

Scientific American

NEW YORK, DECEMBER 28, 1850.

The Supply of Cities and Villages with Good Water.

The subject we have chosen for making a few remarks, is one of vast importance. Fire, air, food, and water are essential necessities of life. In some climates fire might be dispensed with, but in no country or climate can any man dispense with either one of the trine necessities, and live. Water is so essential to health and happiness, that its first and paramount claims relate to its uses as a supporter of life. We cannot eat a meal but water forms seven-eighths of it, and we cannot inhale a breath but it is moistened with two or three per cent. of the same element; our bodies are composed of seven-eighths of water, and a knowledge of this fact gives us some insight into the causes of those terrible deliriums and excruciating torments which men are reported to have suffered, who have been long deprived of its use.

It requires no argument to prove that the water which man needs should be pure—the fact is self-evident to any man who has eyes to see, ears to hear, or sense to taste. The prince, surrounded with all the other luxuries of the world, if deprived of good water, would be poor indeed—the hardy mountaineer of the Alleghanies, who quaffs the cool draught from the bosom of his native rocks, and with only corn-cake for his simple repast, would be wealthier than he.

The inhabitants of cities, villages, or districts supplied with plenty of good water, are superior in robustness, health,—in fact, in every respect, to those who live in places destitute of such blessings.

Owing to a few enquiries made of us, lately, about Artesian Wells, we presume that what we have to say upon the supply of water, will be of some interest. There are four methods of supplying cities, villages, and houses with water: one is by common wells, or artesian; the second by river water conveyed from a higher to a lower level; the third, by forcing river water, by steam or water power, from a lower to a higher level; the fourth, by collecting water over an extended surface, and conveying it by gravitation (from a higher to a lower level.) Another plan is, for domestic supply, by collecting rain water in cisterns. It is not possible to lay down any empiric rules for supplying all places in the best manner—that depends in a great measure on locality, but we wish to call attention to one plan, which has been triumphantly carried out in this city, and which is now becoming better understood, and coming into more general favor in the old world: we allude to the collecting of water into dams, and supplying it by gravitation.

Dr. Lee, of the Southern Cultivator, states, that on every acre of vacant land, near Charleston, S. C., there falls 825,000 gallons of water per year, according to the rain gauge. Here, then, is a source of water supply, from the heavens above, which those who cannot get it from the earth beneath, should avail themselves of. Other places have the same source of supply, but to take advantage of the same, it must be collected in such a situation as to run down hill, (supply those who want it by gravitation.) Another thing is, to collect it; for it will soak away through the earth, or disappear by evaporation, unless proper means are adopted to save it. The best way to collect and save it, is to have the gathering grounds composed of an upper stratum of sand or mould, and an under-stratum of clay; and to have deep dams and reservoirs to contain it. This plan is fast supplanting artesian wells in many places in the old world, for it has been found, that the water collected in this manner is purer and much better than that derived from deep wells. It has been found that clay, has a most extraordinary effect, in purifying water, and it is contended that the change is an important chemical one. If water contaminated with carbonate of lime be made to trickle through a layer of clay, or of

sand and clay, the lime will be detained in the clay, and the water will come out almost pure. Water mixed with other salts can be purified in the same simple manner. And sand and clay, how abundant and common the materials; no place of any note or enterprise need therefore be without a supply of good water, unless it be those situations which are denied the blessings of copious showers.

Hints to Inventors.

There is no professional business, we believe, in which more skill and a thorough understanding of general mechanical matters is necessary, than in conducting applications for American patents.

We often hear inventors complaining of the injustice of the Patent Office in having rejected some alleged invention which the applicant had supposed to be new, and which, perhaps, in itself, did possess some novelty, but which the inventor had failed to properly set forth in his drawings and specification.

Inventors who apply for patents themselves,—who make their own drawings and specifications, should not overlook some important facts, which they are too liable to do. They should represent, specifically, in their drawings, such parts of their improvements as they deem of the most importance; and if they slight the execution of any part (which is not recommended) let it be done on such parts as are known to be old, and on which they expect to base no claims.

In preparing the specification, let the same rule be followed in describing the machine, or whatever apparatus it is, as is recommended in preparing the drawings. It is necessary that the nature of an invention be first described in the specification, and then explain its operation, referring to letters on the drawings; the same letters should, in all cases, refer to the same parts.

