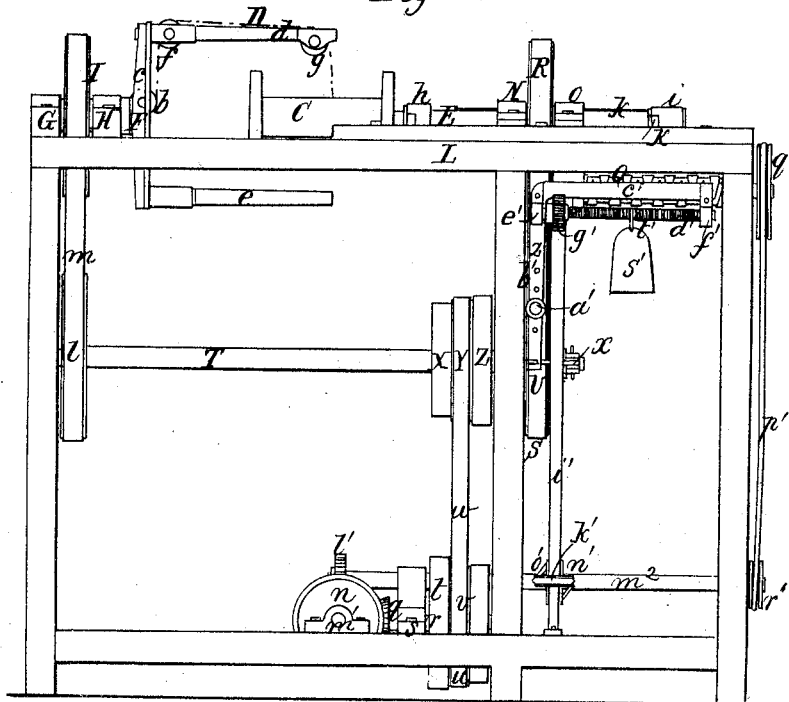
Sheet 1-2 Sheets.

*Pedrick & Melvin.*  
*Throstle and Can Spinning.*  
*N<sup>o</sup> 6,084.      Patented Feb. 6, 1849.*

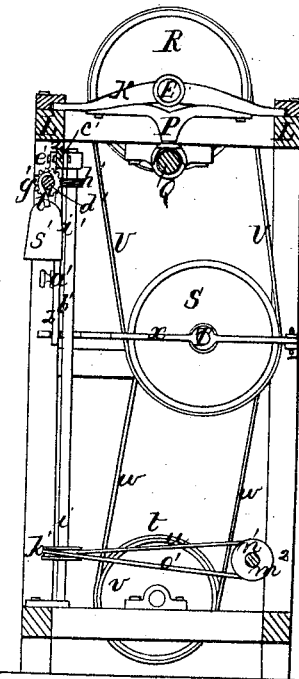
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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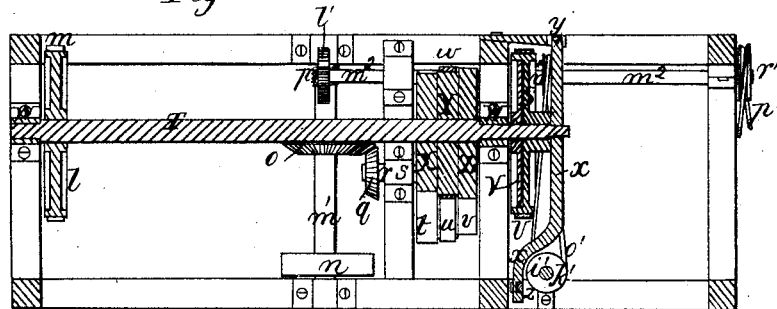
*Pedrick & Melvin.*

