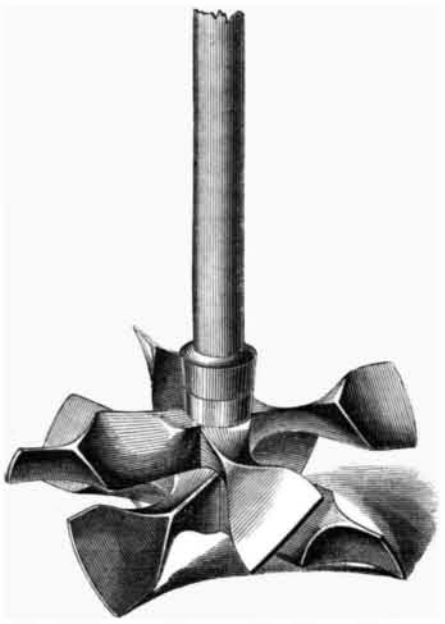
CHURN DASHER.

Our engraving shows an improved churn dasher, for which it is claimed that it so thoroughly agitates the cream or milk that not only is the butter separated therefrom with greater ease and rapidity, but that a larger quantity is obtained.

The form of the dasher is well shown in the engraving; it will be seen that, instead of the usual flat and sometimes perforated blades, it is provided with blades of double, but oppositely inclined, planes, so placed that the current made



by the action of one inclined surface is met and broken, by the action of another surface inclined in another direction.

The result is that when the dasher is moved up and down with the proper force, a violent agitation of the cream or milk is produced, the air being carried under the surface and thoroughly aerating the fluid.

This modification of the old churn dasher, which has yet held its own against powerful competition, will doubtless strengthen the hold it has retained upon the favorable opinion of dairymen. The inventor claims that the same principle of construction is equally adapted to revolving or other kinds of churns.

Patented, through the Scientific American Patent Agency, Sept. 7, 1869, by Miles Fisk, whom address at Adrian, Mich.

Moritz's Jacks for Replacing Cars.

Mr. David Moritz, of Black Rock (Buffalo), N. Y., has invented a traversing jack for replacing cars, which is to be applied to railroad cars, for the purpose of replacing them upon the rails when they are run off the track. To a portion of the car body is attached a bed plate, on which a cross head or bar shaped frame, attached to the jack, traverses. The cross head is provided with double flanges which embrace parallel rails or sides of the bed plate, and is provided with friction rollers to facilitate its movement. Both the bed plate and cross head are suspended from the car by the jack. The screw of the jack works in a nut affixed to the car body. The nut is swiveled in a shell affixed to the car, and is, by toothed wheels, connected with an upright shaft, which carries a hand wheel. By turning this wheel, the nut will be revolved to work the screw up or down, and thereby raise or lower the jack. A ball-joint forms the connection of the nut with the cross head, permitting the jack to rest in an inclined position on uneven ground. From the car is also suspended, by a ball joint, a vertical shaft which passes through a pinion, hung between ears formed on the cross head. The pinion meshes into teeth formed on the inner side of the bed plate. The vertical shaft can slide up and down in the pinion, and is connected by feather and groove to the pinion. This connection enables the car to be elevated without throwing the pinion out of gear.

The operation is as follows: When a car, having one of these jacks near each end, runs off the track, the bed plate at the off end is lowered by means of the screw, and, after it has reached the ground, the nut is still turned to raise the wheels of the car from the ground. The end of the car is then entirely supported by the jack. By next turning the vertical shaft, by means of a handle fitted to its upper end, the pinion will roll along the rack and carry the cross head and end of the car horizontally until the wheels of the latter are again above the rails. The car is then again lowered upon the track, and the bed plate raised off the ground. The nut can be locked, to hold the bed plate elevated, by means of a pawl, catching into a ratchet wheel, on the shaft.

Milroy's Method of Constructing Foundations.

Mr. John Milroy, whose name is so well known in connection with the excavator he has brought into extensive use, has invented a method of constructing piers or foundations of concrete or brickwork. The arrangement embraces two special features, one referring to the construction of the piers either in complete circular or segmental sections, and the other to the use of a curb or shoe to be used with them. Each section is founded on a platform, and within a frame, which may be constructed of wood and built up in segments. The ring is shown as formed with a mortice at one side, a tenon being placed at the other, for connecting or locking together a series of columns or cylindrical piers when constructing foundations for a continuous pier or quay.

A holder is employed in lifting the rings, and it consists of a three armed frame having levers jointed to the outer ends of the arms, and connected by chains to a central ring; those connecting chains are of such length that, when lifting force is applied to them the strain tends to draw in the upper ends of the levers, and force out their lower ends, which are shaped to catch in cavities formed for the purpose in the bottom edge of the ring; and when the latter is being lifted, the strain acting as described, prevents the levers from being loosened or displaced. When the ring has been lowered into its place, the upper chains are slackened and the lower ends of the levers are drawn inwards clear of the ring by means of three chains connected to their lower ends.

