M. Beaumetz has prescribed preparations of the boldo as a diffusible tonic in chlorosis, anemia, and debility of various organs, and as a restorative to patients convalescent from typhoid fever. The results obtained have been very marked. In such cases, the appetite has been stimulated and the digestion improved; and in instances where quinine could not be endured, the boldo has satisfactorily answered. But the new remedy must be administered with caution, since, in over doses, it provokes vomiting. While the experiments, made so far, are not absolutely conclusive, the boldo may be received as a bitter aromatic tonic and a remedy, which, hitherto unknown to medicine, may claim, if its results continue favorable, an honorable place in the pharmacopœia.

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PRACTICAL MECHANISM.

BY JOSHUA ROSE.

NUMBER XLII.

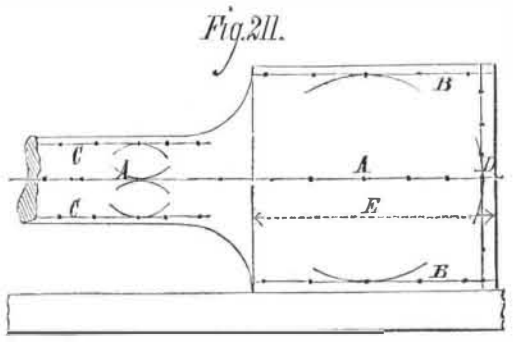
LINING OUT CONNECTING RODS.

Connecting rods, so large in size as to be cumbrous to handle, are generally made by forging the ends to which the strap is attached by themselves, and afterwards welding them to the body of the rod: the advantage being that the machine work done to the rod ends can, in that case, be done in small machines and at a higher rate of cutting speed than would be possible if, the rod being solid, its whole body had to be chucked in order to operate on the ends only. If any finishing is required to the body of the rod, it is in such case done after the rod ends are welded to it and made true to the already finished block end of the rod. If, however, the rod is forged solid, the whole of the marking-off should be gaged to suit the body of the rod. For instance: If the stem of the rod is round, the marking-off of the ends should be performed from a center marked off true with the round stem and on the end face of the rod. The first operation should in this case be, after marking off the said center, to put the rod in the lathe and face off the block end faces, thus giving us a face, at each end of the rod, true with the stem of the rod, and therefore useful not only to receive the marking off lines but also as a face whereby to true the other faces on the block or stub end. If the ends are forged separately from the body of the rod, it is better to face off one of the side faces, and to mark off on that side face. To mark off a rod end that is forged solid with the stem of the rod, we proceed as shown in Fig. 210, A representing the center, true with the body of the rod; B B shows the diameter of the rod end struck with the compasses from the center, A, and C C, the thickness of the rod struck in like manner. If there should not be sufficient metal on the block end to permit the marking-off to be performed from the center, A, when true with the body of the rod, that center must be moved sufficiently to allow the rod end to be cleaned up; this is, however, to be avoided if possible, for the following reasons: If the body of the rod runs much out of true, the turning of it in the lathe will be a slow process, because such rods are liable, from their length, to spring in consequence of the pressure of the cut. Hence it is not practicable to take heavy cuts along it; and if in consequence of the body of the rod running much out of true, it cannot be cleaned up at one cut, the tool will scrape, during the first cut, against the scale, necessitating that the cutting speed of the tool be much less than it otherwise need be.

Fig. 210.

After the segment of circles, B B and C C, in Fig. 210, are struck, which may be done before setting the rod on the marking-off table, the rod should be set on the marking-off table with one of the broad faces downwards, and with the scribing block needle point placed level with the mark, C, on the upper face; and the rod should be tried along that face to ascertain if there is sufficient metal to clean it up all across. The scribing block should then be carried to the other end of the rod, and tried with the upper mark, C; and that being found correct, the scriber point should be set to the lower mark, C, at each end of the rod; and thus the two lines across the rod end, representing the thickness thereof, may be drawn by the scribing block at each end of the rod. The lines representing the breadth of the block end of the rod may then be drawn by simply placing a square on the surface table, with the edge of the square placed in each case level with the extreme diameter of the segments of circles, B B, Fig. 210. No other lines in this case will be required, because the rod ends, having been turned in the lathe, give the machinist two true faces whereby to set the rod at each chucking. If the rod ends are not welded to the rod, the better plan is to have one of the broad surfaces on each rod end surfaced up in a planing machine, and to then perform the marking out on the surfaced faces. The marking out should be made about true with the stem of the rod, as shown in Fig. 211. The surfaced face is to be set, by a square, to a right angle to the marking-off table face; and the center line, A A, of the stem is found from the body of the stem, and carried from end to end of the forging as a guide to set the work by, the lines, B B or C C, being too short to serve the purpose. These latter lines are struck equidistant from A A. The line, D, should be struck with a square resting on the marking table, and any surplus metal should be taken off the end face rather than out of the corner where the butt joins the stem; because it is easier to take the metal off the end than out of the shoulder. The round corners need not be marked, it being preferable to make a gage to shape them to. The edges thus marked being shaped off, the thickness of the butt end may be marked off by a scribing block, the planed surface of the butt end lying flat on the marking table. The strap should first have one face surfaced, and then a center face should be placed between the jaws, being made just sufficiently tight to be held, and not so tightly as to sensibly spring the jaws open; otherwise, while the thickness of the jaws would be marked off correctly, the width

