

GAUGE ATTACHMENT FOR HAND SAWS.—A. F. Gray, and J. C. Fincher, of Thibodeau, La.: We claim attaching to one side of the blade of a hand saw, a gauge formed of two strips, a, b, and jugs, c, having slots, d, made in them, through which slots set screws, e, pass, the screws also passing through the saw blade, substantially as shown and for the purpose set forth.

[This gauge is adjustable on the saw blade at the pleasure of the operator, and it is used to regulate with precision the depth to which the saw cuts into the stuff. In cutting tenons, panel, cabinet, and every species of work where nicety is desirable, the improvement will be found of value. It can readily be applied to old or new saws, as it does not require that the saw shall be made specially for it; when not wanted for use the gauge may be quickly removed. It is very simple, and its expense is trifling.—Every carpenter or wood worker should have one.]

SPOKE MACHINE.—Wm. Van Anden, of Poughkeepsie, N. Y.: First, I claim the use of the upper and lower adjustable cutter holders, made adjustable laterally on their axes, substantially as described, in combination with the curved stationary cutters, G, and adjustable cutters, H, and collars for adjusting the same, or their equivalents, for the purposes substantially as set forth.

Second, I also claim the use of the adjusting yoke and the attachments thereto, for adjusting the cutter holders, or their equivalents, in combination with the cutter holders and guide-ways on the spoke rest carriage, or their equivalents, substantially as set forth.

Third, I also claim the use of the double-acting adjusting levers, or their equivalents, for the purposes set forth, in combination with the cutter holders, and their axes; and their combination with the pawls attached to the double-acting adjusting levers, and cams for operating the same, or their equivalents, for the purposes substantially as set forth.

MANUFACTURE OF PLATE GLASS.—Phillippe Stenger, (assignor to Pascal Yearsley), of Philadelphia, Pa.: I claim the application of tractive force to the manufacture of sheet glass, by means of the mechanical arrangement described, or its substantial equivalent.

BED SPRING OF LEATHER SPLITTING MACHINES. J. E. Fay, of North Woburn, Mass.: I claim the improved bed or back spring, as composed of a thin guard or spring sheet of metal, a, and a series of separate springs, b, b, b, &c., united to or forming part of a plate, B, as described.

TEMPLES FOR LOOMS.—James Smith, of Laurel, Md. (assignor to himself and Wm. Butterill, of Howard County, Md.): I am fully aware that burrs, toothed and serrated surfaces have been formed for many purposes, and knowing that a variety of wooden rollers, with pins inserted, have been used for rollers, I wish however to be understood as disclaiming such devices, and instead confine myself solely to the following distinguishing devices.

I claim the temple roller formed with solid raised conical shaped pin teeth, having a hinged cap to its case, all attached to a flexible rod, h, h, h, in combination with the forked springs, c, d, d, which are adjustable in brackets, e, e, e, f, f, g, the whole arranged substantially in the manner described, and constituting very improved temples.

DESIGN.

LABELS ON BOTTLES AND JARS.—Wm. A. Rogers, of Decatur, Ala.

Recent Foreign Inventions.

NEW METALLIC ALLOYS.—Messrs. de Ruolz and Fontenay, of Paris, have invented an alloy which may be employed for almost all purposes to which silver is usually employed. The improved alloy is composed only of silver, copper, and purified nickel; which metals may be combined in any suitable proportions, but the following are preferred:—Silver 20 parts, nickel from 25 to 31 parts, and the rest up to 100 parts in copper. An alloy is thus produced containing 20 per cent., or thereabouts, of silver, and constituting silver of the third degree of fineness, thus reversing the proportions of the ordinary composition of the second degree; this latter containing 800 parts of silver and 200 of alloy, whereas the improved compound contains 200 parts of silver and 800 parts of alloy.

The copper employed must be the purest obtainable in commerce; and the nickel should be purified by some suitable process. The means preferred for the purification of the nickel are as follows:—When treating impure nickel of commerce, the metal is to be dissolved in a mixture of hydrochloric and nitric acid, or in dilute sulphuric acid. In the latter case the dissolution must be expedited by electric or galvanic agency, and the operation should be carried on in vessels of platinum. The solution is then submitted to the action of a current of chlorine, and the iron impurities precipitated therefrom by boiling with carbonate of lime—care being taken not to have too great an excess of this latter substance.

The nickel is then precipitated by carbonate of soda, and taken up again by hydrochloric acid, and diluted with a large quantity of water. The solution is then saturated with chlorine gas, and an excess of carbonate of baryta is added thereto. The liquor must then be left in repose in a cold state; and the nickel may either be precipitated in the metallic state by means of a galvanic current, or precipitated in the form of an oxyd, which oxyd may be afterwards reduced to the metallic state.

