

Mule. A machine for drawing and twisting into yarn the roving from the roving-frame or jack-frame and winding it upon spindles in the form of cops automatically.

These machines are in two principal parts, the stationary and the movable.

The stationary parts comprise the head-stock, creels, rollers, and roller-beams for reducing the thickness of sliver. The part called the head-stock contains all the mechanism for effecting the different changes necessary for spinning.

The English mules exhibited by Dobson and Barlow at Philadelphia, were for coarse and fine counts respectively. The coarse mule contained 216 spindles, $1\frac{1}{2}$ " gage, and was arranged with double boss top rollers and single creels for spinning 1's to 50's. The fine mule contained 314 spindles, $1\frac{1}{4}$ " gage, single boss top-rollers, creels for double roving, double speeds, supplementary stretch, roller turning motion to deliver yarn while twisting at the head-stock, faller motion to lift the fallers free from snarls, and is arranged to spin from 50's to 250's.

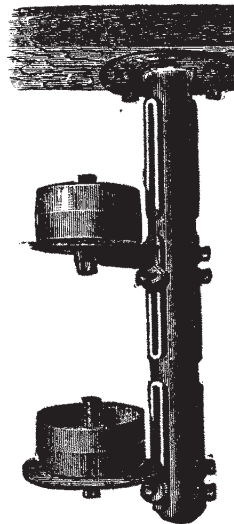
In the headstock each motion is separate and distinct from the others; is so placed as to be easy of access, and can be detached and removed without disturbing the other motions. The headstock stands very low, which gives steadiness to the working parts and enables a longer strap to be used, which is a special benefit in low mills.

The principal novelty in these mules is an improved method of working the changes, which dispenses with the well-known troublesome cam-shaft.

A long lever is placed lengthwise inside the headstock framing and makes three changes.

The first change is made when the carriage arrives out by lifting a latch lever, the long lever rises to a second latch and detaches the drawing out motion. When the requisite turns of twist are put in, the backing off takes place, and the locking of the fallers again liberates the catch and allows the long lever to rise again, putting out of gear the backing off and putting into gear the drawing-up cone. The mule recedes inwards to the beam, and the long lever is again unlatched and falls down to its original position, disconnecting the drawing-up motion, and putting into gear the drawing-out motion.

Fig. 1787.



Mule Pulley Stand.

Lees, Br., "Sc. Am.," xxxvii. 211; Spencer, "Engr.," 1. 437.