

## Machinery and Appliances.

### NEW MECHANICAL STOP-MOTION FOR CARDING ENGINE.

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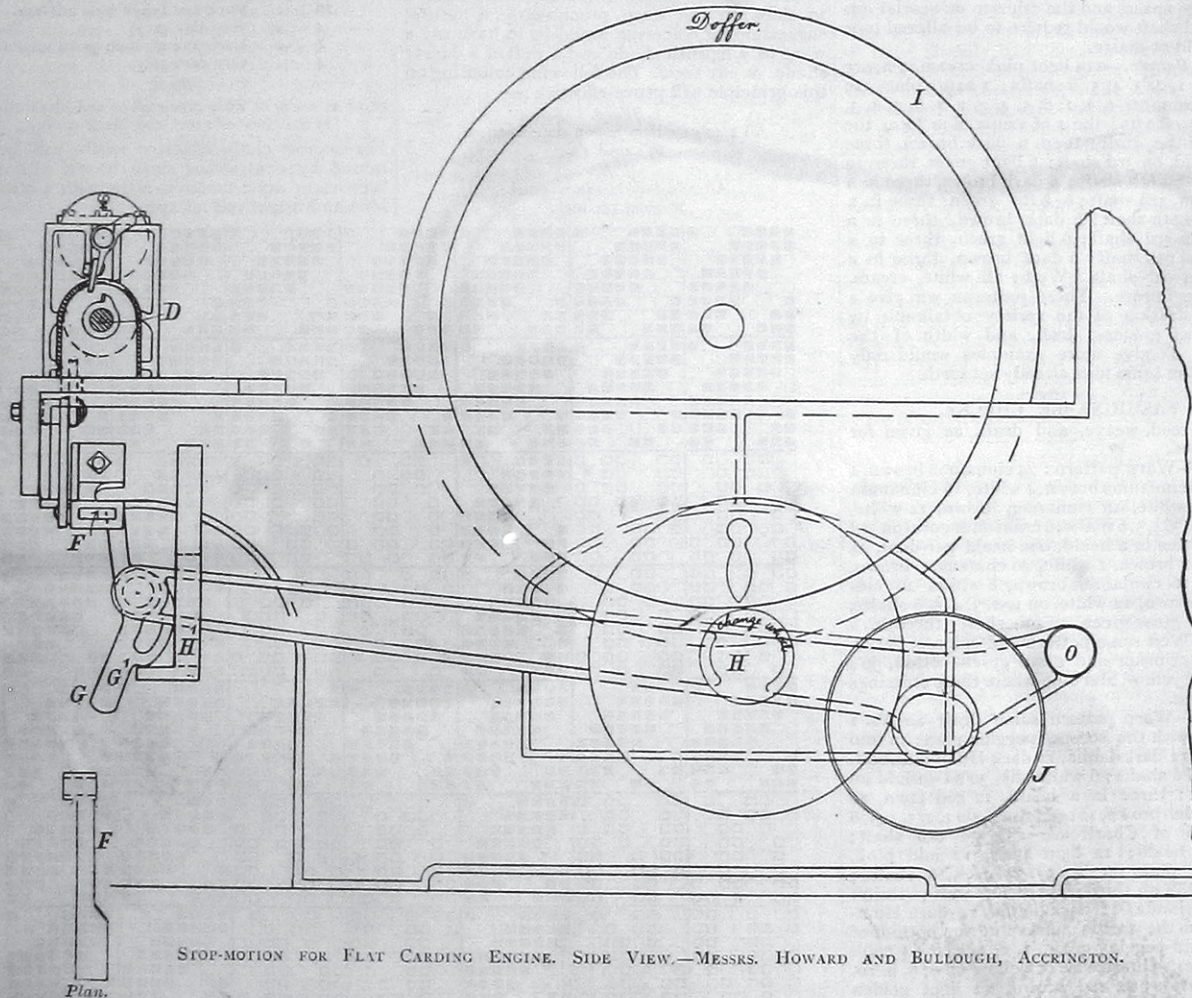
The introduction of stop-motions to most of the machinery in the preparatory processes of spinning has done more than anything else in bringing about the advance that has taken place in the quality of yarns during the past twenty years, and thereby increasing the earnings of the workpeople. But amongst the machines referred to the carding engine

to which it has been adapted. The chief purposes sought to be accomplished have been to stop the machine when the sliver breaks between the doffer and the calender rollers; when the funnel chokes; and also when the sliver from the spitting of a lap commences to run thin, mistakenly called 'single.' Our illustrations shew a side and front view of the invention, with such parts of the card as are necessary. The letters indicate the parts as follows:—

