species, on the contrary, have been observed (in aquaria at least) to be entirely destitute of this artificial covering, and have been seen for hours at a time carefully cleaning themselves with their long claws, and performing the operation with all the grace of a cat. They make use of their delicate claws, which appear so awkward, to carry food to their mouths, and are able, with such imperfect hands, to pick up the minutest morsels.

The habits of this animal were well known to the ancients, and by them this crustacean was made the emblem of wisdom. Its image was suspended to the neck of Diana of Ephesus, as of a being endowed with reason. It figured also on the money of Ephesus as well as on that of several others of the shores of Asia. The ancients also regarded the crab as sensible to the charms of music, an opinion not confirmed by modern experience, and probably an extension of the idea that attributed such a gift to the terrestrial spider.

The spider crab represented in our Figure, is a common species of the Atlantic Ocean.

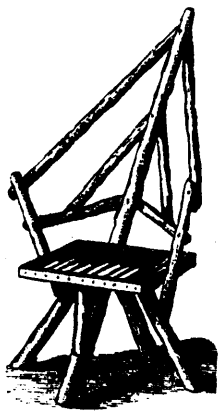
HOW TO FILE AND SET A HAND-SAW.

When a saw is in bad order, the teeth are irregular in length and pitch. This occurs through improper filing, and results in the saw working hard. The reason is that a saw irregularly filed, or set, cuts only with the longest teeth and those that have the most set. To remedy these defects, it should be pointed and filed until the teeth are all of even length, and are pitched so that the front of each tooth is at right angles with the back of the saw. The saw is fastened into a clamp, which consists of a pair of jaws fixed upon a stand, and moved by screws. The ends of the teeth are brought to a level by running a flat file lengthwise of the blade. The best form to give the edge is a slight curve from end to end of the saw, making the middle slightly rounding *outwards*, never hollow. The handle of the saw when in the clamp should be to the left, and not be changed during the filing. The part held in the clamp should be filed completely before being moved, if the jaws are not long enough to hold the whole. On a ripsaw, the teeth will be filed square on a cross-cut, they are beveled upon alternate sides. Both sides should be filed without moving the saw, which may be done by changing the position and manner of holding the file. A beginner should provide a handle at least a foot long for his file; this will enable him to hold it steadily, which is very necessary for good work. The proper size for a file is 3½ inches long for a saw having eight teeth to the inch. A saw is set before it is filed. The set given for easy cutting should be such as to make the cut as wide as twice the thickness of the blade. Several good sets are sold at the tool shops which are self-regulating, and make even work. If only a few of the teeth are short, they need not be pointed, but may be touched with a few strokes at each filing, until the rest are worn down to them. If one has no clamp, a strip of hard wood may be laid upon each side of the saw, and the whole held tightly in a vice. In filing, the strokes should be made *from* the operator, and not towards him. The file should be grasped firmly in the right hand, while the tip is held lightly between the finger and thumb of the other. A safe rule is to work slowly, and to test the teeth as the work progresses with a try square. As long as the faces are kept at right angles with the blade of the saw, the backs must come out right. —*American Agriculturist.*

CUSHMAN'S CENTREING CHUCK..

One of Cushman's latest inventions is in the shape of an improved centreing chuck, which has just been introduced by Messrs. Churchill, of Wilson street, Finsbury. It is simply a four-jawed scroll chuck, with a steel centre, and can be fastened to a bench, or used in an upright position. It will centre round, square, or octagon bars from ¼in. to 1½in. diameter, and is claimed to do it more quickly and satisfactorily than anything else yet produced for the purpose. The jaws advance or recede equally, when the body of the chuck is turned round by means of the handles, the threads taking into corresponding threads in the jaws, which are thus forced in or out according to the direction of motion of the handles. It has a screw working in a groove, which facilitates the cleansing of the chuck.—*English Mechanic.*

THERE are 79,000 miles of telegraph wire in the United States and 6850 offices, or 1 mile of line to every 36 square miles of area. England has 75,000 miles of line and 5600 offices, or 1 mile of line to every 1½ miles of area.



