

disks armed with teeth, either of wire or cut out of the material like those of a saw, revolve through the interstices of a wire sieve too fine to allow the passage of the seeds.

The first machine to which the material is subjected is technically termed the "devil" or the "willow." It is a cone-shaped cylinder, suspended horizontally, and armed on its outer surface with stout steel pegs, or teeth, placed circumferentially.

In this form it is fed into a "picker." Placed in carefully measured quantities on an endless apron, it passes between fluted steel rollers, when a "beater" of two steel arms on a rapidly revolving shaft, breaks it down and beats it into fine fleecy masses.

These preliminary processes, although apparently crude, are very important. The cotton is full of dust and dirt, gathered from the time of the first formation of the boll up to the period of its arrival at the factory.

DISINFECTANTS--A VALUABLE REPORT.

Dr. Letheby, Health Officer of the city of London, has recently made the following report:

The several disinfectants which I have largely tested are the following: 1. Chlorine gas. 2. Chloride of lime. 3. Carbolic acid. 4. Chloride of zinc (Sir William Burnett's fluid).

of zinc. A table-spoonful of this liquid is sufficient to disinfect each discharge of the body.

6. Chloride of iron is applicable in exactly the same manner as chloride of zinc, and is only suited for the disinfection of the discharges from the body.

8. Animal Charcoal. I may state, that for the disinfection of water and the removal of dangerous organic impurities, I have ascertained by experiment that the best treatment is to pass the water through animal charcoal, and then to boil it for a few minutes.

PATENT OFFICE DECISIONS--COMBINATION TOOL PATENT.

An application was made by B. Boardman for a patent for a Combination Tool, which was rejected. The examiner giving as a reason that the tool was simply an aggregation of four distinct tools, answering four different purposes.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters, must, in all cases, sign their names. We have a right to know those who seek information from us.

C. N., of N. Y.--You appear to need a little glycerin in your paste to prevent its drying too quick and too hard.

M., of Texas.--If as you say, you are not a \$20,000 reb, you can apply for a patent on taking the usual oath of citizenship.

L. A., of N. J.--For facts in relation to peat, beyond those we have stated in these columns, we refer you to Rev. J. M. Morris, New Haven, Ct., author of a treatise on that fuel.

O. M. S., of R. I.--The principal inquiry of A. K. P. was, whether in carrying an iron ball of 1000 pounds weight to the top of a mountain four miles high, the loss in weight was actual or apparent.

G. S. B., of --, in answer to a correspondent who wants to keep coal fires in stoves over night, suggests that he cover the fire with fire bricks fitted to the size of the stove.

A., of N. Y.--Meerschmum signifies sea foam. It is a mineral of soft earthy texture resembling chalk. It is found in Spain and several countries at the head of the Mediterranean.

J. W. S., of Mo.--You ask "what advantages has soapy water over clear water in the water finish employed by lathersmen?" We reply that the combination of an alkali with grease or carbon in a fatty form, known as soap, has a levigating and lubricating quality.

D. F. C., of Mich.--The gluten on envelopes and internal revenue stamps is made either of dextrine--starch treated with acid--or simply gum arabic dissolved in water.

P. B. R., of N. H.--The clicking heard in steam pipes, when the steam is first let on, is occasioned by the condensed steam or water acting in a vacuum.

N. T. P., of O.--No sufficient reasons of the differences among substances as to their power of conducting electricity, are known.

W. S., of Pa.--The falling rain acts as a purifier of the atmosphere by dissolving and carrying down carbonic acid, smoke, and other contaminations.

G. B., of Ind., supposes a cylinder or cone of matter lighter than water, perfectly smooth, set upright on the bottom of a vessel containing water, the water covering the cone or cylinder and the water having no access to its base.

O. G. W., of R. I.--The season of shortest days is not the coldest, because the earth is still retaining a considerable part of its summer heat.

F. S., asks:--Could not the desideratum of accuracy in telegraphic dispatches spoken of by your contributor H, in your issue of Dec. 8th, be obtained by connecting the ground line of the transmitting apparatus with the receiving instrument at the same office?

C. C., of N. Y.--You can obtain a good portable steam engine of the Wood & Mann Steam Engine Company, Utica, N. Y.

L. R. R., of Ill., sends us a communication suggesting various new theories concerning fountains and rivers. But the theories are not sufficiently plausible for publication in a practical paper like the SCIENTIFIC AMERICAN.

R. C. M., of Ill., suggests that damage may come to the Chicago tunnel (see page 404, Vol. XV.) when the water is let in, on account of the pressure due to the head of water, about 70 feet.

B. of Va., wants information on the utilization of the refuse of distilleries: an important subject.

J. T., of N. B.--You can procure silicate of potash from Lulme & Co., of La Fayette place, this city. A simple way of making it is to boil pulverized quartz or fine sand in a strong solution of caustic potash.

W. B. R., of -- -- Condensed milk is simply milk out of which 50 per cent or more of water has been evaporated. The process of evaporation is commonly carried on by means of a vacuum pan.

C. F. M., of C. W.--The effect of burnished gilding may be got on papier maché or japanned work by the use of lacquered silver foil and other foils which are made to imitate gold.

J. S. of Iowa.--If you place a solution of salt and gum arabic in a porous cup made of paper, leather, unglazed earthen, etc., and float the cup on water, the salt passes through into the water while the gum remains.

SUNDRY ANSWERS.--G. J. N.--We believe that no premium has been offered.--H. H. P.--Glass balls for pump valves have been used.--G. W. H.--In interferences both parties may testify.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

D. D. S. inquires for a substitute for rubber that can be hardened or vulcanized in some way so as to answer for dental plates.

G. H. A. You can apply the power of your wheels as you propose with success.

Manufacturer, Box 3,294, Boston, Mass., wants a small bolt machine, and a quick method of case-hardening iron.

THE MARKETS.

The usual dullness, incident to this season, now rules the mercantile world. The close of the year is generally set apart by the business community for squaring accounts and straightening up the loose ends of their affairs.

The coal season has been prematurely closed, and many producers will end the year with a preponderance on the wrong side of the balance sheet. Competent judges estimate the quantity of surplus coal now on hand above the actual wants, at about one million tons.

The cotton demand has been very fickle, and prices have fluctuated in sympathy with the gold quotations. At this date the demand is moderate, and prices are rather more steady.

The wool prospects are growing brighter. Trade is slow, and but a small advance is quoted. Yet an improved feeling is manifest, and these prices are readily obtained.

Business in all descriptions of hemp is limited. Manilla remains dull but steady; other kinds are inactive and nominal.

In the metal market we note: Iron shows a decline in every variety. Pig is extremely dull, with a moderate supply.

There continues a very small demand for lead, business in pig being confined to small lots of foreign. Bar, sheet, and pipe steady, and show no improvement in price.

Prices for spelter are merely nominal, and little demand is manifest. Pig tin is quiet, and we hear of very little business; prices, however, are steady and firm.

Nails are quiet and steady. Paints are very dull. The demand for hemlock sole leather is less active, but prices are firm. Indigo continues in limited request.