*Throstle and Can Spinning.*

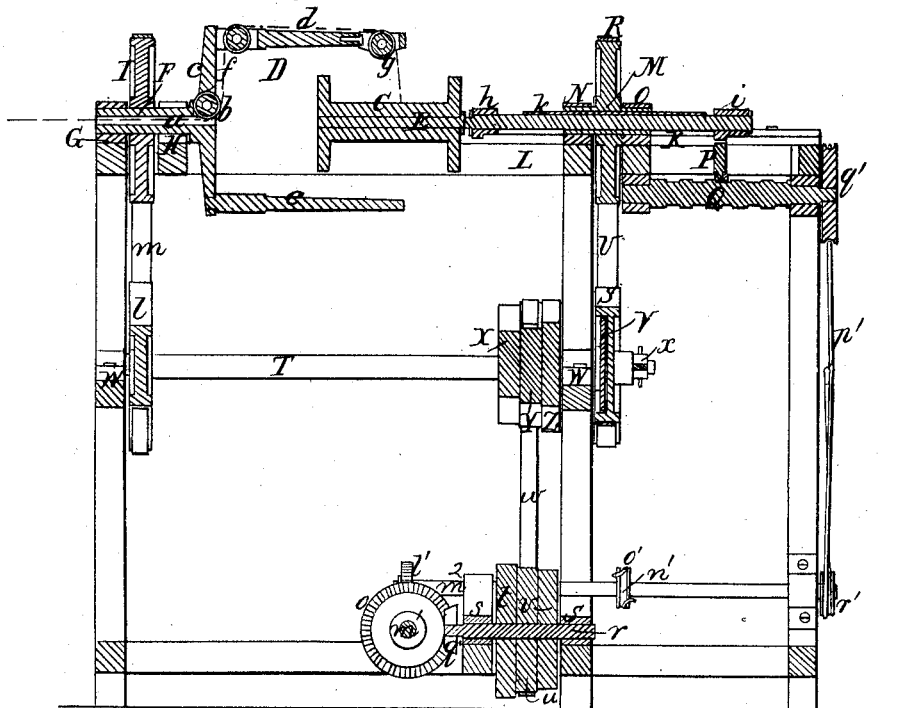
*N<sup>o</sup> 6,084.*

*Patented Feb. 6, 1849.*

*Fig. 4.*



*Fig. 5.*



# UNITED STATES PATENT OFFICE.

WM. PEDRICK AND THO. M. MELVIN, OF CHARLESTOWN, MASSACHUSETTS.

## MACHINERY FOR SPINNING HEMP.

Specification of Letters Patent No. 6,084, dated February 6, 1849.

*To all whom it may concern:*

Be it known that we, WILLIAM PEDRICK and THOMAS M. MELVIN, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machinery for Spinning Hemp; and we do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1, denotes a top view of our improved spinning machine. Fig. 2, a side elevation of it. Fig. 3, a vertical and transverse section of it, taken through and on a line from A, to B, Fig. 1. Fig. 4, is a horizontal section of it taken through the axis of the horizontal shaft T, Fig. 2. Fig. 5, is a vertical, central, and longitudinal section of the machine.

The peculiar object of our improvement is to produce a constantly increasing draft on the bobbin, sufficient to enable it to take up the yarn as fast as spun, and as the diameter of the cylinder of yarn wound on the bobbin increases in size.

In the drawings the bobbin is exhibited at C, and the flier at D, they being placed or arranged on separate shafts E, and F. The journals of the flier shaft F, or neck of the flier, are supported in two boxes G, H, and so as to be capable of being revolved therein. Between the said boxes, and fixed on the said shaft is the driving pulley I, of the flier. The neck or shaft F, of the flier is made tubular or with a passage *a*, through it from end to end, the said passage terminating against a guide pulley *b*, fixed on the flier head or plate *c*. The two arms of the flier are seen at *d*, *e*, one of them having two pulleys *f*, *g*, fitted to it. The yarn on entering the machine passes through the neck of the flier, thence under the pulley *b*, thence over the two pulleys *d*, *e*, and to the bobbin as denoted by red lines in the drawings.

The bobbin shaft E, is supported in bearings *h*, *i*, of a horizontal sliding frame K, which is sustained on the main frame L, in such manner as to be capable of being moved back and forth, in a longitudinal direction. The said bobbin shaft E, passes and moves through a tubular shaft M, which is fixed and revolves in boxes N, O, there being what is termed a "feather or spline," *k*, on the shaft E, and a corresponding recess in the shaft M, for its reception. By means of the

said feather and recess the rotary motion of the shaft M, is imparted to the bobbin shaft and bobbin during the reciprocating rectilinear movements of the frame K, and said bobbin and shaft; the said movements being produced by a fork P, and a screw with crossed threads or grooves as seen at Q.

A driving pulley R, is fixed on the tubular shaft M. Around the said pulley and another pulley S, (made to run loosely on a horizontal shaft T,) an endless band U, passes. A friction plate V, is attached to the shaft T, and rests with one side in contact with the side of the pulley S. The said shaft T, is sustained in suitable boxes W, W, and has a set of pulleys X, Y, Z, fixed on it near one end of it and a pulley *l*, applied and affixed to it near its other end as seen in the drawings; an endless band *m*, being made to pass around this last pulley *l*, and the driving pulley I, of the flier shaft.

