much time as the drilling. It is found that the alternate use of these instruments enables more rapid progress to be made, than when it is attempted to draw the temper entirely through the plate at a single operation.

IMPORTANT DECISION BY THE COMMISSIONER OF PATENTS.

On the 8th of July, 1870, amendments to the patent laws went into operation, providing, among other things, for the issue of patents for trademarks. Commissioner of Patents Fisher, with his customary promptness, at once established rules to facilitate the new issues; and decided, overruling the Primary Examiner, that any trademark, whether consisting of mere words or accompanied by a device, might be the subject of a patent. Under this ruling, a number of applications were filed and patents granted; soon after which, Commissioner Fisher resigned. No sooner was his back turned than the Primary Examiner began to nullify the new practice, by rejecting those applications for trademarks that consisted of words, only granting those that were accompanied by a figure or device. The acting Commissioner declined to interfere, and left the matter for settlement by the incoming Commissioner, Gen. M. D. Leggett.

The new Commissioner has just rendered his decision, and, we are gratified to be able to state, he gives to the law a broad and liberal interpretation, fully sustaining the ruling of his predecessor.

Commissioner Leggett decides that patents may be granted for trademarks of all kinds, consisting of one or more words, either with or without other devices. But the mere name of a firm or corporation cannot be patented, unless accompanied by some other word, device, or "mark." The document is clear, concise, and interesting. We publish it in full, on another page.

This decision is very timely and judicious. So long as manufacturers are assured that they may hold, as their own property, and derive benefit from, the particular marks that they place upon goods, they will take pains to improve the productions; and the patented trademark will become a certificate of genuineness and excellence.

We are glad that the narrow views of the Primary Examiner have been overruled in this instance, as in so many others during the past twenty years. The difficulty with such superannuated officers is that they are fussy, adhesive to past traditions, and unable to accommodate themselves to the progress of the age; and, as Patent Office examiners, they create delay and difficulty in the transaction of business, by unnecessary or whimsical rejections of legitimate claims. The usefulness of the Patent Office ought not to be thus obstructed. We trust that the new Commissioner, like a new broom, will sweep clean, and remove all the cobwebs that stand in the way of an enlightened, liberal, and vigorous administration of the Department.

We have been asked what is the especial value of trademark patents, in view of the fact that the State courts are ready to afford protection against infringers? We reply that a United States patent for a trademark is valid in all the States and territories; and a decision made in any one United States court is respected in all the States. The trouble and expense of separate infringement trials in each State is thus avoided. A trademark patent costs in all only thirty-five dollars; whereas a single suit for infringement in a State court often costs five hundred dollars; and the decision of one State court is not binding in another State. Moreover, the possession of a regularly issued patent for a trademark is a preventive as well as a protection against infringers. Few persons will venture to begin an infringement in open defiance of a known patent. The advantages of trademark patents are obvious.

By the terms of the new law, patents may now be had for business stamps or trademarks of all sorts, no matter how long they have heretofore been used. The proceedings are quite easy and simple. We shall be happy to communicate with any of our readers who desire further information upon the subject.

HEALTH IN OLD AGE.

William Cullen Bryant, the poet, and editor of the New *Evening Post*, is now almost seventy-six years of age, but he is as active and vigorous as most men of fifty. He is the impersonation of good health, the result of long-continued habits of good living. His stalwart form and flowing beard of gray often attract our attention as we see him passing our office window, on his way down town, after a brisk morning walk of three miles.

Mr. Bryant has lately permitted the publication of a familiar personal letter, in which he makes known his general manner of living. From this it appears that he is very frugal in diet, and very generous in the matter of bodily exercise. He rises early, and at once engages in exercise for an hour, in his room, with light dumb bells, the bar, a chair, etc. Then a bath, then breakfast, taking no tea or coffee, no meat, but simply hominy and milk, oatmeal, wheaten grits, cakes, baked apples, or other fruits. After breakfast, study for a while, then a long walk. An early dinner, taking a little meat. Supper the simplest, fruit, bread and butter. No study, no thinking, no writing of any sort in the evening. Early to bed. No toddy or stimulants of any sort. Mr. Bryant's faculties are all in good order. His mental vigor is remarkable. Not the least wonderful fact in his history is, that from early childhood his intellectual powers have been constantly worked. As a youth he was precocious. Before he was ten years old, he was a poetical contributor to the papers: and at fourteen, his first volume of poems was published. After a college education, he studied law, and became quite distinguished in Connecticut. For the last forty-five years he has been connected with the *Evening Post*, which is one of the best daily papers in the world. His literary productions rank among the very highest.

