number of the SCIENTIFIC AMERICAN than for a single number of any other periodical ever before printed in any language. RICHARD LEWIS.

Melbourne, C. E., August 15, 1860.

[We should be very much pleased to see the two nations unite in the great reform above-advocated by our correspondent; but we are opposed to this country waiting any longer for England. It is the effort to get up a great "world-combination" that has caused the measure to be delayed for the last 70 years, and which threatens to delay it forever. We do not believe that a better system than that of France will ever be devised; and that has the powerful recommendation of being already in operation by one of the leading nations. We therefore think it best for the people, both of England and the United States, to urge the adoption of the measure upon their respective governments as soon as possible, without waiting for each other. Already, one part of the system will have to be omitted here—the measure of land. Our government land-surveys have become so extensive that they had better be finished on the same plan. But all the rest of the French system of weights and measures may be adopted at once, and the sooner the better. When we get the beautiful, simple and convenient decimal system in operation, we shall wonder how we could have so long retained the present clumsy, complicated and barbarous method. Let some patriotic or ambitious member of Congress prepare a simple bill requiring that the French system of weights and measures, as at present in use, shall be adopted in our custom-houses and in all government transactions; and the great work will be done.—EDS.

INVENTIONS WANTED IN TEXAS.

MESSRS. EDITORS:—The great want of Texas is sufficient water. The only means of obtaining it in this section of the State is by making cisterns and by boring wells with an auger. The bored wells are about 5 inches in diameter and from 100 to 300 feet deep. The water rises in the well from 50 to 80 feet of the surface. To draw the water we use a tin tube, 5 or 6 feet long, with a valve in the lower end. Now these tubes are easily broken and frequently leak, and this leaking from the bucket keeps the water muddy. I wish to know if you cannot suggest some better method of raising the water. Are there any pumps, simple and durable, that will pump the water from a depth of 100 feet? What we want is a pump that is simple and will not get out of fix; for we have no shops to take them to if they need repairs. The price of boring these wells is 40 cents per foot for the first 100 feet, and 75 cents for the next 100 feet, and so on. So, if any of your readers have an improved apparatus for boring, they might do well with it here. And you may tell your inventors that this is the field for their steam plows and windmills. There is a million of dollars lying waiting here for the first man who will bring us a steam plow that will turn over our prairies cheaper than our oxen; and another million to the man who can furnish us with a windmill, strong, durable and controllable, that will do our grinding and threshing cheaper than steam. I know there are many professing to do this, but give us one that will stand the test of actual experiment.

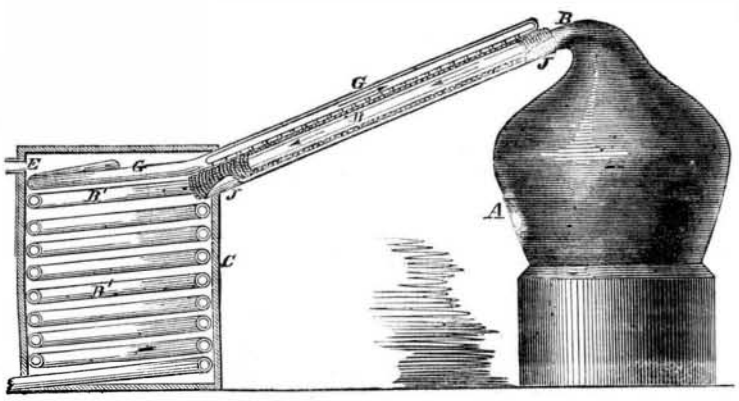
I have been taking your paper for ten years; its chief excellence, in my opinion, is its perfect *reliability* and the total absence of *clap-trap* and *humbug*. I do not believe that you can be bribed to say of somebody's fly-trap that it will catch more flies and bigger flies than anybody else's fly-trap. A. H. S.

Springfield, Texas, Aug. 7, 1860.

LUM'S POWER-ACCUMULATING WINDMILL.—We would respectfully inform *Le Génie Industriel* that its description of Lum's "Power-accumulating Windmill" betrays, on the part of the translator, an entire misapprehension of the nature of the invention. The machinery is driven by just the force of the weight, neither more nor less, as well when the weight is ascending as when it is descending.

IMPROVED CONDENSER.

The invention which we here illustrate is designed to take advantage of the great power of evaporation in condensing vapors in distillation. It is well known that it takes about 1,000 degrees of heat to evaporate water; that is to say, 1,000 degrees of heat passed into water will convert it into vapor of the same temperature as the water. If a hot liquid is used for evaporating the water, these 1,000 degrees of heat are extracted from the liquid, which is consequently very rapidly cooled. In the ordinary still, the vapor is condensed by winding the pipe which conducts it from the boiler spirally in a tub through which a constant flow of cold water is maintained. The improvement represented in the annexed cut consists in covering that portion of the pipe which leads from the boiler to the worm with cloth or other soft substance, and keeping the cloth constantly wet with cold water, which, by its evaporation, cools the contained vapor.



BROWN'S IMPROVED CONDENSER.

