JAN. 12, 1867.]

terial like those of a saw, revolve through the interstices of a wire sieve too fine to allow the passage of the seeds. These

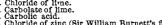
terial like those of a saw, revolve through the interstices of a wire sieve too fine to allow the passage of the seeds. These teeth catch the fibers of the cotton, as it fed upon the sieve, and pull them through, leaving the seeds behind. For the jong staple cotton this machine is not well fitted, and a dif-ferent gin is used for separating the fiber from the seeds. The method is simple. The cotton is fed between yielding rollers, in front of which a rapidly vibrating arm plays ver-tically, knocking the seeds out while the cotton is drawn through. It has been tested on the ordinary cotton also. The first machine to which the material is subjected is species dischargefrom a cholera patient, and wen then the disinfection is pressed into bales for convenience of transportation, and sent to the factory. The first machine to which the material is subjected is technically termed the "devil" or the "willow." It is a come-shaped cylinder, suspended horizontally, and armed on its outer surface with stout steel pegs, or teeth, placed ci-ter surface with stout steel pegs, or teeth, placed ci-ter of the search or the sinder of the conton, direct from the signed function is pressed on the inside of the case, the in-side of which conforms to the exterior of the cone, and is similarly armed with pegs. Those on the cone pass between the rows of those on the inside of the case. The cone is similarly armed with pegs. Those on the cone, and the similarly armed with pegs. Those on the cone, and the similarly armed with pegs. Those on the cone, and the similarly armed with pegs. Those on the cone, and the similarly armed with pegs. Those on the cone, and the similarly armed with pegs. Those on the cone pass between the rows of those on the inside of the case. The cone is fight for the same transition that the baset, and yer of the same star of the sime cotton is drawn in the table is interesting to the sime transition the press and boling the press and boling the press. The cotton distored of the same show the cotton dis cott revolutions of the cone, throws the cotton around its circumference and discharges it at the largest end, torn into a light, fleecy substance, very unlike its condition in the bale.

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 fall on cylindrical sieves of wire, by the rotation of which they are carried in an even web, like the cotton battings sold at the stores as wadding for garments, to another series of rollers and beaters, until this process has been repeated three times-on the same machine, and constituting one operation-when the "lap", or web of cotton passes between heavy iron rollers and is wound on a core of wood furnished with journals at the ends. The main object : of these preparatory processes is to thoroughly clean the cotton. It has not as yet been either carded or spun. Those unacquainted with the manufacture of this material suppose that carding is the first process and that it is immediately succeeded by spinning. On the contrary, there are various stages to be reached before the carded cotton is ready to be spun into thread or yarn.

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. All this must be removed, and the bottom of the willowing machine is a net of strong wires through which the dirt finds its way, while the rotating sieves of the "picker" allow large quantities to escape. The rooms where this work is done are consequently dirty and unwholesome. The amount of cotton fed into the picker at once, and the degree of evenness with which it is spread upon the endless apron, affect the condition and value of the material through every after process up to the finished yarn or cloth.

DISINFECTANTS ---- A VALUABLE REPORT.

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



cently made the following report: —
The several disinfectants which I have largely tested are the following:—

Chloride of Hme.
Carbolate of Hme.
Carbolate of Ime.
Carbolate of Ime.
Carbolate of ime.
Chloride of iron.
Permanganate of potash (Condy's liquid).
A himal charcoal.

Each of these disinfectants has its own particular value, and may be used on certain occasions in preference to any of the others: thus

Chloride of iron.
Permanganate of potash (Condy's liquid).

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Each of these disinfectants has its own particular value, and may be used on certain occasions in preference to any of the others: thus

Chloride of cance testily be reached by other disinfectants. I have used to largedy with offensive and dangerous organic vapors, let loose from the c untents of the decaying coffins, that the workmen could not enter the vaults with safety. In this manner all the vaults of the covered with fresh mold. I have found also that chlorine is best suited for the disinfection of rooms where, as is the case with the poor generally, the occupation there is pointed or the justice. As occasion requires, about haff a teacupful of strong muriatic acid (sp rit of salt). In this manner the chlorie is best suited for the chlorwing:—About a teaspoonful of the black oxide of manganese is put into a teacup, and there is pointed ort; hit is by little, as occasion requires, about haff a teacupful of strong muriatic acid (sp rit of salt). In this manner the should here is gradually evolved, and the eaction is increased, when necessary, by stiring the mixture, or by putting the teacup upon a hotbrick. As chlorine is heavier than atmospheric alt, it is best diffused through the room by putting its excition to the diffused through the stores of the other was be not occupy therease that is an opting indeces when ecceary. By utting the mixture, or by

6. Chioride 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. It should have a specific gravity of 1470, and should contain about 40 per cent of metallic chloride. 7. Permanganate of potask is only suited for the disinfection of drinking

PATENT OFFICE DECISIONS --- COMBINATION TOOL PATENT.