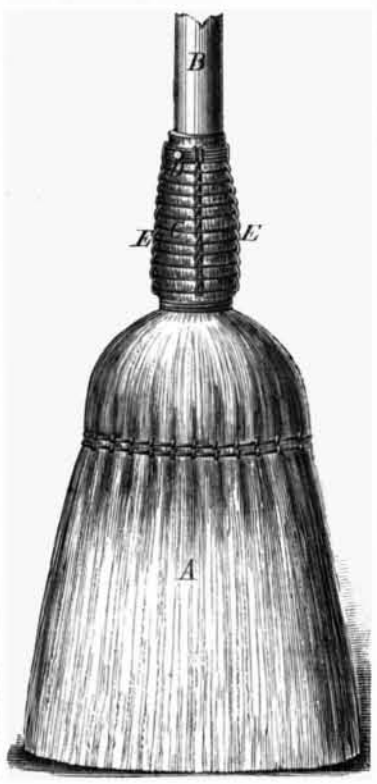
The rings are joined together with Portland cement, either by laying a bed of cement in the usual way, or, after a ring has been lowered into its place, the joint between it and the one next below it is pointed with cement round the inside and outside, and cement is then run into vertical holes made in the rings for the purpose, and rammed well in so as to spread throughout and fill up a small space left for the purpose between the two rings. Bricks may finally be inserted in the holes, to act as dowels between the rings, and thus prevent any movement of them upon each other.

The curb or shoe consists of a thin cylindrical shell easily sunk, and presenting a sharp and elongated entering part, while, from the space within elevation is accomplished without difficulty. The cylindrical shell is surmounted by a flat annular plate, the outer edge of which corresponds with and joins the top of the shell, and it is, in addition, supported by radial brackets or feather plates fixed or formed in the angle inside the shell. The bottom course of the pier rests upon the annular plate, and is fixed to it by bolts.

COPSON'S IMPROVED CORN BROOM.

The object in making this invention has been to improve the manner of attaching corn brush to the handles of brooms, so that if, by any means, the circumference wire should be broken, or the tack which holds it should work out, the wire will still be held securely, confining the brush as before.

To effect this desirable result, use is made of extra braided wires combined with the outer surface wire, as we proceed to describe, referring to the accompanying engraving.



A is the brush of the broom, arranged and applied to the handle, B, in the usual manner. C is the outer wire wound around the butts of the brushes. The end of this wire is secured by the tack, D, in the common way.

Extra braided wires, E, are bent and looped around one of the lower coils of the outer wire, the extra wires being passed alternately over and under the successive coils, and crossing each other between the coils, as shown.

The ends of the braided wires are bent back around the upper coils of the outer wire, and driven into the handle.

The braided wires thus hold and bind the coils, so that should the tack, D, work out, or any part of the outer wires be broken, the brush is firmly held. Four, more or less, of the braided wires may be used as deemed convenient and tasteful.

A patent has been ordered to issue, through the Scientific American Patent Agency, to R. E. Copson, whom address, for further information, Hamburg, Iowa.

How to Photograph a Tracing without a Camera.

I laid out several thicknesses of cloth, on a smooth drawing board, on top of which I placed a sheet of sensitized paper, superimposed the same with the drawing, right side up, and pressed the whole down perfectly smooth with a piece of glass which was kept in place by clothes pins and weights, and exposed it under the skylight until the edges of the paper showed a sufficiently dark impression, when it was removed, toned, and fixed. In this manner an exact copy of a drawing can be made, the only difference, as a matter of course, will be, the lines will be white and the body of the paper dark, which is of no disadvantage whatever.—*Anthonys Photographic Bulletin.*

Davis' Spirit Level, Plumb, and Inclinometer.

The manufacture of this well known and valued instrument was commenced in a small workshop, and has increased in importance till it now occupies a factory costing $70,000. All these instruments are made and adjusted by machinery, so that uniform accuracy may be relied upon. The maker not only furnishes the best article in this line we have seen, but, by improved machinery, is able to supply the trade at as low prices as other manufacturers who sell an inferior article. To all dealers in or users of such instruments, we recommend that they send for a pamphlet, giving prices and testimonials from a large number of practical men who have them in use. See advertisement on another page.

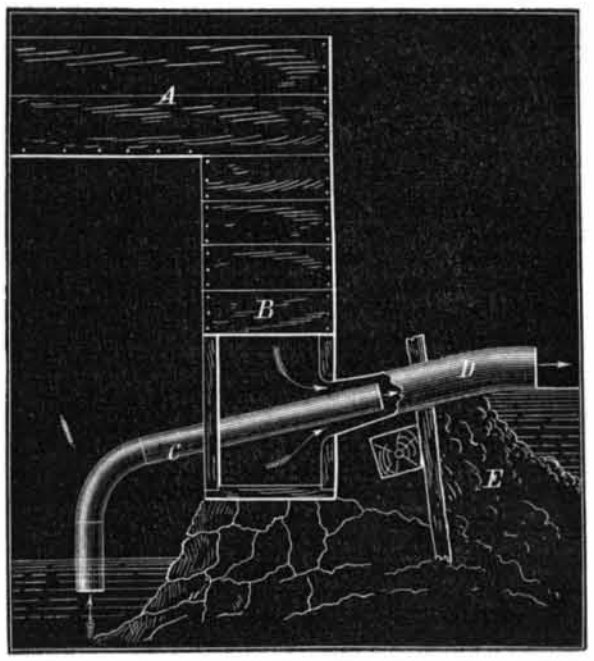
Correspondence.

The Editors are not responsible for the opinions expressed by their Correspondents.

Device for Raising Water.

To the Editor of the Scientific American:

Having learned by experience the value of the device, for raising water, of which I send a sketch, I wish to offer it



through your columns for the benefit of "our" mechanical family. Millwrights often work at a great disadvantage from the difficulty and expense of removing the water from the foundations of their mills during construction; this device will in many cases remove that difficulty at a very small cost. The whole thing can be made by any good carpenter with a few planks and pieces of stove pipe.