Fig. 211.



between them and their outside diameter would be too small when finished. The strap should then be placed on the marking table, and marked as shown in Fig. 212, the lines, A A, B B, and C C, being marked off to the required widths apart and equidistant from the center line, marked across the centerpiece and across the crown of the strap, at D E. The center of the center piece having been obtained from the inside of the jaws, and carried across, at D E, after the strap is set upon the table with the inside faces of the jaws parallel with the face of the table, the width between the lines, A A, should be marked less than is the width of the block end on which they fit, for the following reasons: A connecting rod strap will, by reason of its shape, spring open between its jaws very easily indeed; and were the width between the jaws made the same as that of the block end of the rod, the strap would fit very loosely to its place. It is therefore necessary to make allowance for this in the width between the jaws of the strap, making them narrower than the block end of the rod. The amount of this allowance depends upon the size and stoutness of the strap, an ordinary proportion being about one sixteenth of an inch to a strap five inches wide between the jaws. This amount of allowance will enable the strap to spring over the rod end, and be a good fit, that is to say, not so tight but that it can be easily pulled off by the hand, and not so loose as to fall off of its own weight if unsupported. Then, again, any ordinary amount of metal removed in fitting the strap to the rod end will not seriously affect their fit together. Now it is obvious that, if the rod end faces on which the jaws of the strap fit are made parallel to each other, the strap, in being sprung on, would spring open so that its jaws would only touch the block at its entrance end, the end of the jaws standing open from the block end. To obviate this, the block end faces, B B, in Fig. 211, are made slightly taper, that is to say, about one thirty second of an inch or rather less in a length of six inches, the diameter of the end being the smaller. It is not necessary to mark so small an amount of taper in the marking, it being sufficient to run the center punch dots a little inside the line at the end of the block on each side. The lines, A A, in Fig. 212, representing the inside jaw faces, should also be a little taper, first to allow of fitting the strap

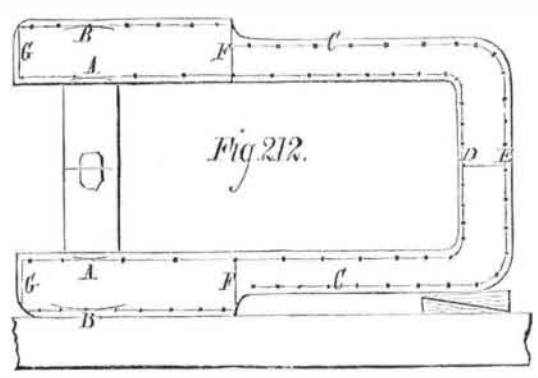


Fig. 212.

to the block end, and next to make the fitting of the brasses into the strap an easier operation. It is obvious that, if the inside jaw faces of the strap are parallel with each other, so soon as the brass is reduced to the size of the top of the strap, it will slide clear down to its bed; whereas, if those faces are made a little wider apart at the open end than at the crown end, the brasses, after entering at the open end, will have metal sufficient to be taken off them before being let down to the crown to permit of their being fitted nicely to the strap. For these reasons, the faces of the strap, A A, in Fig. 212, are made wider apart, in the proportion of nearly one sixteenth of an inch of taper to a strap having a jaw twelve inches long. The line, D, in Fig. 212, representing the amount of metal to be cut out of the crown of the strap, should only need that sufficient metal come off to allow that face to just true up: because it is an awkward face to operate on, and it is much easier to take any surplus metal off the outside crown of the strap, as represented by the line, E, in Fig. 212. The lines, F F and G G, are marked at the requisite distance from the crown, D, of the strap, with a square resting on the face of the marking table. The round corners and curves are marked off with the compasses, using the blocks of wood shown in our lesson on marking-off a double eye, previously given. The finishing, however, of such corners, both in the machine and in the vise, is usually done to a small sheet iron gage. Such corners can, it is true, be cut on a slotting machine table to a correct curve without the use of a gage; and there are many shaping machines with special attachments for the same purpose. Slotting machine work is, however, comparatively a very slow process; and in most cases it is found, in the end, more expeditious to shape out small corners with the cross and the up-and-down feed of the machine than to bother with such attachments.

