Bramah's Planing Machinery.

(Continued from our last.)

"Fifthly, When I use upright shafts for the purpose of carrying the cutter frames as above described, I do not mean that the lower end or point of such shafts shall come in contact with, or rest on, the bottom of the step or box in which they stand; neither do I mean that such said shafts rest or turn on any stationed unaltered point at rest, but the pivot or lower point of the shaft shall actually rest and turn on a fluid body, such as oil, or any other fluid proper for that purpose, a considerable portion of which is always to be kept between the lower point of the shaft and the bottom of the step in which it works. The said shafts may be either raised or depressed at pleasure to any required altitude, by means of a greater or less quantity of the said fluid being confined, as aforesaid, between the end of the shaft and the bottom of the step. This device I deem of great consequence in the fabrication of all kinds of Machinery, where massy and heavy loaded upright shafts are used; and I perform it in the following manner; that is to say, the lower part of the shaft must be turned perfectly smooth and cylindrical to a height something above the greatest distance or length the shaft will ever be required to be raised or depressed when in use. This part of the shaft I immerse or drop into a hollow cylinder, which fits its circumference near enough to allow freedom of motion, but sufficiently fitted to prevent shake. This cylinder I call the step cylinder, which must be of a length nearly equal to that of the cylindrical part of the shaft above mentioned, so that when the point of the shaft rests upon the bottom of the cylinder, the parallel or cylindrical part may be sometimes above the top as upper end of the step cylinder. In the upper end of this step cylinder I make a stuffing box, by means of a double cupped leather or other materials surrounding the cylindrical part of the shaft, in such a way as will cause the junction, when the shaft is passed through it, to remain water tight under any pressure that may be felt from the efforts of the fluid, retained above mentioned, to make its escape upwards through this part which I have called the stuffing box, when the shaft with all its load is passed through it, and immersed in the cylinder below. When this is done, the injection pipe of a small forcing pump, similar to those I use in my patent Press, must form a junction with the step cylinder in some part below the stuffing box; then the pump being worked, the oil or other fluid injected by it will, by pressing in all directions, cause the shaft to be raised from the rest on the bottom of the cylinder, and to be slided up through the stuffing box just the same as the piston of my patent Press; and by this means the shaft with all this incumbrance, and whatever may be its weight, may be raised to any given point at pleasure, and at the same time it will be left resting on the fluid under it, whatever the quantity or thickness of such fluid may be between its points and the bottom of the step cylinder. By this means the shaft, with all its incumbent load as aforesaid, should it even amount to hundreds or thousands of tons, can be easily raised and depressed to any required point at pleasure by the alternate injection or discharge of the fluid used, exactly the same as performed by my patent Press as aforesaid; and at the same time all friction will be avoided, except that of the stuffing box which will be comparatively trifling to that which would result from the resting of such a shaft on the bottom of the step in the usual way. Thus will be gained the properties above stated; and in addition thereto, I think it may be inferred, that provided the stuffing box is kept perfectly fluid tight, such a shaft thus buoyed up by and and turning in a proper fluid, may continue working for years, or perhaps hundreds of years, without a fresh supply of oil, or whatever other fluid substance is found the most proper to apply.

"Sixthly, the material that is to be cut and made true must be firmly fixed on a platform or frame, made to slide with perfect truth, either on wheels or in grooves, &c., similar to those frames in a saw-mill, on which the timber is carried to the saws. These frames must be moved in a steady, progressive manner, as the cutter frame turns round either by the same power which moves the latter, or otherwise as may be found to answer best in practice. This motion also must be under the power of a regulator; so that the motion of the sliding frame may be properly adjusted according to the nature of the work. The motion of the cutter frames must also be under the cotrol of a regulator; so that the velocity of the tool in passage over the work may be made quicker or slower, as much work may respectively require, to cause the cutter to act properly and to the best advantage.

(To be continued.)

For the Scientific American.

The Benefits of Machinery for all Classes.

Fifty years ago wages were no better, in fact less than at the present day and the comforts and luxuries of life far more difficult to obtain. Articles needed by the poor man, cost in those days of comparative freedom from machinery, from twice to three times what they do now, and often more; and you will find that the greatest reductions are in those articles to which machinery has been most successfully applied. There is no article of luxury or comfort to which machinery has been extensively and successfully applied, of which the poor man cannot now get more for a day's labour than he could before such application of machinery. Salt is now less than one third, iron less than one half, shirtings and calicoes and cloth generally from one half to one fourth. Pins, needles, shoes, hats, every thing in similar proportions.

