Machinery and Appliances.

IMPROVED PATENT DOFFING COME MOTION FOR CARDING ENGINES.

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Another improvement in the carding engine! This time in the drafting comb. The practical reader will be familiar with the history of the development of the carding engine, and will be aware of the wonderful change that has been made in the card during the past thirty years. We are now in the reclamation of the older generation of cotton spinners, the yield of carded cotton from one engine per week did not exceed 200 lbs. The improved card of to-day easily gives 800 lbs, and, pushed somewhat, turns off 1,000 lbs. The means by which this great advance has been accomplished is the improved construction in all its details, and the substitution of iron for wood cylinders, thereby doing away with the great defects of the constant expansion and contraction of the wood, owing to changes in the temperature and humidity of the atmosphere. Beyond this great care is taken to turn them into a Perfection of cylindrical shape, thus forming the best ground for the reception of the clothing. These remarks apply equally to both carding and carding cylinders. The most important fact that has done much to bring the carding engine to its present degree of perfection is the introduction of the hardened and tempered steel wire clothing now almost universally used, and this along with a much better foundation than was formerly in use. The roller and clearer card has, to a great extent, disappeared, having been superseded by the revolving flat card. The flats of these card are now greatly improved, both in the material of which they are composed and in the manner of clothing them. The flats are now made from a mixture of metal specially designed to secure the greatest rigidity, in order that the maximum of resistance may be offered to the influences that tend to produce deflection, namely, the action of the driving chain, and the weight of the flats when suspended, as in the working position, upon this extremity. The improved methods of clothing the flats also are a great advance over the old systan, in the direction of securing accuracy of work. Every detail about driving, the means of setting, and securing accuracy in grading, have all been most carefully considered and perfected by the labours of numerous inventors, who have devoted both time and ingenuity to the task. The result is the card of to-day, producing its 1,000 lbs. per week. With the perfection attained in the parts to which we have referred, there really seems no reason why the production should not be considerably greater. The obstacle to this, however, has been found in the inability to strip the doffer cylinder was rejected for higher speed, owing to the incapacity to drive the drafting comb, as at present constructed, at a speed making more than 1,500 beats per minute. The liability of all bearings to heating and the great wear and tear preclude this rate being exceeded in the present arrangement. The means of removing this obstacle to further progress in obtaining a higher production from the card has recently engaged the attention of Mr. Thomas Barker, formerly foreman in the carding engine department of Messrs. Curtis and Sons, machinists, Manchester, and who, with Mr. Wilson, has recently commenced business as a machinist at the above address. Mr. Barker is already well known as the inventor and joint patentee of numerous improvements in connection with carding engines and combing machines, and has, therefore, a most intimate practical acquaintance with both these machines and the requirements of the trade in connection with them. Taking this problem in hand, Mr. Barker has devised an arrangement that promises to be a very satisfactory solution. This invention, which is illustrated herewith, we now proceed to describe:

Fig. 1 represents a side view of the appliance, which is contained in a box, the sides of which is removed. Fig. 2 is a plan view the parts are lettered alike. The comb stock or shaft on which the comb is fixed is shown at 1; the comb is seen in section 2; 3, 5, 7 is the oscillating arm screwed on the end of the comb stock, and a conical pivot cast on the end of the lever 1; 2 is a link, having a conical socket to receive the conical pivot of 1; 3 is a conical pivot on the opposite end of the link k, fitting into a conical hole in g, which oscillates on the fixed centre h; 1 is a conical spindle carrying the crank pin k, which works along a taper split steps 1, which are also coned to fit the lever 1. It will be observed from the above that all the fractional parts are constructed to form coned pivots and sockets. This will greatly facilitate the taking up of any wear that may occur. It will be seen from the diagrams that half a revolution of the crank k deflects the pin 3 to receive the comb, and from the straight line described between the points D, E, and H. This gives one beat of the comb. The next half of the revolution deflects the pin 3 to a corresponding degree on the opposite pin, thus making the second beat for one revolution of the crank. It will be seen from this that with as many revolutions of the crank shaft—which at present range from 8 to 10—the highest number of beats can be obtained with the comb. This shews a maximum gain of 1,500 beats per minute that could be utilized if thought desirable. The inventor, however, does not propose to avail himself of more than 500 of these beats, thus bringing the present maximum speed of 1,500 beats up to 2,000, at which rate the inventor guarantees good work. This will enable spinners who wish to card lightly, and thus to secure the cleanest work without sacrificing any of the production, to increase the speed of the doffers fully 30 per cent, by which end will be attained; or, on the other hand, to increase the production from each card to a corresponding extent.