After you have fully described, in your specification, how your improvement or machine is to be used, you come to the most important and difficult part of the whole matter,—that is, the basing of your claims, which should be done with very great care. The claims to an invention are on what rests the whole or chief security, and therefore, they should not be made too broad, nor framed so ambiguously as not to cover all that is patentable in plain phraseology; it requires great mechanical skill, as well as a thorough knowledge of what exists of a similar kind, in order to correctly frame a specification and make the claims, and, we believe, it is owing to the fact, that so many furnish the Patent Office with imperfect drawings and specifications, that such a multitude of applications for patents are every year rejected.

It is an old saying, that "if a thing is worth doing at all, it is worth doing well," and we would recommend the same adage to inventors who wish to get their inventions secured by letters patent—if you have got an invention that is worth patenting at all, it is good policy to have the application properly prepared before submitting the case to the Patent Office.

Cheap Postage.

The Cheap Postage Bill is now before Congress, and we hope it will be passed and become a law, not in a few weeks, but days. By the debates in Congress, the proposed reduction of postage to 3 cents prepaid upon all letters to whatever distance, appears to meet with great opposition from some. It is said by one, that the reduction will injure the receipts of the post office, and that it will not be able to support itself, and it is argued by another, that in that case it will become a burden to the general government, whereas in all cases it should be self-supporting. These arguments betray a great amount of ignorance in Post Office experience. The reduction of our postage fees from 25 to 10 cents, and from 10 to 5 cents on letters, has increased our revenues, and the reduction in England from 24 cents to 2 cents has increased the revenues there also. It is very singular how some men can see how all useful government establishments should be self-supporting, but cannot see how many useless offices can or should be supported but by taxing the people.

We go for a universal reduction of postage to 3 cents or 2 cents, on all single letters, and we hope that the agitation for post office reform will not end here, but go on increasing until we have an Ocean Postage Reform also. The charges for carrying letters between America and Europe is shameful: no less than 24 cts. is charged for a single letter. If the price was reduced to ten cents, we believe that it would increase the Post Office revenues on both sides of the water.

Reform of the Patent Laws.

IN SENATE.—The Bill to amend the Patent Laws, which was introduced last Session, was greatly amended and re-committed to the Committee on Patents. After being left over, the Committee, on last Thursday, the 19th, reported the amended bill back, with several amendments, which produced the following discussion:—

Mr. Turney moved to amend the amendments of the committee.

Mr. Jefferson Davis was opposed to the trial of patent cases before the ordinary judicial tribunals. He was in favor of establishing a special court to try patent cases, where the whole points involved were those of nice scientific distinctions. At the proper time he would offer a substitute for the bill.

Mr. Turney said that courts of law were as competent to try patent cases as they were to try murder cases—where death was occasioned by poison, or by steamboat explosions on account of defects in the machinery. In these cases chemists are called in to analyse the alleged poison, or men of science to give their opinion as to machinery. The courts, bar, and jury decide these cases on the opinions of such skillful men, and why not decide patent cases on the same evidence? If the argument, that courts of law were not competent to try patent cases, was sound, why would it not apply as well to the Senate? Why were they competent to pass patent laws? The immediate amendment before the Senate was, that each defendant in a suit for infringement of a patent shall be entitled to a *scire facias*, to be served on the patentee, to show the validity of his patent.

Mr. Jefferson Davis replied to show that the courts of law were not the best qualified to try patent cases on the same evidence, and cited the authority of Judge Story and Judge Kane, of Philadelphia, to sustain him. He did not think Congress was the best constituted body to frame patent laws.

Mr. Turney replied.

Mr. Seward said he understood the amendment now pending was to effect that, when a patentee should sue any one for infringement of his patent, the defendant might sue out *scire facias*, to try the validity of the patent, and that the original suit should be stayed till the *scire facias* was tried. In either case, the validity of patents was involved, and would be tried; and he could see no justice in making the patentee the defendant, instead of plaintiff. Instead of the number of suits being decreased, they would be doubled: for every defendant, when sued, could have his writ of *scire facias*. If the Circuit Court of one district were to decide for or against the validity of a patent, that judgement would not be conclusive or final in other districts, as between other parties on the same patent right. He was opposed to the bill, and hoped another would be introduced.