Forty years ago such articles of use or ornament as locks were scarcely known, and could be afforded by the rich only. Farmers waggons were chiefly sleds, their houses cabins, their chairs stools and benches, bureaus pins drove in the wall or poles hung across, and their windows often an old sheet or blanket. Nails and glass cost money in those days, and labor commanded little!

Since Machinery has been applied,—better roads, turnpikes, railroads, all of which are a species of machinery, have been constructed. Steam has been made to propel the boat and the great ship, and to give power to the mill, to the jenny and the loom. Production in many articles has been more than trebled, and every thing the laborer needs has fallen, while his wages have raised or remained stationary. The clock which the farmer had not and could not afford, now adorns the mantel of his poorest tenant, and summons him to his meals.

There have been less improvements in agricultural implements than in machinery for manufacturing purposes, but this is the age of improvement. Let Machinery be applied to husbandry also. Let bread and meat be as cheap as clothing, and if the distribution is not as equal as it might be, let us rejoice, that if the rich man has more, so also the poor man much more.

The cottager has now by the aid of machinery here, what great kings have not in Africa, and what the kings of England had not before the introduction of machinery. The great Alfred sat upon a three legged stool, while many an English or American tenant now reclines on a gilded sofa. If the poor of England and America are not so well off as they should be machinery is not at fault. It is machinery that has saved them from much greater misery, and the reforms which they need are chiefly governmental and social.

Santonine.

This is an alkoloid to which attention has been for some time directed by M. Voillemier as an anthelmintic, and with satisfactory results. M. Pinel, a pharmaceutist of Paris, has incorporated it in biscuits, in which form it is most advantageously administered.—These biscuits have a pleasant taste, slightly bitter, and from three to four are the dose for an adult, and two for children. This dose is sufficient to expel the worms. This medicine does not produce colic or purge, but seems to act as a poison to the worms.

Iron pipes are proven by the pressure of water.

Gutta Percha Thread.

The following is a description of the mode of making this gum into thread for the making of paper and cloth, as recently secured by patent to Richard Brooman, of London, for the United States.

To prepare the gutta percha for being manufactured into thread it is mixed up with about three parts of caoutchouc for every six parts of the gutta percha, and when it is desired to have the thread of a particular color, as red or blue, it is mixed in kneading with coloring matter requisite for the purpose.

The gutta percha having been treated in the foregoing manner, is converted into thread by the machine represented in Figs. 2, 3 and 4.

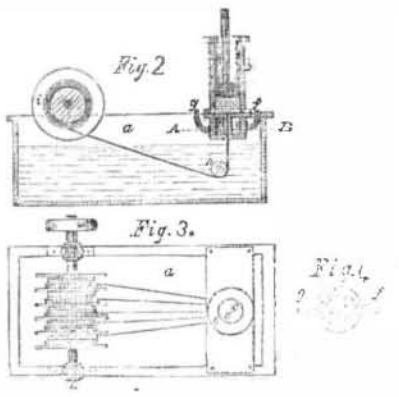

Fig. 2, is a vertical section of the machine; fig. 3, a plan view; and fig. 4, a horizontal section on the line A B, of fig. 2, looking from below. *a*, is a tank, containing cold water; *b*, a cylinder firmly secured to the die-box *c*, by bolts, which serve to fasten both the cylinder and die-box to the top of the tank; *d*, a piston that works in the cylinder *b*; and *e*, a series of pipes placed in a row across the die-box: the bore of these pipes is represented as being circular, but it may be square, or any form, according to the shape required to be given to the thread. *f*, is a pipe for admitting steam of a high temperature (from 240 to 300° F.) into the die-box, in order to heat the same; and *g*, is a pipe for carrying off the steam.

The piston being withdrawn from the cylinder, and the roll of prepared gutta percha introduced, the piston is then replaced and forced steadily down upon the gutta percha, which, being softened at the lower end by the heat of the die-box, escapes through the pipes *e*, in a series of threads. These threads, as they become cooled by the water in the tank, pass beneath a roller *h*, and are thence conducted to and wound upon a set of revolving reels *i*, mounted in bearings at the other end of the tank. The threads are only slightly stretched in the act of reeling on the reels *i*, but they are afterwards transferred to a second set of reels, and, when being reeled thereon, are stretched out by hand after the manner of hand spinning, that is, by working the thread between the fingers and thumb, to about four times their original length. The threads are then wound off on bobbins ready for use.