In the sketch, the side of the penstock is removed to show the arrangement of the suction and the discharge pipes.

A is the flume, B, the penstock, C the suction pipe, D, the discharge pipe, and E the coffer dam.

The suction pipe, C, extends a few inches into the discharge pipe, D, which, taking water from the penstock, B, surrounds the end of the suction pipe with an annular jet of water which draws with it the water in the suction pipe. In practice, I find that, with a head of 8 feet, a 10 inch discharge pipe draws the water through a six inch suction with such force as to carry cobble stones with it, while lifting the water three feet, developing also a powerful appetite for mud, gravel, etc. Will some scientific man tell us how far water can be drawn by this device with a given head?

G. W. PEARSONS.

Potsdam, N. Y.

[This device is described in Ewbank's "Hydraulics and Mechanics," and is used in Australia for mining purposes. A description of this application of it will be found in another column. Various other uses for so cheap and simple an arrangement will suggest themselves to our readers.—EDS.

Treatment of Colorado Ores.

To the Editor of the Scientific American:

I notice, in your paper of September 16, a letter from Mr. Thomas J. Lee, asking some information in relation to the treatment of Colorado ores. This is an old subject with me, as I visited the Territory in 1865, and formed the opinion which is expressed below. At that time, no proof could be brought forward, for there were too few assays of ore in quantity to form any basis for proof. But I think the publication of the United States Report on the Geological Exploration of the 40th Parallel by Clarence King, (vol. 3, by Mr. Hague, his assistant), offers pretty conclusive proof that the Colorado ores are not, in general, milling ores. There is proof of this in the experience of mill men there, and reason for it in the theory of amalgamation. The future of Colorado is a future of smelting, and all operations in any other direction seem to me to be wanton waste, so far as the ores found near Central City and Georgetown are concerned. Mr. Lee is therefore right in looking to concentration for success, and there is nothing to prevent very successful and thorough concentration.

It was long ago pointed out that mercury has but little affinity for gold, and that the so called "amalgamation" method of extracting that metal from its ores is really a mechanical and not a chemical process. The principles on which the separation is accomplished are easily explained. If we have a substance composed of two elements, one having a specific gravity of 5 and the other of 10, it is easy to see that if we can provide a liquid with a density of, say 7, the latter element will sink in it and the former cannot. To accomplish the separation of the two, we have only to crush the substance to a certain fineness and place it on a bath of the liquid. As soon as each particle of gravity 10 comes in contact with the liquid, it will sink in it, and we have only to agitate the sand until every particle is brought to the surface of the bath. We shall then have the two elements separated, one on the top and the other at the bottom of the liquid.

This is precisely what takes place in the so called amalgamation of gold ores. Gold has a specific gravity of 19·33, and mercury a density of 13·6. The iron pyrites in which the gold of Colorado is found, have a gravity of about 5, and the quartz, which is another constituent of these ores, a gravity of 2·5. It would appear, then, that in a mixture composed fo

gold, 19·33 sp. gr., and pyrites, 5 sp. gr., there should be no difficulty in effecting the separation, when the ore in a finely divided state is passed over mercury in which the gold can, and the pyrites cannot, sink. There is no difficulty in satisfying the mechanical conditions. That was done centuries ago, and the simple machinery employed never fails in its action when properly used.

There is a difficulty, however, in treating gold ores by separation by means of mercury, and in the explanation of that lies the reason of the troubles experienced in Colorado. Native gold is rarely or never pure; it is alloyed with silver, which has a specific gravity of 10·56. A simple sum in proportion will satisfy your readers, that, when the amount of silver reaches 35 per cent, the alloy has the same specific gravity as mercury, and therefore cannot sink in that fluid. It cannot, in other words, be "amalgamated." The question then simply is: Do the ores of Colorado contain more than 35 per cent of silver? The owners of the mines, whenever questioned, have lustily denied that their ores contained any such percentage of silver; but Mr. Hague's report on the mining industry of that, among other, Territories, conclusively proves that they do. The following proofs of this fact are not the results of assays on picked or casual samples, but are the actual buying and selling assays of lots of ore delivered at smelting works. Thirty-five per cent of silver I will call the normal alloy, though, for working, the percentage of silver would have to be less, or it would be as likely to swim on as to sink in mercury.

	Gold.	Silver.
Normal alloy	65	35
Consolidated Gregory ore, = gold, 5·6 oz; silver, 20 oz. =	22	78
Illinois lode " " 4 " " 20 " "	16	84
Gardner " " " 3½ " " 11½ " "	23	77
California " " " 3 " " 18 " "	15	85
Burroughs " " " 6 " " 12 " "	33	67

It should be remarked that the return from the Illinois lode was thought to be exceptionally rich in silver, but it is not very different from the others which are not exceptional.

These returns are all from first class ore, but the common milling rock contains the same proportionate amounts, the richness of the ore being reduced by the displacing of a certain amount of gold-bearing pyrites by barren quartz. This is proved by the average of large quantities of milling ore as follows:

Average of 1,340 tuns Burroughs ore: gold, 1 oz., silver, 4½ oz.; or gold, 18, silver, 82. Average of 2,056 tuns from various mines, gold, 4½ oz., silver, 11 oz.; or gold 30, silver, 70.