A represents the boiler and B the conducting pipe, which is wound with yarn throughout its whole length. The feed pipe, G, which supplies the cold water to the worm-tub is laid directly over the pipe, B, and is perforated with numerous small holes through which the water escapes upon the yarn or cloth covering the pipe, B. The surplus water escapes from the end of the pipe, G, and is caught by the trough, J, and conducted to the worm-tub, C, being the only source of supply to the tub. A waste pipe, E, carries off the excess of water and prevents the tub from overflowing. The pipe, G, after it enters the worm-tub, is carried once around or partly around the tub, and the supply of water is either forced through it with a pump, or drawn from a reservoir at a greater altitude.

The inventor of this improvement is Abram C. Brown, to whom the patent was granted, through the Scientific American Patent Agency, on the 10th of July, 1860. Further information in relation to this invention may be had by addressing Abram C. Brown, at the corner of Eighth-street and Buttonwood, Philadelphia, Pa., or his agent, Charles Bradfield, at No. 16 Exchange-place, Jersey City, N. J.

THE POWER OF THE HEART.—Let any one, while sitting down, place the left leg over the knee of the right one, and permit it to hang freely, abandoning all muscular control over it. Speedily it may be observed to sway forward and back through a limited space at regular intervals. Counting the number of these motions for any given time, they will be found to agree exactly with the beatings of the pulse. Every one knows that, at a fire, when the water from the engine is forced through bent hose, the tendency is to straighten the hose: and if the bend be a sharp one, considerable force is necessary to overcome the tendency. Just so it is in the case of the human body. The arteries are but a system of hose through which the blood is forced by the heart. When the leg is bent, all the arteries within it are bent too, and every time the heart contracts, the blood rushing through the arteries tends to straighten them; and it is the effort which produces the motion of the leg alluded to. Without such ocular demonstration, it is difficult to conceive the power exerted by that exquisite mechanism, the normol pulsations of which are never perceived by him whose very life they are.—*Jos. W. Sprague.*

THE trotting stallion "George M. Patchen" has been bought by Mr. Waltermire, of this city, for $25,000.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Variable Stars.—Professor Gould read a paper on this topic. He stated that careful observations had revealed the fact that the number of variable stars is now about eighty. Scientific men in this country and Europe had turned their attention to this subject, and important results might be expected. The generally received opinion is, that every star under the third magaitude is variable. He mentioned a number of the variable stars; one of them had a few years ago apparently disappeared altogether, but about a year ago it re-appeared suddenly, with more effulgence than ever.

Roosevelt's Paradoxes.—Mr. Clinton Roosevelt, of New York, presented a paper on the Paradoxes of the Atomic Theory of Chemistry. He said that we rely much on common-sense, but there is only one thing on which all sentient beings have agreed, and that is that happiness is the chief good of existence. From this point all sects and parties separate and come in collision, so that in philosophy, as well as in religion, and morals, and politics, it was necessary to determine the higher law, as well as the rule of faith in evidence. He considered that all matter is ethereal, and that all atoms are evolved from *something*, and this certainly established the higher physical law. He proposed to set up a new system of chemistry and upset all established notions generally. This paper, from its great profundity, drew forth the *silent* applause of the whole association.

Spontaneous Combustion.—Professor Horsford read a paper on the burning of Berdan's Mechanical Bakery, in Boston, supposed to be the work of an incendiary, but which he showed might have resulted from spontaneous combustion in the boxes of sawdust used to catch the drippings of the oil. It is well-known that some oils, when spread over a surface, and exposed to air, absorb oxygen with such great rapidity as to heat considerably and to ignite if there is small opportunity of cooling. The sawdust absorbs the surplus oil, and where remaining in piles, spontaneously takes fire. Professor Horsford described an apparatus for testing the comparative avidity with which different oils absorb oxygen, or, in other words, there safety. It exposes equal surfaces of the oils to the action of the air, and measures the quantity of oxygen absorbed by each, all being compared with pure sperm oil, which is known to be safe.

Lighting Mines with Gas.—To prevent fire-damp explosions in collieries, by lighting with coal gas, was the subject of a paper by Capt. E. B. Hunt. He proposes to avert the dangers of coal mines by lighting them with coal gas, supplied with air from the surface, not allowing the atmosphere of the mine to come in contact with the same.

Professor Rogers thought the plan would be impracticable, from the fact that the progress of the work required that the workmen should be supplied with a movable lamp. It was certainly a great desideratum that some means should be devised to prevent the frequent casualities in our coal mines.

The Oil Wells.—Professor Newberry read a paper on this subject. The oil is found in Pennsylvania, western Virginia, Ohio, New York, Canada and other places. The wells yield, by pumping, from ten to twenty-five barrels per day of the crude oil. The yield of the refined article of the Pennsylvania oil is about 85 per cent of the whole. He saw a well which gave ten barrels a day of pure oil, and it was barreled and sent to market as it came out of the ground. The owner was not satisfied and deepened his well, and in eighteen hours 110 barrels were collected from it—but this proved to be very impure. The crude oil burns dimly, and is a very good lubricator, and when refined has less smoke and less odor than any other oil, and is not explosive, while its illuminating power is equal to the best coal oil.

In Illinois the oils occur in a limestone, and the loss by distillation is about one half. These oils everywhere occur, for the most part, about one geological level. The oil seems to have distilled from the carbonaceous deposit below, and it may be the product of animal as well as vegetable remains.

Professor Pugh confirmed the statement as to the practical value of the petroleum; it is used with great success by the students in the institution to which he