INVENTIONS MADE BY WORKMEN.---WHO OWNS THEM?

The rights of employer and employé, in respect to ownership of inventions developed during the term of service of the workman, although settled, years ago, by the ruling of United States Courts, in various cases, has been lately revived in the Supreme Court in this city, on the appeal in the case of Lawrence *vs.* Good.

The latter was a foreman in the rope factory of the plaintiff, and, while so employed, made an improvement and obtained a patent, for converting hemp into slivers. The patent was said to be worth at least fifty thousand dollars.

The plaintiff alleged the existence of an agreement, by which he was to furnish means for introducing the invention, and, in consideration thereof, was to be entitled to one half of the patent when issued. This suit was brought to compel the defendant to assign the above share of the patent; and the plaintiff also contended that, even in the absence of an agreement, he was entitled to the benefits of the invention, the same having been made while the defendant was in his employ as a workman, the improvement being also in the line of such employ.

The Court decided, first, that the existence of the contract was not proven. Second, that, while the plaintiff had a legal right to the services of the defendant in the line of his employment, he had no legal right to the results of defendant's intellectual labors, outside his ordinary duties; and that this invention was clearly outside of such duties.

This decision is in accordance with the rulings in previous cases, in which the following, among other points, have been established:

1. The employer is entitled to the patent if he directs a workman, generally, what kind of an improvement to make; the employer has the right to avail himself of the ingenuity and mechanical skill of the workman to perfect the invention, or put it in practical form; and the employer has also the right, under the circumstances named, to include in his patent such additions or improvements as the ingenuity or skill of the workman may have developed or suggested.

2. On the other hand, the employer has no claim upon any independent invention made by his workman, although such invention may relate to the special business or trade in which he is engaged; the sole right to the patent for such independent invention belongs to the workman.

Complaint is made by employers, that some workmen are so mean as to make use of time, materials, and shop conveniences, belonging to the employer, for the purpose of testing inventions, without so much as a thank-you for the facilities thus surreptitiously obtained. This is neither right nor honorable; but it is not any meaner than for an employer to bring a suit, as in the foregoing case, and attempt to deprive a man of a patent simply because he is his workman.

SCIENTIFIC INTELLIGENCE.

PREPARATION OF PURE BENZOLE.

Professor Hofmann recommends, for the purpose of procuring perfectly pure benzole, its exposure to a freezing mixture and then pressing it out. The frozen cake is put into a brass cylinder, 8 to 10 centimeters wide, and 40 to 50 centimeters deep, into which is fitted an iron plunger, pierced with numerous holes. It is better to freeze the benzole in the press. After squeezing out the liquid, the melted benzole will be found to be of unusual purity.

ADAPTATION OF UNGROUND GRAIN FOR FOOD.

At the meeting of the Academy of Sciences, of Paris, held on the 26th of September last, a discussion occurred on the application of unground grain for purposes of food. The subject was at that time one of vital importance to the Parisians.

M. Grimauld reported that, during the siege of Venice by the Austrians, the following process had been pursued. The grain was first softened in water, and rubbed to free it from the hulls, and was then boiled with vegetables, and seasoned. It produced an agreeable food, and must have been nourishing, as it was composed of a mixture of gluten and starch, and was the exclusive article of diet, of fourteen persons for two months.

Dumas remarked that the entire kernel could be eaten, and it was complete in itself; by grinding and bolting, much nourishing substance was removed and lost. It was not a matter of indifference that, of the 11,000,000 pounds of grain on hand at the commencement of the siege, only 7,700,000 pounds should be counted as food. The Romans in the first century were in the habit of roasting the kernels, grinding, and making the meal into a paste; and they regarded the baking of bread as wasteful.

The Arabs at the present time eat grain that has been hulled and boiled with steam. It is generally assumed that four parts of grain will yield three parts of flour; this is a waste of one fourth that ought to be saved. In England, brown bread, containing all the constituents of the grain, is regarded as a luxury, and is baked as often as twice a week.

Payen called attention to the fact that, according to Grimauld's proposition, 25 to 30 per cent of the nourishing properties of the grain was saved, which was ordinarily lost in the bolting; and the resulting paste afforded a more nourishing, healthier, and cheaper food, as the gluten contained certain nitrogenous substances in greater quantity than the other constituents of the grain, which were easily assimilated and were good for the digestion. Even the indigestible part of grain played a part in the digestion, as was abundantly proved in the English brown bread made from unbolted flour. The problem to make bread from the entire grain has been solved by Sezille, who slightly moistens the kernels, then rubs off the hulls, by which only a loss of 5 per cent is incurred; then he soaks for seven or eight hours in tepid water, until it can be easily crushed between the fingers, by which it takes up 50 to 60 per cent water; he then converts into paste between rollers, and bakes into bread after fermentation. Payen had eaten such bread, and pronounced it excellent.

