

that when the can is full the plate is lifted by the coils of sliver, and being in connection with the rocking shaft G stops the machine. The whole of the cans in this head are then removed, replaced by empty ones, and the machine set to work again. There is one tumbler B to each sliver, and if the sliver breaks or the can becomes empty the tumbler through which it passes overbalances, comes in contact with the oscillating bar on the rocking shaft G, and by simple mechanism stops the machine. The trumpet D of the front stop motion is connected with the same mechanism, its object being to stop the machine when the sliver is light or breaks from any cause, such as roller laps, &c. As the special function of the drawing frame is to lay the fibres of cotton parallel, and render the slivers of equal thickness by frequent doublings, the rollers naturally play a very important part. The gearing is arranged at one end of the rollers, which run at gradually increasing speeds from the back to the front lines, to attenuate the sliver or give what is called "draft." To maintain the flutes and the bearings of these rollers in good condition, the front, and sometimes the second, lines of rollers are case-hardened. The draft from the front to the back rollers is usually arranged to suit the number of ends run into one, that is to say, when six ends are run into one, a draft of six, and for eight ends a draft of eight. It is customary to have three passages of drawing frames, or four passages for fine yarns, each head or passage having six, seven, or eight coilers, according to the weight of sliver to be produced.

**The Slubbing, Intermediate, Roving, and Fine Roving Frames** which follow—according to the fineness of the roving required—further elongate and stretch the fibres; but in addition to the drawing process it is necessary at this stage to put in "twist" to give sufficient strength to the roving, so that it may be put on and drawn off the bobbin without undue stretching. For coarse counts of yarn there are usually two passages of flyer frames, viz., slubbing and roving; for medium counts three passages, viz., slubbing, intermediate, and roving frames; and for very fine counts four passages, viz., slubbing, intermediate, roving and fine roving frames. The Slubbing Frame receives one can per spindle, taken from the third or fourth passage of Drawing Frame, and draws or elongates the sliver by means of three rows of rollers, producing a roving or thread three, four, or five times finer than received from the Drawing Frame. The bobbins from the slubbing spindles are next put in the creel of the intermediate frame, two bobbins to each spindle, and the drawing and twisting

processes are necessary, according but have gradually a description of that the cotton its upper end