The driving shaft of the machine is seen at *m'*. It is supported in proper boxes, and carries a driving pulley *n*, a beveled gear *o*, and a worm or screw *p*, fixed on it in the positions as seen in Fig. 4. The beveled gear *o*, operates in or engages with a beveled pinion or gear *q*, fixed on one end of a short horizontal and longitudinal shaft *r*, which is sustained and runs in bearings *s*, *s*, and has a system of pulleys *t*, *u*, *v*, fixed upon it; around either one of which and the corresponding one of the set of pulleys X, Y, Z, an endless belt *w*, passes, and when put in revolution gives motion to the shaft T, through which motion is transmitted to the flier.

We will now take occasion to remark that when the flier and bobbin are put in rotation they are both moved in one direction, but the latter is to be properly retarded in velocity, and is to have a constantly increasing draft sufficient to enable it to take up or wind up the yarn as fast as may be required. For this purpose we employ machinery such as we shall now describe.

The pulley S, before mentioned is pressed or borne against the friction plate V, by a horizontal lever *x*, whose fulcrum *y*, is at one end. The said lever is jointed at its front end to a vertical lever Z, which turns on a fulcrum or screw pin *a'* which is passed through it just above the lever *x*, and screwed into a plate *b'* made to project from the main frame. The said lever Z, has an arm *c'* extended from it horizontally for the

purpose of supporting in connection with it a horizontal screw  $d'$  which is applied to the lever and supported so as to be capable of being revolved in bearings as seen at  $e'$ ,  $f'$ .  
 5 On the said screw a worm gear  $g'$  is fixed, the same being made to engage with an endless screw or worm  $h'$ , placed near the upper end of an upright shaft  $i'$  which is supported in suitable bearings and has a driving  
 10 pulley  $k'$  fixed upon it, the said shaft  $i'$  being put in revolution by the rotation of the main driving shaft  $m'$ , transmitted to it through the screw  $p$ , a worm gear  $l'$ , a shaft  $m^2$  a pulley  $n'$  on the said shaft  $m^2$  and a  
 15 band  $o'$ , the whole being arranged and applied together as seen in the drawings. The crossed thread screw  $Q$ , is put in revolution by a crossed band  $p'$ , which is made to pass around two pulleys  $q'$   $r'$  situated respectively on the shaft of the screw and the shaft  $m^2$ .

A weight  $s'$ , is hung by a hook  $t'$  upon the screw  $d'$  the hook being made to extend into the space between any two adjacent  
 25 turns of the thread of the screw. When the spinning operation is first commenced the hook of the weight  $s'$  is placed on the screw, and as near to the worm gear  $g'$  as possible. The machinery being put in motion the  
 30 screw  $d'$  should be caused to revolve in such a direction, as to gradually move the weight away from the gear  $g'$  and thereby cause the pulley  $S$ , to bear with a constantly increasing force against the friction plate  $V$ ,  
 35 sufficient to enable the bobbin, as the filling increases in size to drag upon the yarn with the necessary power.

Although the bobbin and flier are both put in revolution in the same direction, yet  
 40 the velocity of the former must be less than that of the latter, and to such extent when the yarn is first wound on the bobbin as to enable it (the bobbin) to take up the yarn. By making the pulley  $S$ , suitably less in  
 45 diameter than the pulley  $l$ , is, the two pulleys  $R$ , and  $I$ , being of equal size or diam-

eter, the velocity of the bobbin may be made so much less than that of the flier as may be sufficient to cause the yarn to wind tightly on the bobbin at the first commencement of the operation of filling it. Now as the filling of the bobbin increases in size or diameter it has a tendency to take up the yarn faster than it ought to. Consequently the velocity of the bobbin must be duly retarded so as to overcome this difficulty; but while being so gradually retarded in velocity and the filling increases in size, the bobbin will gradually lose its power of draft on the yarn; this power being produced by the amount of friction generated by the pressure of the friction plate  $V$ , against the pulley  $S$ , which had we no apparatus or mechanism for increasing the same would be constant. It will therefore be seen that as the filling of the bobbin increases in diameter, it becomes necessary to press the wheel  $s$ , against the friction plate  $V$ , with a constantly increasing force in order to increase the friction. This is effected by the levers  
 70  $x$ , and  $z$ , the screw  $d'$ , the worm gear  $g'$  the weight  $s'$  and other mechanism connected therewith as above described.

What we claim therefore as our invention, is,

The combination of levers  $x$  and  $z$ , or any mechanical equivalent or equivalents, a screw  $d'$  and weights  $s'$ , or any mechanical equivalent or equivalents therefor; and the pulley  $S$ , and friction plate  $V$ , the whole being applied and operated together, and so as to actuate the bobbin substantially in manner, and for the purpose as specified.

In testimony whereof we have hereto set our signatures this eighth day of July A. D. 1848.

WILLIAM PEDRICK.  
 THOMAS M. MELVIN.

Witnesses:

R. H. EDDY,  
 D. H. TILLSON.