HEALTHY SOIL AND WATER.

According to Chevreul, a soil is not adapted to the sprouting and growth of plants, unless the seeds and the spongioles of the roots can obtain access to the oxygen of the atmosphere. Substances absorbing oxygen, such as sulphide of iron, and sulphide of calcium, are therefore prejudicial to vegetation, while draining is beneficial.

Animals can only live in water that contains oxygen, and hence whatever removes this element from the water, destroys it for the lower animals. Fish improve stagnant water, by devouring organic substances, and vegetables produce the same effect by taking up organic matter, and giving off oxygen in the sunlight. Flowing water is, therefore, more wholesome than stagnant. Soil is injured by oil that condenses in gas pipes, and by dead vegetation. It is necessary to the health of a house that it be exposed to air on two sides, and that light can penetrate to the interior, and that the air of all apartments can be frequently renewed.

GLYCERIN SOAP.

In the manufacture of soap, since time immemorial, all the glycerin has been thrown away, but in later years the healing and antiseptic properties of the glycerin have rendered its combination with the fats and oils very desirable, hence we hear a good deal about glycerin soaps. Unfortunately, most of the soaps of this name contain little or no glycerin.

Fashion and the ignorance of the public demand a transparent soap, and this quality is incompatible with a considerable percentage of glycerin. Transparent soaps owe their clear property to the addition of alcohol, and glycerin produces an opposite effect.

Glycerin soaps ought to contain 25 to 30 per cent of that agent to be really valuable, but rarely show more than three or four per cent. It would be more candid if soap manufacturers would undeceive the public on this point, and make a true glycerin soap at a price that would afford them an adequate profit. A glycerin soap, with some ammonia, would be a truly valuable article for wounds and bites of insects, but its value ought not to be destroyed by attempts at fancy coloring or transparency.

ON A METHOD OF DETERMINING THE PERCENTAGE OF WATER MECHANICALLY SUSPENDED IN STEAM DELIVERED FROM BOILERS WHICH PRIME.

A Paper read before the Society of Practical Engineering, April 26, 1871, by Leicester Allen, Associate Editor of the SCIENTIFIC AMERICAN.

The second annual report of the Inspector of Boilers of the city of Philadelphia, states that out of fifty-six men who presented themselves during the year 1870, for inspection and license as engineers and boiler tenders, only four were considered first class, Out of thirty-nine who sought examination for a renewal of their licenses, only nine were first class. A large proportion were only third class. I am not aware what the standard of classification, adopted in Philadelphia, is, but it is probably none too rigid. It is, probably, also fair to suppose that those who sought examination were better than the average of those employed to take charge of boilers; since there is, in that city, no penalty imposed for the employment of unlicensed engineers or boiler tenders. I deem it, therefore, extremely probable that the four receiving first-class certificates, out of the fifty-six examined, represent even a larger proportion of thoroughly qualified men, than would be shown if a general system of examination and license were legally enforced.

In view of the general incompetence of those placed in charge of boilers, not only in Philadelphia, but throughout the country, the use of boilers, not only safe with good care and treatment, but safe even under neglect, has been gradually growing in favor, notwithstanding most of the boilers, justly regarded as being incapable of explosing disastrously, do not compete, in point of economy, with others, which, unskilfully attended, are liable at any moment to explode with destructive violence.

The year 1870 has a most appalling record of death and destruction from boiler explosions, and it is time that the question of safety *versus* economy, in the use of boilers, should be definitely settled. The first step toward settling this question is the accurate determination of the real ratio of economy in boilers admittedly safe, under all circumstances, to those admittedly unsafe, except when used with the best skill and fullest knowledge.

The safe boilers are those known as *"sectional,"* in which very great strength in proportion to rupturing strain is attainable, and which—even if, under enormous pressure, they explode—cannot explode as a whole, but can only burst some minute portion of their structure. These boilers could, some of them, make a fair showing of evaporative power, in proportion to consumption of fuel, without forcing; but in trials made to ascertain their steam producing capacity, their exhibitors are apt to force them until they prime, and thus the amount of water passed through them becomes no index of their economical value as steam generators. These boilers also present such an enormous heating surface, in proportion to the water they carry, that, in practical use, they may be caused to prime by slight overfiring; and, with the ordinary