An application was made by B. Boardman for a patent for a Combination Tool, which was relected, the examiner giving as a reason that the tool was simply an augregation of four disfinct tools, answering four different jur-poses; some which distinct is tools, answering four different jur-poses; some which distinct is an other sanalogous, but no single fool no-operating with the others to effect a common purpose. The examiner took another ground also, "that the same patentican not be for a combination of different machines, and for distinct improvements in each." An appeal was taken from this decision to the Board of Appeals, and Judge Poote, examiner-in-child reachered an adverse opinion, quoting the decision of Judge Stary in the case of Pilt zs. Waitman (2 Btory, page 611), in which her said. "There is, in my opinion, no difficulty in maintaining ide validity of a patent for a machine combining several distinct improvements, and the same patent for a machine and the same and the inclusion of maintaining. The same patent and her inclusion of these several and distinct improvements. In other indition, and also include therein a right to each distinct improvements for the combi-nally contained in the same chine." The same principle was affirmed by Mr. Justice McLean, in Rootes, Ball i(McLean, kep. 160): "The same patent may include a patent for a combina-tion, and an invention of these new constinual in the combina-tion, and an invention of the pate of which the combina-tion and an invention of the pate of which the combina-tion and an invention of the same size of which the combina-tion and an invention of the same size of which the combina-tion and an invention of the patent of which the combina-tion and an invention of the parts of which the combina-tion decision of those two cases that been a very common practice to here the case account of the parts of which the combination con-sings."

Since the decision of those two names is has been avery common practice to Binder the same patent of those two names is has been avery common practice to how the in the same patent a claim for the combination and for the parts of which it is composed. And suits upon such parents have been carried through every stage of Birgation, and been sustained by the highest courts, without objection from that cause, and the law must now be regarded as entirely set-lised on that religion. We appretend, therefore, that the examiner has not investigated this case with reference to the principles that properly govern it, and we overnal his decision, with a view to its re-examination.

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 in-formation from us: begides, as sometimes happens, we may prefer to ad-dress the correspondent by mail.

uress the correspondent by main. SPECIAL NOTE. This column is designed for the general interest and in-struction of our readers, not for gratuitous replies to questions of a purety business or personal rature. We will publish such inquiries, honever, when bail for as alternisments at 50 and a line, under the head of "Rusiness and Personal."

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. The influence of density in the atmosphere was thrown in as an after-thought. In the case under consideration the loss on this account amounts to less than two ounces, but for the mass of seasoned pine, that you refer to, it would be greater, the difference of weight in any case varying with the bulk.

G. S. B., of---, in answer to a correspondent who wants to keep coal fires in stoves over night, suggests f at he cover the fire with fire bricks fitted to the size of the stove. On removing the bricks in the morning, a clean fire will be found, much easier revived than when ashe are used as covering.

A., of N. Y.-Meerschaum 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 lathesmen?" 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, the reason for which you can find in any chemical work. 2d. Wrought iron may be soldered to cast-iron by soft solder, the surfaces having been cleaned with muriate of zinc; but what is the benefit? The soft solder has not the quality of tenacity sufficient to produce a union of the same qualities in iron. Brazing is the proper way of uniting the two qualities of iron. 3d. Wrought iron is case hardened by the use of prussiate of potash in powder. It converts the surface of the iron into steel.

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

disks armed with teeth, either of wire or cut out of the ma- of zinc. A tablespoonful of this liquid is sufficient to disinfect each discharge F. S., asks :- Could not the desideratum of accuracy in the body. 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; so that the electric current, after actuating the receiving apparatus at the terminus of the line would, on its return, operate that of the transmitting office: thus presenting, as it were, an echo for the inspection of the operator ; enabling him to repeat the signal if he perceives that the circuit has not been completed.

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 SCIENTIFICAMERICAN. We quote as a fair specimen of the whole, the following sentence :- " And I am further of the opinion that all the fresh water which we receive at the surface has once been vaporized by the internal heat, and owes its purity and freshness to this cause; and furthermore that it is the steam generated at certain depths which forces certain veins of water above the level of the ocean, and that when these jets of water find a basin in which to rest it becomes a spring or lake, and when it does not, it appears in the form of an artesian spring."

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. If the external pressure in any part is less than the internal, the brickwork will give way But we take it that the engineers properly provided against such an accident.