The threads thus produced, may be applied to the manufacture of piece goods, either by themselves or in combination with threads of silk, cotton, flax or wool; and such combinations may be made by covering the gutta percha thread with silk, cotton, flax or wool, and then weaving it into piece goods, or by interweaving it, in the naked state, with other threads.

A strong and perfectly waterproof fabric may be formed by laying a number of gutta percha threads side by side upon a foundation of cotton, linen, or other textile fabric, and passing them between heated rollers, which has the effect of cementing the threads firmly to the fabric and to each other; and by using threads of different colours and sizes, every variety of striped patterns may be given to to the fabric.

An article resembling diaper or mosaic work may be produced by laying gutta-percha threads of different colors in rows, one above the other, and cementing each row to the one beneath, by a solution of gutta-percha or other suitable cement; the mass is then cut transversely into sheets of the required thickness.

The gutta-percha threads may be used in manufacturing of ribbons and other narrow goods, instead of the organzine silk now employed for the warp of such articles, especially galloons, doubles, and ferrets, used for bindings, bands, &c.

A paper, difficult to tear (and consequently suitable for documents exposed to much wear such as bills of exchange, share certificates, &c., and for wrappers and envelopes), may be made by interposing, between two sheets of pulp, threads of gutta-percha, laid crosswise, like network, an inch or more apart.

The Boomering.

This is the name of a curious instrument used as an offensive weapon by the blacks of Australia, and in their hands, it performs most wonderful and magic actions, surpassing our ideas of possibility, and would be perfectly incredulous, were the accounts not certified by respectable and truthful witnesses. A late resident of that strange country, named Wm. Haygarth, has published a work in which he describes some of the feats performed by the Boomering. The instrument itself is a thin curved piece of wood varying from two to three feet in length and about two inches broad—one side is slightly rounded, the other quite flat. To be thrown it is held by the right hand with the flat side of the instrument facing outwards. An Australian black can throw this whimsical weapon so as to cause it to describe a complete circle in the air or, to give the reader a better idea of what is meant, he would stand in front of a tolerably large house, on the grass-plot before the door, and send his boomering completely round the building, from left to right; that is to say, it would, upon leaving his hand, vanish round the right corner, and reappearing at the left, eventually fall at his feet. The whole circumference of the circle thus described is frequently not less than two hundred and fifty yards and upwards, when hurled by a strong arm: but the wonder lies wholly in its encircling properties, and not in the distance to which it may be sent.

When forcibly thrown, its course is very rapid equalling the speed of an arrow for about fifty yards, until it arrives at the point where it first begins to alter its course; thence it continues its career at about half speed, and so gradually flies with diminishing impetus, until, as usual, it returns to the spot whence it started. Its flight is not unlike that of a bird; and, occasionally, when great strength has been exerted, it hovers for a few moments before it falls to the ground, and, continuing its rotary motion, remains in other respects quite stationary, much in the same way as a humming top when it goes to sleep on the ground. A deep hurtling sound accompanies its course; during the whole of which it revolves with such rapidity as to appear like a wheel in the air.

By holding it at the opposite extremity, so as to bring the flat side on the left hand, a circle may be described in the other direction, i. e. from left to right, for the flat must always be the outer side. But the prettiest evolution it can be made to perform is the following:—It is thrown with a tendency downwards; upon which, after having gone some twenty yards, one point of it tips the ground, three times successively, at intervals of about the same distance, rebounding with a sound like the twang of a harp-string; meanwhile it still continues its circular course, until, as before, it returns to the thrower. This feat is more difficult to accomplish than that of sending it through the air, and requires all the thrower's skill: there is one precise distance, and no other, at which it should first strike the ground for if it does so too forcibly, its progress is wholly arrested; and if, on the other hand, it is not sufficiently depressed and fails to come in contact with the ground, its course is then completely altered; for, shortly after passing the place where it ought to have rebounded, it begins to rise, and towers up in the air to the height of about fifty feet, whence it falls down almost perpendicularly.

A new steam engine of 40 horse power has been erected at Joliet, Illinois, to drive the woolen factory there. The low state of water in the river has led to this, which shows the owners can work full time.