Mr. Turney rejoined, and the amendment was agreed to.

Mr. Turney offered an amendment, making certified copies of specifications granted in foreign countries, receivable in evidence on trial of all cases for infringement.—Agreed to.

Mr. Jefferson Davis offered a substitute for the whole bill.—Laid on the table.

[In the above, Mr. Jefferson Davis struck deep and true to the mark, although we differ from him about the Special Court; yet so far as it respects the ability of Congress to frame good Patent Laws, we can have no better evidence of the truth of what he said than that of our present Code; it is a great mass of confusion. His allusion to the opinions of Judges, to show their unfitness to try patent cases, was good. It is a positive fact that some of

our Judges set themselves up to be the sole arbiters of facts in patent infringement cases, and decide upon the merits of mechanical combinations, of which they know but very little. Some of our Judges have made very singular decisions. We do not like Mr. Turney's last amendment, but we have not room to say anything more about it this week.

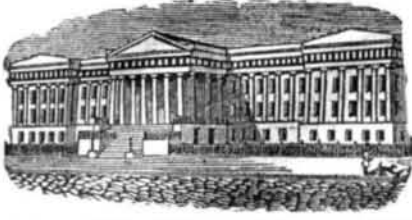
If the writ of *scire facias* be as Mr. Seward has stated it to be, then we don't like it, but we apprehend that it is altogether a different affair from the light in which it is presented by him, and will give our views on it next week.

Explosion of Steam Boilers.

Scarcely a week, yea, scarcely a day passes over our heads without our hearing of some terrible calamity, caused by the bursting of a steam boiler. Last week we heard of the death of one well known among us—Alfred Stillman, of the Novelty Works. He was killed by the explosion of the steamer Anglo Norman, the boiler of which exploded at New Orleans, as mentioned by us last week. It is a terrible thing to be recording so much destruction of life every few weeks, by such means as explosions. The causes of explosions are well known, there is no secrecy or phenomenon about them. They can be prevented, just as certainly as the sun shines, were the means resorted to for that purpose. How seldom do we hear of explosions in England; how seldom in our Eastern States, how common on the Mississippi. The high pressure non-condensing steamers on that river, are like so many floating powder magazines. The most skillful engineers do not seem to prevent explosions; in fact, the majority of engineers who have fallen victims to explosions, have been men of practical experience. Continual exposure to danger, not only leads men to be fearless of it, but reckless also. There is no real safety apart from a low pressure condensing engine; at least we think that 40 lbs. pressure, in large boilers, as high as the law should allow any boat to carry. We know that the shallowness of the Ohio, and the great amount of earthy matter in the waters of the Mississippi, may be urged as strong objections to practicability of condensing engines, with their heavy machinery, but surely something should be done beyond mere talk. We have given our opinion; who will provide a better one to remove the evil?

New Year's Presents.

It is customary with many employers to give their apprentices holiday presents: the custom is one of the good old times—we like it. Gifts, however, are often very injudiciously bestowed. We do not merely allude to that absurd custom of giving young people toys—but in bestowing any gifts which have no reference to the solid benefit of those to whom they are given. Books are common holiday presents—none are better, if the books are good; and it is in reference to literary presents that we would say a few words. Every year we have had orders from a number of employers for the Scientific American, to be given as presents, along with some gifts of drawing instruments, books, &c., to their apprentices;—they made their apprentices subscribers, thus encouraging a true taste for their business, and adopting the best possible way to feed the appetite, viz., sending home the Scientific American to be read every week for a year. A great deal of good, we have been informed, has been done in this way. We make these remarks, merely, to call attention to the fact—the reasonable fact, of such a present as making an apprentice or son a subscriber to the Scientific American doing a great amount of good at a trifling expense. Nothing but the soundest moral sentiments find their way into our columns, and it never shall be otherwise. To many, our paper may be dry, especially to those (and, alas, there are too many among our young men) whose tastes have been vitiated by the wild and exciting literature, in shilling novels, &c., but let any person read the Scientific American for one year, and if a taste for the solid and useful is not formed and encouraged, we will be willing to pay him back his money. We especially request the attention of parents and employers to this subject.



Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

#### LIST OF PATENT CLAIMS Issued from the United States Patent Office.

FOR THE WEEK ENDING DECEMBER 17, 1850.