RUSTIC CHAIR.

Many of our country mechanics might profitably employ their leisure hours in these hard times, by making rustic furniture. During winter they have the material— spruce and cedar branches — always close to hand. Rustic work sells quite readily in Montreal and other large cities. It is most durable if made of cedar, but any wood will answer. The main piece is a pole say 4½ feet long, 4½ to 4 inches in diameter at the base, and an inch less at the top. This stands inclined 25° to 30° for a perpendicular. Three other short pieces nailed upon it, supply the necessary legs or supports. The other round sticks are added as shown. The seat has four side-pieces, filled in with the parallel pieces which are nailed to the front and rear border piece. The side pieces come forward far enough to supply arm rests. The whole is made of round, undressed limbs, or small saplings, nailed together. A hatchet to cut the sticks, with hammer and nails to fasten them together, are all the tools needed. Any smart boy can put together a trial chair, on a rainy day, and afterwards make up as many as he chooses from any wood.

TOMATO CATSUP.—There is a wonderful difference among the various articles called Tomato Catsup, from the rich sauce, so thick it will hardly pour, to the thin, watery stuff that would not keep but for the vinegar and salt it contains. Every family should make its own, not only as a matter of economy, but of safety. *If one must buy,* avoid the bright red attractive looking compounds, as they are artificially coloured. The cheap stuff sold in restaurants is made from the peelings and other refuse of the canning factories. Good catsup can only be made when the fruit is in perfection; towards the end of the season, when the nights get cool, and growth is slow, the fruit is watery, and will not yield the rich pulp of the best fruit. Select ripe tomatoes, cutting away any green portions, cut in pieces, stew until thoroughly done, and rub through a sieve fine enough to retain the seeds. Evaporate what passes the sieve to the desired thickness; for this, no rules by quantity can be given, as a bushel of some tomatoes will yield twice as much pulp as others. The evaporation should go on over a slow fire, being careful not to scorch it. When thick enough to pour from a cruet, without inconvenience, add salt and spices. Here the recipes give the greatest possible variety. Be sure and use salt enough; a chopped onion, or clove of garlic, tied in a cloth and cooked in the pulp, to give *just a suspicion* of the flavor, is liked by many; Allspice, Black Pepper, Cayenne and Mustard, are the principal spices, and are used according to the taste of the consumers. One recipe directs for a half bushel of tomatoes; Cloves, two teaspoonsful, Cinnamon, Allspice, and Black Pepper, two tablespoonsful each; these are not to be ground, but bruised, placed in a little bag and boiled in the pulp while it is being evaporated; when the pulp is thick enough, remove the bag and add mustard, ground, two tablespoonsful; Cayenne Pepper, two teaspoonsful; good vinegar, two quarts, and salt to the taste. Another recipe uses all ground spices, viz.: For the pulp from ½ bushel of fruit: Allspice and Cloves, ¾ oz. each; Mustard, 1½ oz. Black Pepper, 3 oz.; Mace, ½ oz.; Cayenne, ¼ oz.; Salt, 6 oz. or sufficient, and Vinegar, 2 qts. Add the spices, boil a minute or two, cool, and bottle.

THE bending of hard wood, especially beech, is effected at present by means of hot water or steam—a process somewhat costly as regards fuel, and taking a long time. A patent has recently been taken out in Germany by MM. Bahse and Haendel for making sieve-hoops and like objects by a dry process, more cheaply and in shorter time, from cut wood. Two rollers are used, one above the other, and having less velocity, so that it acts by holding back, while the lower extends the wood fibres. When the board, thus bent, leaves the rollers, it is fastened in the mouth of the sieve. The upper roller is fluted, the under one smooth. If two smooth rollers were used a very much greater pressure would be necessary.