It should be observed that the nine mines, from which these 3,400 tuns of ore came, all delivered ore which contained far more silver than gold. Not one can supply an ore containing more gold than silver. It is therefore apparently impossible to amalgamate Colorado ores, and yet it has been and is done. The reason is that the alloy in these ores is very rarely uniform in composition. The ore may even contain free gold, together with the alloys. Such ores would yield a part of their gold and retain a part. Mr. Hague estimates the yield in the Colorado mills at 55 per cent, and thinks that 15 per cent more may be obtained from the tailings. My own observation would put these figures very much lower, but, as they stand, they show the correctness of the explanation I have given of the impossibility of thoroughly treating alloys of gold by amalgamation. Mr. Hague says of the experience in Colorado: "It has already been shown that by the ordinary mode of crushing and amalgamating, about 50 or 60 per cent of the gold contained in the ore is extracted, while nearly all the silver and nearly all the copper are allowed to be wasted."

Under these circumstances, it would be natural to expect that inasmuch as a less amount proportionately of the silver than of the gold has been removed from the ore, the tailings will contain a larger proportion of silver than the original ore. This is not found to be so in Colorado. Eight samples of tailings from various mines assayed 21 gold and 79 silver; eight others, 38 gold and 62 silver. The reason of this probably is that some of the silver exists in the form of proper silver minerals, which are mostly brittle and easily lost in concentrating; only a part being alloyed with the gold. The great fact that the ores of Colorado contain too much silver to be susceptible of thorough amalgamation remains reasonable from simple and well known mechanical laws, and is proved by experiment.

These facts are not new. The requirements of amalgamation have long been known and submitted to abroad. Nor is this the first time they have been brought forward in connection with the Colorado question. But the mine owners have, so far as my experience goes, systematically resisted all efforts to ascertain the truth, roundly asserting that their ores contained very little silver, much less in fact than 35 per cent. They were unable to separate the "retort" from the ore, and thought if the bullion they obtained was nine tenths gold. the remainder left in the tailings must be the same. Mr. Hague's study of the subject may call them to their senses, and his book is certainly the most useful publication we have on Colorado ores.

New York city. JOHN A. CHURCH, E. M.

Influence of the Moon on the Durability of Timber.

To the Editor of the Scientific American:

On page 244, Vol. XXIV., you published my report of an experiment on the question "Has the Moon any Influence upon the Durability of Timber?"

One year ago (Sept. 3, 1870, page 148), D. A. M., of Cincinnati, Ohio, expressed himself, through your paper, as being quite certain that hickory timber cut three days after the new of the moon will not decay, or become worm eaten for a long time; while if the same timber be cut in the full of the moon, it will become worm eaten in a few months.

It is now over a year since I cut two hickory sticks, three days after a full moon, marked them, and placed one in the ground out of doors, and the other in an old garret. Three days after the next new moon, I cut two more sticks, similar to the first, marked them, and placed them beside the first.

I send you a section of each, properly marked, by which you will see there is no perceptible difference between those cut in the old, and those cut in the new, of the moon.

Wallingford, Conn. D. E. S.

[The specimens sent show no difference, and we regard the experiment of our correspondent as conclusive.—EDS.

Psychic Force.

To the Editor of the Scientific American:

As the question of psychic force is occupying the attention of scientific men, I would like to ask some one interested to tell me what power it is by which the somnambulist can see with his eyes closed, or by which he can see in the dark if they are not closed, to perform the feats that are ascribed to him? Is this psychic power, or anything akin to it? I once heard a candid man relate an incident. When he was a young man going home late in the evening, barefooted, after the labors of a warm day, it became excessively dark; he stepped upon something which proved to be the uncovered wrist of a drunken man lying in the road, which startled him. He instantly saw, notwithstanding the extreme darkness, what he had stepped upon. He saw that it was a stranger, and could and did describe him, sufficiently to identify him to a party of men whom he soon met on horseback, hunting for their drunken friend. He returned with them to the spot, only to find the object of their search by groping and feeling about, although the horses indicated his presence by their snuffing. What enabled him to thus see the man in the dark? Was this psychic power, or did his fright have the effect of dilating the pupil of the eye so that he could see, on a principle similar to that by which some nocturnal animals can see in the dark? Or was it all unreal?

September, 1871. L. R. W.

A Practical Engineer's Experience with Steam.

To the Editor of the Scientific American:

On page 179, September 16th, current volume, is a communication on steam boiler explosions, from D. A. Morris, in which he explains the true cause of the majority of explosions. I am an engineer of some experience, and I find if my boilers are tight, and I shut down my engine for a short time, no water going into the boilers, so that everything is at rest in the boilers, when I start my engine, the steam will invariably rise in the boilers, so as to show more pressure on the pressure gage.

I remember well on one occasion, when I was engineer on the tugboat *H. P. Clinton*, on the Saginaw river in 1862, we were laying out on Saginaw bay, waiting for some vessels we were expecting; my boiler was very tight, and I had pumped it up to the fourth try cock; we lay about twenty-five minutes with sixty pounds steam, when we sighted two vessels, and we started, and the engine did not make more than ten or twelve turns before the steam showed eighty pounds on the gage; and I dropped the damper, and we did not get 100 rods when the steam had got to ninety pounds, and the safety valve blowing off vigorously.

My remedy is, when I stop my engines, to always have feed water entering the boilers, or the steam blowing off slightly. If you think this worth notice, it may save some valuable lives. S. J. DIETER.

Saginaw City.

Seeing under Water.