To Orlando Child, of Granville, Ill., for improvements in Mills for sawing with circular saws.

I claim, first, the two springs carrying the two journal boxes, attached and arranged in the manner substantially as herein described, for the purpose of girding the saw, but at the same time allowing a sufficient degree of end play to the spindle, to admit of its accommodating itself to the lateral springing of the log.

Secondly, arranging the saw and its spindle on the swinging frame, which is adjustable, so as to bring the saw in any required position in a line forming part of a circle round the axis of the saw, and adjusting the said saw, either in a line with, or to the right or left of the saw, by means of the slot in the spring, through which the bolt passes, in the manner herein described, or in any manner substantially the same.

To Joseph Conant & Lucius Dimock, of Northampton, Mass., for improvements in machinery for doubling and twisting silk, &c.

We claim so constructing the catch bar that all the threads or silk, either before or after being twisted, may be secured by the catches, simultaneously, by simply bringing the bar with its catches, down upon the threads, and whilst in that position causing all the helical springs to act on the catches at the same time, by suddenly disengaging the slide lock plate from the end of the bar, the mortises on the said plate being so formed as to allow each catch to be opened separately, without the aid of the lock plate; or all to be opened simultaneously by moving said lock plate longitudinally, in the manner herein fully set forth.

To Florimond Datichey, of New York, N. Y., for improvement in apparatus for emptying Privies.

I claim the gasometer connected with the receiver, as described, for the purpose of keeping the gases separated from the fecal matter, and preventing their mixture, as set forth, and serving also as a reservoir for the compressed gases, from which the power for expelling the contents of the receiver is obtained.

To Edward & Charles Everett, Jr., of Washington, D. C., for improvement in Carriages.

The joint on which the fore carriage turns, when placed in rear of the fore axle, in combination with the segment on which the end of the perch rests, substantially as described, for the purpose of allowing the carriage to be turned in a small space, without having the fore wheels to run under the body or interfering with the hind wheels.

To Joseph F. Flanders, of Newburyport, Mass., for improvements in machinery for cutting and bending sheet metal.

I claim the improvement in the bending mechanism, the same consisting in the combination of the conic or approximately conic roller or projection, with the cylindrical part or roller, and with the circular disc or roller, in the manner as above described, and so as when pressed against the tin to gradually bend it over and down upon the disc or holder, so as to enable the roller to pass over and upon the tin, and complete the bending of it down upon the periphery of the holder.

I also claim the improvement in the construction of the gauge, whereby it is adapted to operate when the tin plate is rotated in a vertical plane, such improvement consisting in arranging its supporting journal at an inclination to the horizontal plane, and applying a

weighted arm, or its mechanical equivalent, to the gauge, so that the gravitating power of the weighted arm shall restore the gauge to its original and proper position under the holders, after it has been freed from the pressure of the surplus tin, or part removed by the cutters.

To Joseph W. Fawkes, of Bart Township, Pa., for improvement in Seed Planters.

I claim the peculiar construction of the adjustable shovels to clear the mouth of any obstruction.

I also claim the mode and manner of sowing the grain through slots, as herein described.

To S. H. Gilman, of Cincinnati, Ohio, for improved Expansion Gear for Horizontal Engines.

I claim withdrawing the sliding tongue of the supply valves of steam cylinders, so as to trip the valves at any desired point, by an adjustable prong, which is made to slide upon the arm holding the usual fixed prong, by the action of a tappet on the rock shaft, when this adjustment is effected by means of the shackle and link within the steam-chest, and the whole being arranged and operating substantially as herein described.

To Lucien E. Hicks, of Berlin, Conn., (assignor to Wm. A. Churchill & James Stanberg,) for machine for making Eyelets.

I claim the sliding bolster, constructed with its two dies and aperture, in combination with the feeding tube, punches and clearers, the whole being constructed, arranged and operated substantially in the manner and for the purpose herein set forth.

To Joel Houghton, of Ogden, N. Y., for improvements in Grain Cradle Fingers.

I claim the insertion of a metallic plate into the edge of a cradle finger by means of rivets or other fastenings so as to keep the plate and finger permanently attached together and in their place, and thereby effectually prevent the finger from straightening or springing back when used in damp grain, prevent the grain from wearing it away, and prevent the grain from sliding endwise off the cradle, before the cradle gets it round into its own swath.