- A Top calender roller.
- B Bottom ditto.
- C Catch on end of A.
- D Catch box
- E Swivel lever.
- F Wedge.
- G Bracket supporting doffer lever.
- H Doffer change wheel.
- I Doffer wheel.
- J Doffer lever pulley.

lever. This action drops the notch G off the bracket H, and so allows the doffer lever to drop, thus disengaging the change wheel H, and the wheel on end of doffer, thereby stopping the doffer and feed in the usual manner. The pulley J is continuously driven from the ends of the licker-in by means of a strap, thus giving a continuous motion to the change wheel above mentioned.

In addition to the objects sought to be effected by this invention mentioned above, we may add that it is also designed to prevent the damage that may easily arise when the band driving the doffer-comb comes off its pulley or breaks. Under ordinary circumstances the fleece in this case would wind upon the doffer, and at the great speed at which they are now run would quickly fill the wire and so damage the clothing on both doffer and cylinder to such an extent as to necessitate re-clothing.



STOP-MOTION FOR FLAT CARDING ENGINE. SIDE VIEW.—MESSRS. HOWARD AND BULLOUGH, ACCRINGTON.

is almost the only one of the series without a special appliance for increasing or maintaining the even condition of the material as it is received. Yet there is a necessity that it should have one, because from various causes the sliver taken from the doffer may come off thinner than it should do, and so produce what is misdescribed as 'single.' The lap may 'lick' or 'split' and so produce a thin place that cannot afterwards be eliminated. There are other important defects of a different character, which could be obviated by the presence of a good automatic stop-motion, and it is the recognition of this fact which has led Messrs. Howard and Bullough to acquire and introduce the stop-motion we now describe and illustrate. After the most careful examination and improvement of its details, they feel convinced that its use will prove as beneficial in the card as the stop-motion has done in other machines

When in the course of working, from any of the causes mentioned, the sliver ceases to pass between the calender rollers A B, they close, and so affect the catch C on the end of the top calender roller A as to bring it into contact with the revolving catch-box D. This is loose on the shaft, and is driven by the other portion D', by frictional contact. The part indicated by D' is capable of sliding backward and forward on the shaft D'. It slides on a key, which admits of its being positively driven by the shaft. As soon as the absence of the sliver permits the catch C to drop into gear with the catch-box D, the part D' slides along the shaft and carries with it the lever E, which swivels upon the centre E', the opposite end of the lever E' pulling the wedge-shaped lever backwards and bringing the wedge portion into contact with the upper part of the handle G, which supports the doffer

We need say nothing more to commend this invention to our practical readers, as its merits are sufficiently evident in the description. The makers will be pleased to afford any other information that may be desired.

**BURMESE WEAVING.**—Of the local industries of Lower Burmah silk weaving and pottery are the two most important. The first of these is carried on to a considerable extent. It is reported that 2,882 people are engaged in weaving in the Hanthawaddy district, and 990 and 2,993 in the two subdivisions of the Pegu district. Practically all the weaving is done for local use by women in addition to their other household duties. In the Henzada district the weaving industry is carried on by Mainpuris, and is said to be in a very flourishing condition. In Upper Burmah weaving by hand is almost as universal as in the lower province, the texture woven being in most cases cotton cloth, though silk weaving is also carried on to a certain extent.

# Bleaching, Dyeing, Printing, etc.

## PAPERS ON BLEACHING.—VIII.

(Continued from page 192.)