Useful Recipes for the Shop, the Household, and the Farm.

To clean Britannia metal, use finely powdered whiting, 2 tablespoonfuls of sweet oil and a little yellow soap. Mix with spirits of wine to a cream. Rub on with a sponge, wipe off with a soft cloth, and polish with a chamois skin.

The best way to clean the inside of old iron pots and pans is to fill them with water in which a few ounces of washing soda is dissolved, and set them on the fire. Let the water boil until the inside of the pot looks clean.

To remove freshly spilt ink from carpets, first take up as much as possible of the ink with a teaspoon. Then pour cold sweet milk upon the spot and take up as before, pouring on milk until at last it becomes only slightly tinged with black. Then wash with cold water, and absorb with a cloth without too much rubbing.

Scorches made by overheated flat irons can be removed from linen, by spreading over the cloth a paste made of the juice pressed from two onions, ½ oz. white soap, 2 ozs. fuller's earth, and ½ pint vinegar. Mix, boil well, and cool before using.

Brown and black are the only fast colors in book-binding cloth. Red, green, and blue are the next nearest to fast colors. In calf binding, yellow or tan is the only color that will not fade. It wears best. Blue calf wears and rubs white. Purple and wine colors fade very quickly if exposed to light. Claret is greatly superior to the last named, and is nearly fast.

The following recipe for whitewash is recommended by the Treasury Department to all lighthouse keepers. It answers for wood, brick, or stone. Slake about ½ bushel unslaked lime with boiling water, keeping it covered during the process. Strain it, and add a peck of salt, dissolved in warm water, 3 lbs. of ground rice put in boiling water and boiled to a thin paste, ½ lb. powdered Spanish whiting, and 1 lb. clear glue, dissolved in warm water; mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible, with either painters' or whitewash brushes.

The best time for felling timber is when the tree contains the least sap, and that is the case in midsummer and midwinter. In general, all soft woods, such as elm, lime, poplar, and willow, should be felled during winter. Oak, alder, beech, and pine are better cut in summer.

A Useful Invention for Weavers.

Chambers' Journal has a brief account of Barker's patent self-acting punching machine for repeating Jacquard cards. In the ordinary machine, a skilled workman must be employed during three weeks or a month to fit it up and get it in working order. The new machine, which can be packed in a small box, is always ready for working, and will prepare from 12,000 to 20,000 of the perforated cards in a day: while the old process will not produce more than 1,200. Another advantage consists in the rapidity with which changes of fashion may be followed. A manufacturer will bring out new designs for each season; and if any of them meet with success, he will frequently be able to take large orders, if he can execute them with dispatch. Aided by the new machine, he can get cards for a large number of looms in a day or two, instead of being weeks over them as in the old system, and can thus start his looms quickly and send his goods into market in time for the season.

American Quicksilver.

Mr. J. B. Randol, general manager, gives the production of the New Almaden mine for the year 1875, in flasks of 76½ lbs. each, as follows:

Months.	Flasks.	Months.	Flasks.
January	850	July	1,220
February	800	August	1,100
March	1,033	September	1,200
April	850	October	1,250
May	1,095	November	1,700
June	1,050	December	1,500
Total			13,648

The total product of the mine for 1874 was 9,084 flasks, making the increase this year 4,564 flasks, or nearly 50 per cent.

Eating Rats.

An English contemporary suggests that the health of sailors and the comfort of life on board ship would be promoted if the practice were introduced of eating the rats which swarm in most ships. There is really no reason why rats should not be eaten as well as rabbits and squirrels. They are clean feeders, and extremely particular as to keeping their bodies free from dirt. Rats which have existed in the hold of a grain-carrying ship might be a toothsome delicacy.

A Huge Clock.

The celebrated clock at Westminster (London, England), has 400 square feet of dial surface. The minute hands are 11 feet long. Although the hands are all counterpoised, the entire weight of hands, counterpoises, tubes, and wheels which has to be moved at every beat of the pendulum is not less than 1½ tuns. The going weight is 1½ cwt., and the clear fall is 170 feet. It takes five hours to wind this clock up by hand. Huge as the great machine is, it shows an error of less than 1 second on 83 per cent days in the year.