Special care has been taken by the inventor to secure the most efficient lubrication, many of the bearings working immersed in oil. The crank shaft is lubricated by a special conveyance by which a constant stream of oil is poured upon it. The plan adopted has proved perfectly efficient at a speed of 3,000 beats per minute, neither failing to lubricate nor splashing the oil out.

The invention is simple, compact, durable, not liable to get out of order, and practically noiseless. It is cheap, will soon pay for itself, and, can be applied to any kind of carding engines in the cotton, woollen, or silk trades, or anywhere in which cards are used. Further particulars may be obtained on application to the makers as above.

DECORCITATING MACHINERY.

The British Consul at New Orleans, writing under date February 18th, 1867, says—"An article recently published about the sisal hemp in Florida remarks that the former drawback to the use of the plant for commercial purposes was owing to there being no machine to successfully work out, in good condition, the fibre from the plant, and, in the article, a full description is given of a recently manufactured tropical fibre machine." It is advanced that this is the first really successful and practical fibre machine ever produced in this or any other country, so far as known, and that it is..."
both successful and practical,' as stated, 'is proven by the fact that the 10 machines recently made by the manufacturer, Mr. Van Buren, were the result of the satisfactory trial of three sent to the same party ordering the 10 in Bahama in 1888. Also, that he has recently sent three to St. Domingo to a party who had seen them in operation in the Bahamas. The other machines in use there, and in Yucatan, are of English make, and do not give satisfactory results, as they cut the fibre. The tropical fibre machine does not cut the fibre, but takes out of the leaf all the skin. This has been proved by rolling the leaf in the old way, and then clearing by hand, and the tropical fibre machine shows the same results. The article from which I gather the foregoing information about the fibre plant is published in 'The Florida Times Union Trade Report' for 1890, and my object is to fold in embodying these particulars in this report. In the first place I hope the subject may prove of interest to some of our agricultural people in latitudes and soils like those of Florida; and, next, that the machines referred to as English make, and which, it is said, do not give satisfactory results, as they cut the

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**Fig. 2. Plan View of Improved Dipping Comb Motion.**

The Textile Mercury, Volume 243.

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**OPENING OF A NEW MILL IN BOMBAY.**

The latest addition to the industrial establishments of Bombay is the J. A. Spencer, Messrs. J. Dohalby Franjée, and the three directors of the mill, Messrs. Dohalby Franjée, John Marshall, and Henry J. B. Dohalby, have all attended the opening ceremonies. The mill is situated on Bombay Island, and is built on a site of about 15 acres. The factory consists of four separate buildings, each containing a number of looms and engines. The whole mill is planned on a large scale, and is capable of manufacturing large quantities of goods. The machinery is of the most modern type, and is driven by steam. The mill is well provided with workshops and offices, and is equipped with all necessary machinery for the production of cotton goods. The mill is owned and managed by Messrs. Dohalby Franjée and Co., and is expected to be in full operation by the end of the year.

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**BLEACHING, DYEING, PRINTING.**

PAPERS ON BLEACHING.

(Continued from page 275)

One of the difficulties of the market bleacher is to retain the colour of a dyed heading that may be woven into the goods, which is the case with towellings and many other classes of goods. An all-time red is the only way to do this, and the bleaching process best, and should always be used when a red heading is required. The advantage of this method is that it does not resist the action of the bleaching agents, and even the best loses a little in intensity and brightness. During the process, the red is not affected, and the red heading will not fade. Aniline black will resist the process and is the only black that will do so. No blue will stand satisfactorily ; indigo-balsam being the only one that can be used, and when headings of this colour are in the goods the lining should be omitted. No green will resist the process, and the green heading could be produced on the fibre that would do very well. Sometimes greens dyed with