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 Luhme & 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. There should be an excess of the quartz, and the boiling should be continued for several hours. The operation is performed in an iron kettle.
- -- Condensed milk is simply milk out of W. B. R., 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. There are a considerable number of patents, taken out by Borden, Lyman, Alden, Percy, and others, which cover details more or less essential to the best success. Milk boiled down in the open air does not taste like fresh milk.
- C. F. M., of C. W.-The effect of burnished gilding may be got on papier mache 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. In the same way you may separate any kind of saline substance from a gummy or mucilaginous solution. The salines are called crystalloids, and the gummy matters (glue, albumen, gum arabic, etc.) are called colloids. The process of separation was formerly known under the name of osmosis; lately the name dialysis has been more used. * * * * Our correspondent says he made over a thousand gallons of sorghosyrup last fall, and a neighbor, three thousand gallons. But they still want a cheap process to produce it of better quality.

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. No limit as to time. -W.B.S.-If the matter is important, send a fee for search and repeat the enquiry. Our impression is that such an item was published.-A.F.C.-No difference in the quantity of water raised through a suction pipe 12 or Sifest but mexic power is required, the longer the pipe. Consult any book on natural philosophy .---- W. T.-- Water wheels made as you propose are quite old .---- S. D .-- We cannot furnish the brandy receipts.

Business and Lersonal.

The charge for in ertion 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. Reply through this column, and give address.

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

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

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**** 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, and no relief from this monotony need be reasonably expected till after the holidays, or, indeed, until the action of Congress upon a variety of questions which vitally affect commerce and manufactures shall have assumed some definite form. The decline, during the past two weeks, in gold, has sensibly affected the values of many descriptions of merchandise, and prices are somewhat unsettled.

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 milhon tuns. The severe winter weather of the past two weeks has caused some activity in the retail trade, aud low prices have brought many new buyers into the market. Consumers may rely upon it. that coal will be no cheaper, but the prospect at present looks to a speedy advance.

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

In the four state of the solution of the may be thus diffused through the atmosphere of the room, even during its occupation by the sick.
 Charvia of its has been very largely used in the city during the recent epidemic of choiers. The inspectors have sprinkled it upon the four and the poor, and have sectored it and the city during the recent epidemic of choiers. The inspectors have sprinkled it upon the four and the poor, and have sectored it and the city during the recent epidemic of choiers. The inspectors have sprinkled it upon the four and the poor, and have sectored it and the city during the recent epidemic of choiers. The inspectors have sprinkled it upon the four and yards. In some cases it has been used with water for washing the laint work and the form as the poor, and have sectored it and the four of the more cases it has been used with water for washing the laint work and the four ather achemical compound of the choice its bleaching action has been objected to the more of the spone of the spone and the result of the spone and a drager over the foors of rooms and cellars - but as the diameter importance that they shoul and be used together. The carbolate of lime which we have employed contains 20 per cent of carbolic addit its esting 100 prains of the whore have the addit the two halvs of water, for dissolve the lime, when the carbolic addit with its own bulk of water, to dissolve the lime s, the carbolic add, whole difficund the atmosphere in sufficient mustic acid, which diffuses theef thore are on the rise of carbolic addit the atmosphere is the carbolic addit. The advantage of carbolic addit has print a dishection for the rise of the advantage of activation and the carbolic addit. The advantage of carbolic addit has been used as a disinfectant, and it does not destroy the color of cletting.
 4. Carbolic addit has been used as the sole agent of dishection for prives, and for the severs and the publin crade. The forme rase it has been used in the out 2000 tit

latter gum or animal gluten.

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. When steam is first let on the temperature of the cold pipes condenses a portion of it, and thus instantly creates a partial vacuum into which the water is forced on the same principle as in the water ram The force of these blows is sometimes sufficient to start the joints.

N. T. P., of O.-No sufficient reasons of the differences among substances as to their power of conducting electricity, are known. In the present state of knowlege, many of the properties of matter must be accepted as ultimate facts, about the cause of which we are unable to reason 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. Snow acts in the same way but with very much less effect. The snow which falls at the latter part of a protracted storm, when melted, is water almost chemically pure

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. Query: Will the cone or cylinder rise? We an swer: It will not.

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. The earth does not get thoroughly cooled down till late in Jan uary. The warmest season would be in June, except for the fact that the earth has not quite recovered from his winter chill.

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. The manufactories are only moderately supplied, the demand for spring and summer fabrics is beginning to be felt, and a speedy revival of the wool trade is looked upon as certain.

Business in all descriptions of hemp is limited. Manilla remains dull but teady: 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. Glengarnock rules lower, and American is entirely neglected.

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. The demand for plates is also very light.

Consequent upon the decline in the gold premium, the price of American ingot copper has ruled lower, and the market has again become quite dull. Petroleum is but little in demand, for either crude or bonded, and prices rule in favor of the purchaser; though holders do not seem desirous of pressing sales

Nails are quiet and steady. Paints are very dull. The demand for hemlock ole leather is less active, but prices are firm. Indigo continues in limited request. The lumbermarket is dull and heavy, the offerings of spruce are free and find not a large number of purchasers. From the yards there is a fair demand, at steady rates. The stock of lath on hand is large, and prices are [;] in the **b**uyers' favor.