To Wm. Lazelle, of Hartford, Conn., for improved Sash Fastener.

I claim the combination of the cam with the plate, when these are combined with the shaft and lip, for turning back the cam when necessary, and locking it to fasten down the lower sash, when the whole is constructed, arranged, and combined, substantially as herein described.

To R. F. Loper & J. W. Nystrom, of Philadelphia, Pa., for improved arrangement of Steam Engines.

We claim the arrangement herein set forth of the beams, connecting rods, and crank, of the two cylinders of a double cylinder engine.

To Edward Rees, of Cincinnati, Ohio, for improved composition for making cores for casting.

I claim therein the use of white of egg as a component in the preparation of loam, for cores and other similar things intended for contact with molten metal, in the manner herein described, limiting myself to that use of white of egg, but not limiting myself to the precise proportions mentioned, while the same result is obtained by the said addition to the ingredients ordinarily used in loam for cores.

To John Rogers, of Jackson, Mich., for improvement in Mills for Grinding.

I claim hanging the bed stone, (when the shaft or spindle to which the runner is attached passes through the same) by means of the before-described universal joint, in combination with the lever and screw, as aforesaid.

To David E. Rohr, of Charlestown, Va., for improvement in Oscillating Seeding Cylinders.

I claim oscillating the seeding cylinder upon its axis, for the supply and discharge of the seed, as described, by means of the combination of the lever, the spring, and pins, with the propelling wheel, as described.

To Charles Scales, of Bath, Me., for improved instrument for laying down curves of ships' timbers.

I claim the adjustable mould constructed substantially as herein set forth so that it can be set to the outside and inside curves of the timbers of a vessel and can then be used to mark them upon the wood of which they are to be formed.

To W. C. Stone, of Boston, Mass., for improvement in artificial legs.

I claim the application of the whole action

from the heel up to the knee joint in the artificial leg, which action prevents the knee joint from turning, slipping, or revolving out in the act of stepping, as herein described, using for that purpose the aforesaid springs, rod, lever, and pins, or any other, substantially the same, and which will produce the intended effect.

To Robert Thompson, of Lowell, Mass., for improvement in Lamps for lighting gas burners.

I claim the protector, as made and applied to the lamp, and so as not only to be capable of exploding or inflaming the gas brought into contact with it, substantially as specified, but of protecting fibrous matters which may come in contact with the protector, from direct exposure to the flame.

To Eleazer Bless, of Minerva, Ky., for improvement in Fanning Mills.

I claim the supporting and regulating the motion of the sieves by means of the rollers or their equivalents, and the spiral springs, so arranged as to press the shoe, or sieve frame, down upon the rollers, steadying its motion, and to a certain extent preventing any jar at the end of each vibration, substantially in the manner and for the purpose as herein set forth.

#### For the Scientific American. Patent Office Reform.

I was much interested in the perusal of the strictures of "Junius Redivivus," in the Scientific American, on the Commissioner's Report, and only regret one thing, which is, that there was too little of it, and rather scattering.

The Examiner mainly alluded to in those articles, has, for several years, excited the attention and fears of inventors,—I like to be plainly understood—I refer to Examiner Fitzgerald. This man has been in the office a long time, and he appears to have failed signally in obtaining the countenance of inventors—the patrons of the Office. However well informed he may be in many parts of the routine of his business, he evidently does not possess that first of all important qualifications,—a knowledge of his proper relation to us, as inventors. When such expressions as the following issue from a man, we are sometimes led to inquire into the matter, and see whose province it is to be thus peremptory:—"The number of applications passed at my desk, for patents," &c., and "rejections at my desk," also, "applications finally rejected at my desk," "ordered (?) to issue," &c. Who is it that speaks thus authoritatively; the Commissioner? No: why, it is only the "examining clerk," Mr. Fitzgerald. I know of no authority to issue patents besides the Commissioner.