To the Editor of the Scientific American:

Your correspondent, A., upon page 181, current volume of the SCIENTIFIC AMERICAN, described a plan which will enable a person to see under water to a considerable depth, and concluded the article with a suggestion that submarine observations be conducted upon the same principle from on board the *Great Eastern*.

When the preliminary soundings along the Atlantic telegraphic plateau were in progress, I thought out a scheme for examining the bed of the ocean. The proposed outfit consisted of the following named articles: Two stovepipes ten inches in diameter and 100 feet long, lashed and braced side to side, and submerged in a nearly vertical position, several mirrors for reflecting sunlight into one of the pipes, and a first class marine telescope with which to carry on observations through the other pipe.

The limited experience which I have had in sixty-five feet of water, through two short lengths of pipe and with a pair of opera glasses, convinced me that the plateau can be seen and many portions of it minutely examined.

Submarine engineers can facilitate the construction of piers and breakwaters by the stovepipe arrangement. The device is not patented—it is free to all. R. B. S.

Watch Case Springs.

To the Editor of the Scientific American:

I recently saw a communication making complaint of the steel case springs for watch cases; also a reply giving directions for putting in. I have found the following to answer my purpose better, with less breakage. First, draw the temper in all springs; never put one in without. If it needs fitting, do it. Then cover the spring with soap, heat to a bright red tempering heat, and throw it in oil. The soap should scale the spring, leaving it white. Then draw to a blue, polish and draw again to a blue, and again polish and draw to the blue, and the spring is ready for the case. It is a well known principle that steel should be at a neutral temper, neither hard nor soft. If the jeweller will try this, he will not make any more brass springs. R. B. FREEMAN.

Watkins, N. Y.

How to Construct an Inexplosive Lamp.

To the Editor of the Scientific American:

I have waited patiently for six months to see what remedy scientific men would offer as a preventive to the explosion of lamps from the use of burning fluids. I am fully convinced that the desired improvement does not lie in the direction of a change in the character of the fluid used, so much as in the manner of using it. Carburetted hydrogen mixed with oxygen of the air will ever be explosive—no matter from what it is generated; and we must have the carburetted hydrogen before we can have the light. Now I will, by experiment, prove that a combination of hydrogen and oxygen can be exploded in any lamp, whether of glass or metal, with perfect safety, provided the outlet to the lamp is left so that the expansive force of the ignited gases find this much the weakest part of the vessel. For instance, fill a strong glass decanter, of one quart capacity, with equal volumes of olefiant gas and oxygen. Fill over water, leave a gill of water in the bottle, and cork it with a well fitting cork. Immerse a small piece of tissue paper in naphtha or petroleum; roll in this paper one grain of potassium, so that the water left in the bottle shall not come in contact with the potassium for some minutes. When all is ready, drop the paper and potassium into the bottle of mixed gases, force in the cork to a level with the mouth of the bottle, and set upon it a pound lead weight in the shape of a Minié ball. The instant the potassium ignites, a violent detonation takes place, and your lead weight goes up 100 to 150 feet. Probably you may not find your cork; but your glass bottle is unharmed. This experiment you may repeat 100 or 1000 times with no damage to your glass bottle. You may try the same experiment upon an ordinary glass lamp, with the same results, if you will leave off the leaden weight, using only a close fitting cork.

For more than twenty years I have made these illustrations before my classes in several colleges of the West and South, holding the glass vessel in my hand ungloved, and have never had a well annealed glass vessel to be shattered, although the report is deafening. The reason why the process is harmless, is, that there is a ready exit for the force, with no necessity for rupture.

Now, how simple to arrange a lamp upon a perfectly safe principle! The oil vessel may be of the ordinary shape, except that the neck be long enough to hold fast the burner (made to fit it securely by grinding the glass), after the manner of a stopper. Then, should an explosion take place, the only damage that can possible accrue will be to throw out the burner and inflamed wick together, and this would not, in one time in one million, set fire to the fluid, or break the oil vessel.

The gases I have named (olefiant gas and oxygen) seem to exert a greater force than any other—greater, at least, than common oil gas and atmospheric air. I have proved my theory correct 500 times in 20 years upon these gases, as well as on chlorine and hydrogen, binoxide of nitrogen and hydrogen, etc. Now this is just the thing required for both economy and safety. No screw on the burner. I do not want any patent for it—nor do I want any one else to have one. I know what I say, when speaking of the safety of it, and do not care what oil is used. J. M. PARKER,

Professor Mathematics and Physics, La Grange College, Mo.

Half the Cost of Steam Power Saved.

To the Editor of the Scientific American:

A series of experiments, which I have recently tried, proves that half the fuel now consumed in the production of steam power can be saved, by using the heat that escapes, in the exhaust steam from an engine, to produce additional power. In the experiments tried, the exhaust from the twenty horse engine (that drove the shafting in the shop where the trial was made) was used, and the heat which this exhaust steam contained was sufficient to drive another twenty horse engine, with the mill to which it was attached, developing as much power as the engine whose exhaust was used. The apparatus with which these surprising results was produced is very simple, and can be attached to any engine now in use. It consists of a plain tubular boiler, ten feet long and twenty-six inches in diameter, with seventy 1¾ inch iron flues in it. This boiler was filled with the bisulphide of carbon, and set in an upright position. The exhaust steam was passed through the flues, entering at the top end, and passing out into the atmosphere at the bottom, and was perfectly condensed in the flues, imparting its latent heat to the fluid in the boiler, which was rapidly converted into vapor to a pressure of 50 lbs. to the inch. This vapor was used to work an engine in place of steam, and was condensed by cooling after being used, pumped back into the boiler, and used again continuously. Only forty gallons of the bisulphide of carbon were required to fill the boiler and work the engine constantly, and the amount of fluid lost did not exceed half a gallon per day. The engine, used to work the vapor in, was of 12 inch bore and 24 inch stroke, and ran at 50 revolutions per minute. The steam engine from which the exhaust was used, was 10 inch bore and 24 inch stroke, and ran at 60 revolutions per minute. The temperature of the condensed water discharged from the flues of the bisulphide boiler did not exceed 116 degrees Fahr. at any of the trials made.

