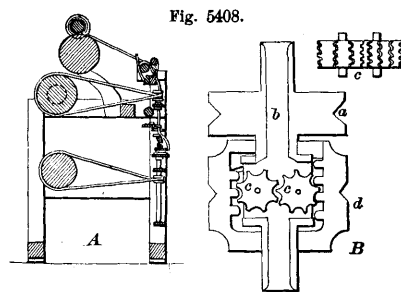


Spin'ning-head. A form of spinner in which the drawing and twisting mechanism are united in one head. This was the first form of spinning-machine, if we except the spinning-wheel. It was invented by Lewis Paul, and patented by him in 1738. His machine had successive pairs of shaving-rolls for elongating the roving, the speed of the consecutive pairs increasing, so that each pulled upon the roving between itself and the succeeding pair, the eventual extension depending upon the relative rates of increase of speed of the successive pairs. He also gave to one or more of the pairs of rollers a revolution at right angles to the plane of their rotation, so as to give a twist to the yarn.

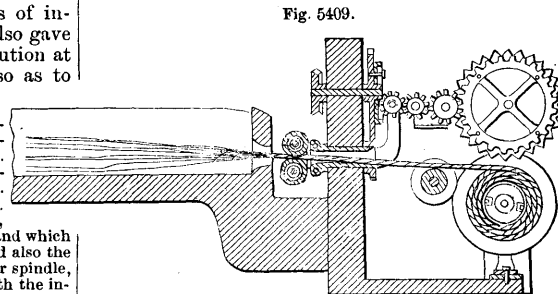
It is not exactly certain why this invention was unsuccessful; it was due primarily to coarse workmanship doubtless, but also to a congenital defect, possibly. Fig. 5408 is a view of an apparatus on a similar principle, patented in the United States 110 years afterward. *A* is an elevation, partly in section, of the machine. *B* is an enlarged view of the drawing and twisting head, and shows a pair of rollers. *a* is the groove for the band which rotates the tube *b* through which the roving passes, and also the wheels *c c*, which, besides their proper motion on their spindle, have rotation on their axes by contact of their cogs with the interior worm of the rotating-case *d*.

Fig. 5409 is a machine on this principle, for twisting single strands of flax, hemp, etc. The material lies loosely in a trough, from which it enters between the twisting-rollers. The receiving spool is rotated by the positive revolution and weight of the toothed guide-wheels, the strand being guided between them. The bearings of this spool are automatically shifted,



Spinning-Head.

that its axis may incline a little, to insure the better laying of the coil; the coil as laid gradually slides the spool upon its axis, first in one, and then in the opposite direction. The barrel



Machine for Twisting and Winding Fibers.

of the spool is hollow and compressible, to allow the putting on and off of the heads and removing the material when wound.