

the dust and dirt from cotton. This is performed by a scutching and blowing action, the tussocks of cotton being torn asunder and opened, allowing the dirt to fall out. The heavier portions fall through gratings, and the lighter are carried off through air-ducts by means of exhaust-fans.

Machines for this purpose are of very variable construction, less uniformity existing in this department than in any other of the series of operations in cotton. The preliminary processes of the cotton-mill are *unpacking, sorting, picking, cleaning, wil-
lowing, batting, and lapping.*

The *cotton-cleaner* (Fig. 1484) has a long series of consecutive operations. The cotton from the feeding-table is passed between a pair of fluted rollers *B*, then between smooth rollers, which present it to the action of the toothed scutcher *D*, which revolves rapidly and wafts the loosened filaments towards a wire cylinder *d*, over which it travels, being compressed by a fluted roller *d'* in its passage, and thence between a pair of smooth rollers *e*, which condense it into a *bat* ready for a repetition of the operation. Passing between another pair of rollers, the web of cotton is presented to the second scutcher *f*, which has finer and more numerous teeth, and drives the fibers forward to the wire cylinders *H I*, a knife *C* keeping clear the lower roller of the last feed-pair. The dirt falls between the bars of the gratings *m*, over which the cotton passes successively as it comes from the consecutive scutchers, and the lighter dust passes through the meshes of the wire cylinders *H I K L*, an exhaust-draft of air operating from the periphery of the cylinders inward, and the dust passing off by ducts to the case in which the exhaust-fan rotates, and thence by a suitable chute to the open air or cellar.

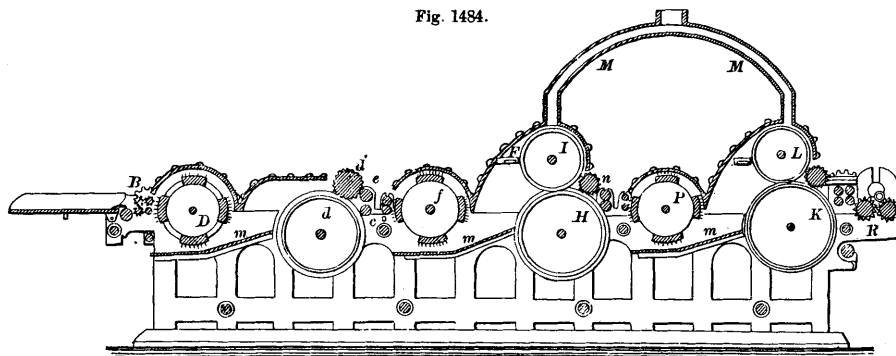
A deflector *F* prevents the passage of the cotton upward to the chute, forming a wiper for the cylinder *I*. The bat of cotton, by passing between *two* wire cylinders, is subjected, on its upper and lower surfaces respectively, to a drawing action, which removes the dust, and is believed to accomplish it more perfectly than when the operation is confined to one side of the bat, a single cylinder being employed.

The bat from the cylinders *H I* is subjected to the pressure of a toothed roller *n*, which acts as a doffer to the upper cylinder, and thence passes between a pair of condensing rollers, which compact it previous to a repetition of the operation.

A third set of feed-rollers next present the bat to scutcher *P*, which delivers the filaments, thus opened for the third time, to the wire cylinders *K L*, whence it issues in a partially compacted wad, and is passed, by the fluted doffer and two pairs of

Cot/ton-clean'er. A machine for separating

Fig. 1484.



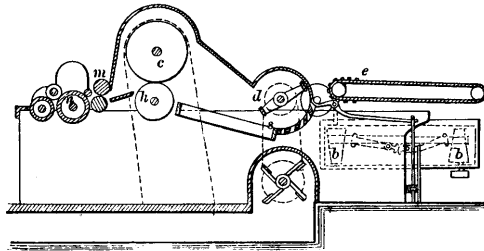
Pilson's Cotton-Cleaner.

pressure-rollers, to the lap-roller *L*, on which it is wound, ready for the operation of carding.

Another machine has a device for regulating the speed of the feed-apron by the weight consequent upon the thickness of the layer of cotton presented, the object being to present equal quantities in equal times to the *licker-in*. The concave *s* is supported on a center, and its oscillations affect the position of the band on the cone-pulleys *b* below, so as to vary the speed of the traveling feed-apron *e*.

As the cotton passes beyond the roller, it is struck by the arms of the scutcher *d*, and delivered on to the grid *s*, whose bars are longitudinal and offer no obstacle to the motion of the fibers, while the spaces allow the dirt to fall. The cotton then passes between the surfaces of the

Fig. 1435.



Lord's Cotton-Cleaner.

wire cylinders *c h*, which have an internal exhaust to remove the dust. From thence the bat passes to the pair of condensing-rollers *m*, and then to the lap-roller *n*, on which it is wound.