JOEL A. H. ELLIS.

100 Summer street, Boston.

Is Psychic Force Spiritualism?

To the Editor of the Scientific American.

MR. CROOKES ON THE "PSYCHIC" FORCE.—It is nearly twenty-five years since the "Rochester Knockings" first drew public attention, in the United States, to this "Force." Mr. Crookes, an eminent scientist of England, has recently presumed to name it "Psychic." He has, with commendable

hardihood, undertaken to investigate it with as little professional prejudice as possible.

It is to be hoped that he will have the independence and manliness to avow, publicly, his conclusions and convictions, even if he should come to the belief already reached by thousands and thousands of men and women, who have already investigated the subject, with as much honesty and sincerity, if not with quite as much science, as Mr. Crookes, namely: Spiritualism; the conviction, that every human being has a spiritual body and a natural body, that upon the death (so called) of the natural body, the spiritual body still lives on forever, and that this spirit does now, under certain unknown conditions, communicate with spirits yet in the natural body, and does now, by unknown laws, cause physical phenomena, unexplainable by natural laws.

The literature and traditions of every nation and tribe on earth are full of these phenomena. Founders of religions have always wisely availed themselves of these manifestations. The day is dawning, when he people will be permitted to share and understand the universality of these glorious truths of religion.

Spiritual influence is the true solution—as B. Stewart, in "Nature," candidly says: "We are not entitled to reject his testimony (that of a spiritualist) on the ground that we cannot explain what he has seen in accordance with our preconceived views of the universe, even although these views are the result of a long experience; for, by this means, we should never arrive at anything new," and no new truth could be discovered.

THOS. G. WILLIAMS.

Euler's Bottle washing Machine.

This invention relates to an improved machine for washing bottles; and consists in the arrangement of certain holding and rotating devices in a vessel designed to contain the cleansing or rinsing liquid. Through the side of a box or vessel, open on top, of rectangular or other form, and lined with sheet metal, are fitted a suitable number of horizontal spindles, which receive rotary motion by a band, or gearing from a suitable driving shaft. Within the box or vessel each spindle is provided with a cone or plug, of such shape as to fit conveniently the cavities usually provided at the bases of bottles. These plugs may be removable, so that such of different size or shape may be applied to fit the several kinds of bottles. Plates sliding on cross bars are firmly secured within the box and are forced by springs toward the plugs. The bottles to be washed are first dipped into the water contained the box, and are thus about half filled. They are then in placed with their bases against the revolving plugs, and with their mouths against the plates, the springs holding them properly in position. The plates are perforated in line with the spindles, so that the mouths of the bottles will not be closed by them. The spindles being revolved, the bottles will also be turned by the friction of the plugs, and will be thoroughly rinsed and cleansed by the water within and without. The boxes may be arranged in pairs, side by side, so that both ends of every spindle are utilized. A fresh water reservoir, supported above the box on a frame, has a discharge faucet within which is placed a valve, held on its seat by a spring. From the valve is suspended, through the discharge opening of the faucet, a crooked wire or rod, by which the valve is opened.

Each bottle, after having been rinsed as above described is held against the wire, so as to raise the valve and thereby open the faucet, letting clean water flow directly into the bottle below, to complete the cleansing process The spring will close the valve immediately after the withdrawal of the bottle from contact with the wire. Conrad Euler, of Evansville, Ind., is the inventor of this machine.

Fertilizers from Sea Weeds.

Mr. Upham S. Treat, of Eastport, Me., has invented the following process for making fertilizers from sea weeds, upon which he has obtained a patent. The sea weed is subjected to the action of steam under pressure until it is reduced to a pulp. It is then passed through a mill, where it is thoroughly mixed with ten per cent, more or less, of finely powdered quicklime. After being thus mixed, it is elevated or placed in some suitable place to be thoroughly aired and dried, when it is ready for packing in barrels and for market.

Upon the Atlantic coast, sea weed is a most abundant article, used at present to some extent as a fertilizer, in combination with barnyard and other manure; but its valuable qualities seem to be dissipated and in a great measure lost, by exposure to the atmosphere in its crude state, or from not securing proper chemical treatment. By Mr. Treat's process, it is claimed, all its native richness is preserved, and a hitherto almost useless weed is converted into an efficient compound for enriching the soil.

Volcanic Disturbances in the East.

The news of most terrible earthquake shocks and volcanic disturbances comes to us from the Philippine Islands. In the small island named Camiguin, near to Misamis, for some months past a succession of most violent earthquakes has been experienced, causing crevices, etc., in the open country. On the 1st of May, about five o'clock in the evening, the earth burst asunder, and an opening was formed 1,500 feet long. Smoke and ashes, earth and stones, were thrown up and covered the ground far and near. At about seven o'clock, as darkness was coming on, this crater burst into activity with a loud explosion, followed by a shower of lava and ashes. About 150 persons were destroyed. The eruption of the new volcano has since been so tremendous that the inhabitants have forsaken the island, and of the 26,000 previously there, not 300 are left. Camiguin is only about thirty-six miles in circumference, and was very productive in abacá (the Manilla hemp) yielding annually from 30,000 to 40,000 piculs, or more than a tenth of the produce of the world. There is little hope of the island ever being again re-occupied or cultivated.

