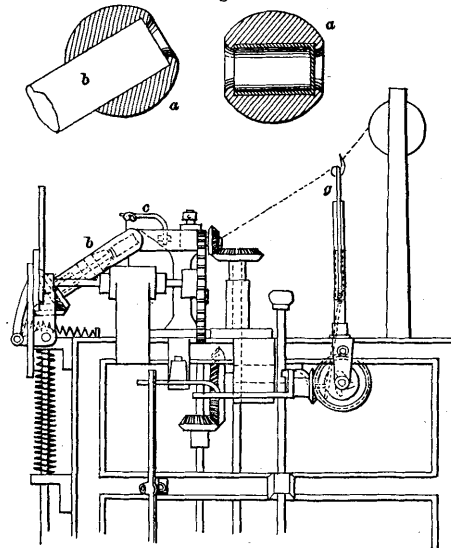


Ball'ing-ma-chine'. (*Cotton Manufacture.*) A machine on which cotton thread is wound into balls.

Fig. 545.



Ball'ing-Machine.

The ball *a* is made on a rotating spindle *b*, or on a paper cap or cover placed thereon, around which a steel rod *c* spins rapidly, carrying the thread and building it up on the spindle. This interior core (cap) forms a support for the ball, and receives on its closed end the ticket, number, and maker's name.

The size of the ball is regulated by the eye; the number to the pound varies from 16 to 600.

The spindles have independent stop-motions, *g*, so that when a thread breaks any one or more may be stopped. The thread comes off a bobbin, and passes through the hollow spindle of the flyer *c*, whose axis of rotation is oblique with that of the spindle *b*, so that the thread is laid on spirally, the spindle continually rotating so that the thread has an advancing or receding coil, according to the direction of motion of the spindle. The gearing by which the parts are driven is sufficiently shown in the cut, and needs no special description. The figure shows one set of parts, but the machine has a long parallel series of ball-winders in a row on a single frame. The upper figures show the ball attached to and detached from its spindle, respectively.

It was invented by M. I. Brunel. When he visited the mills of Strutt, in Derbyshire, about 1805, he said he "observed they had adopted my [his] contrivance for winding cotton into balls."