Machinery and Appliances.

IMPROVED CARD.
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It may almost be safely asserted that cards and carding and the means of best accomplishing it, during the past fifteen years, have received more attention than all the rest of cotton manufacturing processes put together. This arises from a perception and appreciation of the fact that it is the most important of the series, and that if the best work is to be the outcome of a spinner's labour the strictest supervision and care must be exercised in this department. As a result, the

tors. Very perfect as is now the whole series of machines required in the cotton spinning processes, it may be stated with confidence that the card takes the lead of all.

With a consciousness of these facts it might be wondered what, if anything more, could be done towards rendering it absolutely perfect. Ordinary people would certainly be tempted to say, “Nothing! it is a finished machine and cannot be further improved.” Yet this is not the conclusion of those whose acquaintance with it is of the closest kind, namely, practical men. Hence hardy a week elapses without some improvement in detail being accomplished and patented, sometimes relating only to matters of small moment, in others to such as must be regarded of importance. It is not only to one but to several of the latter that we now propose to draw the attention of our readers.

The firm of Messrs. John Hetherington and the front in the estimation of cotton spinners and the incorporation of the improvements indicated in the improvements just mentioned, shows both a determination and the accomplishment of it, to hold the position they have acquired. The nature of the improvements referred to above, and for which the said patents were obtained, may be briefly indicated. That of 1834 was for an improved apparatus used in the covering of carding engine flaps; the one of 1853 was for a better method of covering or dressing the cylinder and deflex, and facilitating the adjustment of the various parts which in the main were rendered simultaneous; that is, the parts were so connected that correct relative positions were maintained in all cases through any changes that were made. The improvement secured by the patent of 1856 was an important one, being the transposition of the flexible bend from its position on the outside of the fixed bend.

FIG. 1. IMPROVED REVOLVING FLAT CARDING ENGINE.—MESSRS. HETHERINGTON AND SONS, MANCHESTER.
more effectually than was done in the plan superseded, and this contributed greatly to making a more perfect selvage. The next patent, that of 1848, was granted for an improved method of grinding the flats from their working surfaces, and which has since become well known. This was, if we are not mistaken, one of the earliest attempts, if not the first successful one, to accomplish this desirable end. On its importance it is quite unnecessary to dilate. The next and last of the patents to which we need to draw attention in this connection is the one of the current year which had for its object the securing a more even delivery of the cotton forming the flap to the roller. In the older form the roller was controlled in its movements, due to the varying thickness of the laps, by means of fixed guides which compelled it to move in a straight line to or from the shell which forms part of the feed apparatus. In consequence of its movements being controlled in this manner it was liable to lose its hold upon the material either at the back or the front, and to induce considerable irregularity of feeding, with all the bad consequences that results from for obtaining a more perfectly regular sliver with corresponding advantages through every subsequent process.

In the card illustrated hereewith the patented inventions have been incorporated, along with many other improvements in detail, which render it a machine difficult to surpass in the combination of advantages it offers to cotton spinners. To these details we may be permitted now to refer at such length as we conceive their merits justify, whilst the former will need only such passing reference as may be required to bring into notice points not hitherto advanced.

The change of the position of the flexible bend, in allowing the flats to be shortened, diminishes their weight, increases their rigidity, and lessens the friction incident to their traversing. The flexible bend is set from three points. The centre bearing also forms a fulcrum from which the other points are set. The two end set-screws also set the flat bowls; and bowls being set at one operation, in the flexible bend a curved groove is constructed in which is fixed a stud carried up to the cylinder edge. This circular plate is set concentrically to the cylinder, the under casing being brought up to it by adjusting screws. The under casing is fastened to the circular plate and is capable of easy adjustment to suit the requirement of the wear of the wire. This arrangement prevents blowing, keeps the under casing rigid, whilst its adjustment is rendered easier.

The front cover of the doffer is very simply arranged; on each side of the card is fixed a cast iron arm, to which is attached the cover composed of steel, the bottom edge of which descends to the lowest position of the doffing cylinder in order to prevent accumulation. One end of the cast iron arm being hinged to a bracket on the framing, allows the cover to be turned back out of the way while the stripping and grinding is performed. It also forms a shield which assists in keeping the dust down during stripping. This cover also is adjustable to the cylinder to allow for wear of wire.

The top of the doffer pedestal forms a bracket to which is attached the grinding stone, and the doffer is set to the cylinder the grinding stone is adjusted with it thus keeping the roller relatively in one position to the doffer.

By the transfer of the flexible bend to the inside position a space was left between the edge of the cylinder and the flexible, but this has been neatly closed up from back to front of the card, and any chance of blowing is practically prevented. The reader will perceive from this description that every detail necessary to the construction of a very high class machine has been carefully perfected as far as possible, in accordance with the best principles of mechanical sciences, whilst it might go without saying that the material and workmanship is of the best.

In our next we hope to describe and illustrate a novel device which has not been touched at all, or only incidentally mentioned, and of which our available space at the moment precludes our taking proper notice. In the meantime any further information will be given by the makers to interested persons who may desire it.