TRADE MARK REGISTRATIONS.---INTERESTING DECISION BY THE HON. M. D. LEGGETT, COMMISSIONER OF PATENTS.

In the matter of the application of the Dutcher Temple Company for registry of trade mark—Appeal.

The applicant seeks to have registered as a trade mark the "letter D encompassed by the figure of a lozenge."

This device is placed upon "loom temples" manufactured by the applicants.

The examiner rejects the application on the ground that the proposed trade mark has no feature that indicates "origin or ownership."

The examiner's doctrine on the subject seems to be that every trade mark must include either the name of its proprietor, or his place of business, or both.

The object of a trade mark is to distinguish the goods of one manufacturer or merchant from those of another in the market. The only benefit the proprietor of a trade mark can hope to derive from it, is that such mark may point out the goods, upon which it is found, as coming from him, and thereby bring customers back to him when desiring to make additional purchases. This being the only object a dealer can have in adopting a trade mark, he may generally be trusted to see that it be known where the goods come from, on which the trade mark is placed.

The origin of goods may be determined in many ways, provided they have upon them some mark by which they may be distinguished in the market from other similar goods The name of the manufacturer or the name of his place of business are evidently not the only means of determining the origin of marked goods.

In the case of *Filling vs. Fassell* (reported in Vol. 8, Am. Law Reg., p 402) tried in the Superior Court of Missouri, the judge says: "The books are full of authority establishing the proposition that any device, name, symbol, or other thing may be employed as a trade mark which is adapted to accomplish the object proposed by it, that is, to point out the true source and origin of the goods to which said mark is applied." On the strength of such authority, decision was given in favor of the plaintiff sustaining the words "Charter Oak," accompanied by a figure of an oak tree, cast upon the plates of stoves, as a legal trade mark. In these words and device the court, it seems, found enough to indicate "origin or ownership." With such a mark permanently attached to the stoves, they were readily identified in the market, and of course could easily be traced to their origin. The fact of the mark opened and pointed the way to the factory where the article was made. It was the owner's "ear mark," which he placed upon all his goods of the kind, and by which the public come to know the stoves were made by him.

There are many other decisions recognizing the fact that mere symbols or devices or unmeaning words may, by continued use, indicate origin, and thereby become legal trade marks.

A careful reading of the decisions will show that the courts have held with very great unanimity that the person's name or place are neither absolutely essential to the validity of a trade mark. If it possesses the evidence upon its face that it is put forth or given out as a distinguishing mark of the goods to which it is attached, that is, distinguishing as to origin and not as to kind or quality, it may have all the requisites of a valid trade mark without naming the person or place whence it came. The very fact that it bears evidence of being the manufacturer's or dealer's private mark, by means of which his goods are distinguished in the market, is sufficient indication of origin to warn against copying by competing dealers, and this answers the public demand.

At common law, the trade mark to become legal and to vest an exclusive right in the persons adopting it, must have been so long in use as to be known and recognized in the market. That is, a person could not adopt a trade mark to day and successfully sue for infringement of it tomorrow. Whether the office should demand that a trade mark should have such use before admitting it to registry, has been a question with the examiner; but I am of the opinion that one object of the registry law was to settle this very question. *Registry* is notice to the world, and supplies the place of *long use* at common law.

The applicant's device is not a genuine name, it is not indicative of quality. It does not consist of words or devices that others in the same trade would be likely to select for a similar purpose, and I see no valid reason against admitting it to registry.

The decision of the examiner is reversed.

(Signed,) M. D. LEGGETT, Commissioner.

Sept. 21, 1871.

WHAT CONSTITUTES PATENTABILITY IN AN ARTICLE OF MANUFACTURE.---IMPORTANT DECISION BY THE COMMISSIONER OF PATENTS.

In the matter of the application of Charles A. Moore, for letters patent for improvement in clock cases. Appeal from Examiners in Chief:

The applicant seeks a patent on what he claims to be a new article of manufacture, consisting of a pressed glass clock case, constructed with the entire front, sides, top, and bottom in one piece, the front being adapted for the face and hands of the clock, and the whole ornamental in design, and cheaply manufactured.

He is met by references to glass boxes, vessels, preserve dishes, porcelain ware, pressed clock fronts, clock covers, etc., etc., and also to clock cases made of porcelain and earthen ware.

The only question now to be decided, is the pertinency of these references.

It is very difficult to establish any rule as to references that shall be plain and of universal application, consequently there are almost as many different rules of practice, in finding references and making rejections, as there are different examiners in the office.

Some examiners are very quick to detect resemblance, and will reject almost everything. Others are equally quick at finding differences, and will grant patents on mere shades of variation. Hence a picket fence is rejected on reference to a comb; a urinal, on reference to a blacksmith's furnace; a surgical instrument for injecting spray into the throat or nasal organs, on reference to a fireman's hose; a rubber packing for fruit jars, on reference to a pump; a device for lacing ladies' shoes without the use of holes or eyelets, on reference to an old mode of cording bedsteads; an ore crusher, on reference to a nut cracker.