When chlorine was first proposed for use in bleaching it was used in the form of gas, the goods being hung in a chamber into which the gas was passed. This bleached very well, but still there were objections to its use in this way: first, it was most inconvenient for the workpeople, the gas getting into their throats and giving them a choking sensation, which was far from pleasant, while it was also difficult to avoid these effects; second, there was greater liability to over-bleach the goods, the evils of which have been pointed out above. Tennant introduced the use of a solution in alkali, the production of which he patented, but which was declared void through the action taken by a combination of Lancashire bleachers at the time. Later on he patented the use of bleaching powder, which is still the form in

this two other kinds of bleach are distinguished in the trade—Turkey red bleach and market bleach. The former is used when the cloth or yarn is to be dyed plain or self-coloured with delicate shades and with alizarine; the latter is used for cloth sold in the white. As the operations involved in producing these bleaches are identical in their method of manipulation to those already described, it will only be necessary to give an outline of the process for each one.

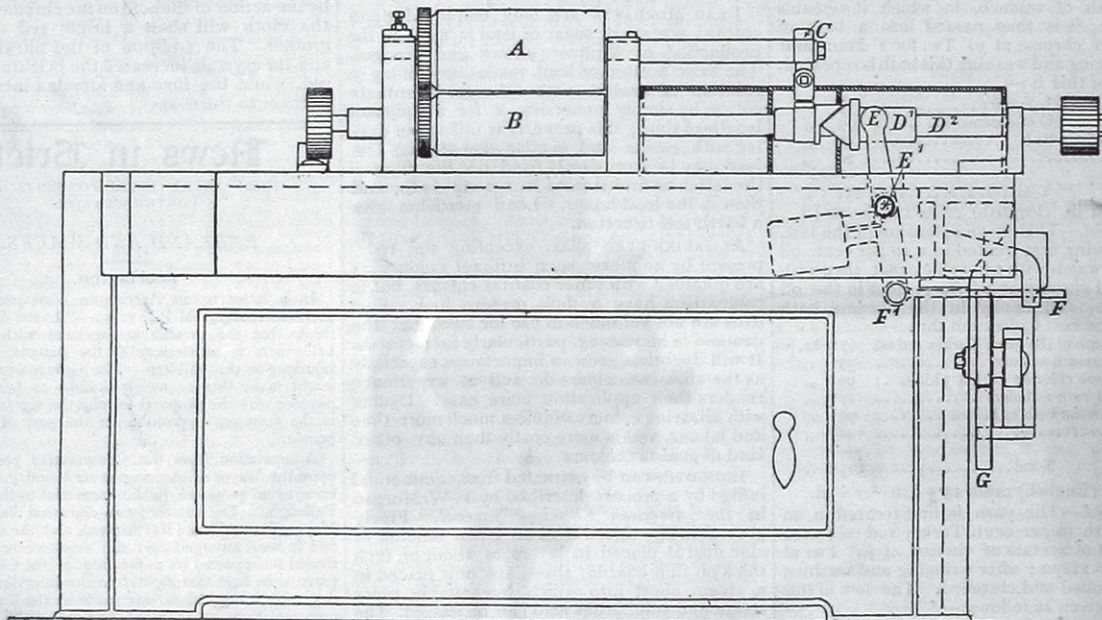
**Turkey Red Bleach.**—(1st.) Rinse through water into a kier, and boil for two hours. (2nd.) Lime boil for three to four hours. The amount of lime required is rather less than what is used with the madder bleach, from 2½ to 3 lb. lime to each cwt. of goods being quite sufficient. (3rd.) Souring as in the madder bleach. (4th.) Ley boil, using about 100 lb. caustic soda to a ton of goods, and giving ten hours boil. (5th.) Second ley boil, using about 50 lb. soda ash to a ton of goods, after which the goods are well washed. (6th.) Chemicing as with the madder bleach. (7th.) Souring as with the madder bleach, then washing well. This represents an average process, but almost every bleacher has his own methods, differing from the above in some of the details, and this applies to all

the former could not stand as rough a process as the latter; therefore there must be some differences in the details of muslin bleaching and sheeting bleaching. Then again, with goods sold in the white, it is customary to weave coloured headings or markings, and as these have to be preserved, to do so will cause some slight alteration of the details of the bleach with this object. On all these points it is difficult to lay down general rules, because of the very varying nature of the conditions which are met with by the market bleacher, but as much information will be given as possible.