Let me tell Mr. F. one fact that he forgot many years ago,—the Commissioner has the right to reject what he, Mr. F. "orders to a patent." The province of an examiner is precisely similar to that of a clerk in a mercantile house, to whom the head of the establishment would refer a bill for examination when presented at the counter for payment; if the clerk "ordered" the bill paid, after his examination of it, I think the merchant would be apt to inquire who this would-be co-equal was? Mr. F. evidently possesses no feeling in common with inventors, hence he never can be a man acceptable to them. Dr. Page, formerly, had a bad name for want of liberality and sympathy, but a change has evidently been wrought in him, and why? Simply because he has become an inventor himself, and he now knows what it is to be hung between hope and fear (the inventor's greatest fear is of the Patent Office.) We welcome him into our ranks,—he, like Paul, has been a great sinner,—but, like Paul, we hope he will become distinguished for his conversion to right. I have been told, and I have reason to believe it to be true, that Examiner Fitzgerald has rejected cases in which the inventors thought they saw unfairness; appeals were taken, and Ex. Fitzgerald appeared as a pettifogger in the presence of Judge Cranch against the inventors. Of such a man I have no hope; and I hope and believe that Mr. Ewbank was ignorant of the fact. Give me a vacillating, simple headed enthusiast, in fact, anybody, to reason with, in preference to a dogmatic examiner. No man is degraded by changing his opinion from wrong to right; indeed I love a man for the nobleness displayed in such an act—"a wise

man changes his mind often," and "a man is bound to change his mind whenever he finds just cause for it"—are sayings of wisdom, ill understood by Examiner F.; hence my reason for saying I have no hope of him.

At this time I know persons that have inventions which are valuable, and are needed for daily use, yet they will not trust their cases to the office, from the fact that their inventions are in one of Fitzgerald's classes.

As an inventor, I do not pretend to disguise the fact that I want to see Mr. Fitzgerald dismissed from the office, and a practical man—a man of known feeling and community of interest with us, appointed in his place. I can feel for Mr. Ewbank; I know his duties are severe and harassing; still I know that a large portion of the care and unpleasantness experienced by him in the office, and the censures that have been applied to him outside, are caused by the action of such men in the office as I have alluded to.

I have something to say in regard to the proper duties and relations of Examiners, and also the province of the Commissioners, which I may communicate in future papers.

DACLEDE.

#### Poisonous Effects from New Earthenware.

A somewhat singular though not unaccountable occurrence took place in the family of a gentleman in one of our neighboring towns, a short time since. It appears there was a large number of the gentleman's family and connections to partake of a Thanksgiving dinner, numbering in all twenty-three persons. The usual variety served on such occasions covered the banquet board, and the party partook of it with the proper relish. Twenty of the party remained over night and took breakfast with their host the ensuing morning. A large chicken pie, which had not been touched the day before, was served out to them at this time. In a few hours after, seventeen of them were violently attacked with severe griping pains in the bowels, accompanied with profuse diarrhoea. It appeared, from investigation, that only those who ate of the pie were the ones who suffered. The lady of the house having made it herself, and partaken freely of it, suffering alike with the rest, of course removed all suspicion of intentional poisoning. The query now is, what was there in this pie, or about it, that should produce these effects? The pie was baked in a yellow earthen dish, that had never been used before; and the conclusion necessarily is, that its contents became impregnated with portions of the enamel with which it was lined, and hence the consequences. Now, the enamel used by potters varies in composition, according to the purposes for which the ware is intended. They all, we believe, contain more or less lead, cobalt, &c. Often the biscuit, as it is called, is made of clay which contains poisonous matter in various proportions, and if, after the baking, the vessels are imperfectly glazed or protected, bad consequences may arise from using them. All such ware, to be used in cooking when new, should first be proved, and this is best done by having it greased over with lard or tallow, and then subjected to the heat of an oven. This will generally be found a sure protection. This one instance should serve as a warning to families, and is not without interest to the physician. Had the occurrence taken place during the prevalence of the cholera, the sickness might have been taken for it, and with very good reason, its symptoms and character simulating that disease. We are pleased to state that the parties entirely recovered, the majority of them only suffering five or six hours.

(The above is from the Boston Medical and Surgical Journal. The poison of the earthenware spoken of, was no doubt in the glaze, the common coarse kind being mostly composed of lead. The advice about trying the ware, before it is used for cooking, is prudent, and should, in every case, be complied with.)

Some apples contain 78 per cent. of water,—this is the reason why some give out nearly as much cider as the apples, bulk for bulk.—Apples contain no starch, but a great deal of nitrogen, therefore they are good for producing muscle.