In each of these cases there will be found a remote resemblance between the device in the application and the reference. In some of them, however, the examiners have displayed more inventive genius in finding the references, than the applicants would dare claim for their devices.

As before stated, the impossibility of prescribing definite rules of general application as to the pertinency of references, has given rise to a great want of uniformity in the office practice.

It is proper, however, to say that references should be limited to things of a kindred nature—to things so nearly related in adaptation and use, as that seeing one, would naturally suggest the other. There should be some analogy between the use and result of the device in question, and the reference upon which it is rejected. The analogy should be so close that the device would likely be suggested to a person skilled in the art to which the device relates, by seeing the thing used as a reference. Unless there be such analogy, the reference could hardly be regarded as pertinent, even in applications for machine patents.

But in regard to applications for patents on manufactured articles, the field of reference is still further limited. The only questions to be settled are:

1. Is the device of itself an article of trade?
2. Is it useful?
3. Is it so different, in essential points, from other articles of the class to which it belongs, as to be easily distinguished in the market?

These being answered in the affirmative, a patent should be allowed. Try the case in hand by this rule.

1. The device is intended as an article of trade, not as a clock, but as a clock case; intended to be put upon the market simply as a clock case, and sold to clock makers.

2. It is more cheaply made than any other transparent clock case, and equally ornamental; hence it is useful. "The beauty of an ornament is one great test of its utility," says the learned judge in the celebrated *Magic Ruffle* case. (2 Fish, 336.)

3. There certainly would be no difficulty in distinguishing the clock case in question in the market, from any of the references, as an article of manufacture; it is essentially ifferent from preserve dishes, tumblers, ordinary glass boxes, pressed glass clock fronts, or glass clock covers. It belongs entirely to another family of articles. Neither could it ever be mistaken for porcelain or earthen ware clock cases of the same family. The results sought in this clock case are cheapness, ornamental form, and the special quality of displaying the internal machinery of the clock, without exposure to dust or the use of a cumbersome cover.

This last quality is not possessed by either porcelain or earthen ware.

I do not recognize any pertinency in any of the references.

The decision of the Board of Examiners in Chief is therefore reversed.

(Signed,) M. D. LEGGETT, Commissioner.

United States Patent Office, Sept. 23, 1871.

EXTENSION OF CENTERING MACHINE PATENT.

In the matter of the application of E. F. Whiton for the extension of letters patent, bearing date July 14, 1857, for a Centering Machine.

DUNCAN, Acting Commissioner:

The following is the substance of the examiner's report:

The machine or device described in the patent is intended mainly for centering and marking the centers of shafting.

On examination, the invention is found to have been new at the time the patent was granted, and it is found also to be useful and important.

In proof of the fact last stated, a number of affidavits have been presented, all of which certify to the superior utility of the invention, but these affidavits, as well as applicant's statement, are entirely silent as to the value of the invention to the public. Perhaps, however, this omission was unavoidable, considering the fact that the thing invented is not a machine for *creating* or *producing*, but rather a convenient tool or adjunct, the purpose of which is, and can be, only simply *directive*.

It would seem from the statement in the case and otherwise, that at the time of making the invention the patentee was a laboring mechanic, and possessed of but little means; that by the assistance of a brother he was enabled to commence the manufacture of his improved device, but that for several years his business was characterized by losses instead of gains, these losses resulting from inadequate machinery for the manufacture of his device, and the want of means to procure better; and also from the imperfect construction of the device itself, which rendered those first made unsalable.

Applicant expresses the opinion that had he possessed the necessary means, he might have made and sold at least five hundred of his centering devices annually; as it is however, he has made and sold but seven hundred and fifty one.

The statement of receipts and expenditures is as follows:

PATENT, DR.

To cash received for 751 centering machines	$35,888

PATENT, CR.

By cost of manufacturing 751 centering machines	$32,702	
Procurement of patent	175	
		32,877
Excess of receipts over expenditures		3,011

It is not deemed essential, under the provision of the statute which requires the applicant for an extension to make statement of the ascertained value of his invention, that this statement should be given in dollars and cents. Doubtless it was only contemplated, by the provision referred to, that the applicant should furnish the necessary data to enable the Commissioner to form an intelligent judgment as to the merits of the invention. (See case of Peter Cook, Commissioner's Decisions, 1870, 24.

In the present case it appears that seven hundred and fifty machines have been sold, and the testimony is emphatic as to the satisfactory character of their operation.

The patentee's diligence in the introduction of his invention is of the most commendable character; and the small profit realized appears to be an entirely inadequate remuneration for the time, ingenuity, and expense bestowed upon it. The patent will be extended.

DRAINING LAND.—A strong metal pipe, about 20 feet in length and 6 inches in diameter, is adjusted in a slanting position over the lot to be drained. To an opening in the bottom of this pipe, another is firmly jointed, inclining backwards at an angle sufficient to allow of its end resting on the ground lot. Connected with the principal pipe, is a strong canvas hose, down which a current of water descends, and issues at the mouth of the pipe. In its course, it forms a vacuum in the second pipe, and the water is thus sucked up and discharged with the current flowing through the principal pipe. This device is in use, for the purpose described, in Australia, but is known to most men practically acquainted with hydraulics.

DRESSING ROLLED IRON.—An improvement in dressing the scale off finished iron bars in rolling mills is in use at the extensive works of Griswold & Co., Troy, N. Y. It consists of a wire brush fastened on a bar fixed on the discharging side of the rolls, and is said to be a great improvement of the friction with cinders usually applied for the purpose.