(To be continued.)

## CHROME-MORDANTING OF COTTON.

The best mordant for the alizarine and the so-called alizarine colours is chrome. On wool it is easily applied, but such is not the case with cotton. The latter fibre has very little affinity for chrome, and much difficulty attends any attempt to mordant it with achrome mordant of any kind for dyeing self colours, though in printing this difficulty is not met with to the same extent. The consequence is that many processes have been suggested for mordanting



STOP-MOTION FOR FLAT CARDING ENGINE. FRONT VIEW.—MESSRS. HOWARD AND BULLOUGH, ACCRINGTON.

which chlorine is mostly used for bleaching. On the Continent a solution in soda (*Eau de favelle*) is largely used, but in this country rarely, if ever.

**10th. White sour.**—After the chemicing the goods are treated to a sour, for which purpose either hydrochloric acid or sulphuric acid may be used. Hydrochloric acid possesses the advantage of forming a more soluble salt of lime (calcium chloride) than does sulphuric acid (calcium sulphate), and it has a more solvent action upon any traces of iron and other metallic oxide stains which may be present in the goods. On the other hand, on account of its fuming properties it is unpleasant to work with. Sulphuric acid is, if anything, rather the cheaper of the two, although this will depend very much on how each individual works is situated for obtaining the acids, as while there is not much difference in the price of sulphuric acid in different places, there is in that of hydrochloric acid. The souring is done by passing the goods through acid at 2° Tw. and piling for two to three hours, after which it is washed. This final washing must be thorough, so that all traces of acid and chemic have been washed out, otherwise there is a tendency for the goods to acquire by exposure a yellowish colouration.

So far the routine has been described of the so-called madder bleach, the most perfect kind of bleach applied to cotton cloths. Besides

bleaching processes. It is obvious that the details may be varied to a great extent without changing the principles on which the process depends; differences in the character of the water used at each particular bleach-house will make or necessitate some slight differences; a hard water will require more resin and more alkali and acid to be used, because the lime in the water will neutralise some of the effects of these chemicals. Then, again, the general working pressure of the steam used in the kiers will vary in different works: at a bleach-house working at from 10 to 15 pounds pressure they will require more chemicals, and the boils will have to be longer than at a works where the pressure ranges from 20 to 30 pounds. The strength of the alkali used will have an influence on the quantity required: it takes more caustic soda of 62 per cent. than it does of 77 per cent. soda, more in proportion to the actual strength of the alkali; the impurities in the 62 per cent. alkali have some influence, and increase the quantity to be used to produce the same effect.

**Market Bleach.**—Here all that requires to be done is to get the cloth of a sufficient degree of whiteness to please the eye of the customer. Market bleachers have, however, to deal with a wider range of goods than is dealt with in the former kinds of bleaches, from very fine muslins to very heavy sheetings. Now it is obvious, from a merely mechanical point of view, that

with the chrome. In a recent issue of *Oesterreich's Wollen und Leinen Industrie*, Oscar Muller gives a review of the various methods hitherto proposed, and, what is more important, their relative cost, which is a point often overlooked by writers on dyeing. From this paper the following details are taken:—

**1st Method.**—The scoured and wetted yarn is passed through a 6 per cent. solution of Turkey red oil neutralised with ammonia. The yarn is wrung, dried, then passed through a 10 per cent. oil bath of the same oil, wrung, and dried again. A bath is made with 15 per cent. of the weight of the yarn of chrome alum, boiled with 10 per cent. of its (alum) weight of carbonate of magnesia. After cooling and diluting, the yarn is entered and worked in it for 15 minutes, then wrung, and entered into a cold bath of 5 per cent. ammonia-soda. The passage through the chrome alum and soda baths is repeated three times. The cost of this process is given for 20 lb. of cotton yarn as:—

For first oil bath of 576 grms. Turkey red oil .....	21 kr.
For second oil bath, 660 grms. Turkey red oil .....	35 "
1.5 kilogramme chrome alum .....	17 "
0.15 grms. carbonate of magnesia .....	2 "
0.5 grms. ammonia soda .....	4.25 kr.
Labour .....	40 "
<b>Total .....</b>	<b>119 "</b>