Although the proportions above given are those generally employed for the production of the improved alloy, the proportion of silver may be variously increased up to the following limit:—silver 30 parts, nickel 31 parts, and copper 49 parts: total, 110 parts.

It is advantageous, first, to melt the copper and nickel in the granular state, and afterwards to introduce the silver; and the flux to be employed in this state consists of charcoal and borax, both in the state of powder; and the ingots obtained are to be rendered malleable by annealing for a considerable time in powdered charcoal.

The patentees claim the production of an alloy composed of silver, copper, and nickel, in whatever proportions these metals may be combined, which alloy has all the appearance of real silver, and may be used for various purposes as real silver.

In connection with the above invention, Messrs. Ruolz and Fontenay have also patented some improvements in the treatment of certain metals for producing an improved metallic alloy, which consist principally in additions to, and modifications in, the process before described.

It has been found by experiment, first, that this new combination of metals can be so far advantageously modified as to employ the following proportions: copper as high as 49 parts, nickel 31, and silver from 20 to 40; making a total of 100 to 120. Second, that phosphorus can be usefully introduced into these alloys, and, in certain cases, extracted after the required effect has been produced by it.

The nickel and copper are first melted, then brought into a granular state, and are afterwards replaced in the crucible and re-melted; after which the silver is added. The best flux which can be used is an intimate mixture of borax and powdered charcoal. The ingots, when obtained, must be slowly annealed at a cherry-red heat, in a closed vessel with powdered charcoal.

As to the use of phosphorus:—1. If it be required to obtain cast articles, such as statuettes and objects of art, a certain quantity of phosphorus must be introduced into the combination. The introduction of phosphorus can be effected in several manners—first, by melting the mixture of the three metals with a mixture of equal parts of acid phosphate of lime and powdered charcoal, brought to a red heat. Secondly, the mixture of the three metals may also be heated together, with a mixture of 100 parts of phosphate of lime, 50 parts of sand, 75 parts of borax, and 10 parts of charcoal. As regards the relative proportions of the metallic alloy and the phosphorated mixture, described above, the following are the most suitable for cast articles:—1000 parts of the alloy of silver, copper, and nickel, and about 150 parts of the phosphorated mixture. The quantity of phosphorus to be added depends upon the length of time taken in heating. Thirdly, the following method is most preferable. The operation is as follows:—Phosphuret of copper is prepared in the ordinary way, and its richness in phosphorus is ascertained by analysis. This phosphuret of copper is then re-melted and granulated; after which the following mixture is melted:—Phosphuret of copper 49 parts (of such a strength as to be capable of introducing into 100 parts of the alloy from 1 to 20-1000ths of phosphorus), nickel 31 parts, and silver from 20 to 40 parts, or more, as desired by consumers. It must be well understood that the silver must not be introduced into the alloy until the phosphuret of copper and the nickel are completely melted, and combined or mixed. The effects produced by this introduction of phosphorus are to augment the fusibility of the alloy, causing it, when melted, to run in a very limpid state, to obtain a closer grain, to avoid all porosity, and to have a greater homogeneity, and finally to render the whiteness greater.

2. In order to preserve the advantages arising from the presence of phosphorus when articles are required to be forged, rolled, or stamped, it is necessary, during this operation, to restore the ductility and malleability which the phosphorus has to a great extent impaired. To effect this, after having obtained regular and homogeneous ingots by the aid of the phosphorus, the phosphorus must be almost totally eliminated or abstracted, which may be effected by submitting, during a long time, the metal to a cherry-red heat, in a close vessel, with powdered charcoal.

The patentees claim the introduction (and in certain cases the elimination) of phosphorus in the manufacture of alloys of silver or other metals.

[The above information is very useful.

The resignation of the venerable Dr. Wayland, President of Brown's University, Providence, R. I., is announced. He has occupied the chair of that institution for 29 years—almost a generation.

Machinery and Hand Labor.

At a recent meeting held in this city, ostensibly called a "Mechanics and Workmen's Meeting"—the contract system for cleaning the streets was denounced, and one of the speakers was exceedingly severe on the street sweeping machines. In a flight of nonsensical oratory he exclaimed, "tell us not of contracts to clean the streets with machines, when the work can be done by hand."

There may be something wrong about making contracts for cleaning the streets; this we will not discuss, but we do say, that any man who declaims against the use of machinery for any purpose, whatever,—at the present day—must be a knave or an ignoramus. The man who denounces the use of machinery, to show that he is honest in what he says, should march out to the wilderness to gain his living, with only the dress, weapons and implements furnished him by nature. He must not take a coat on his back, for the cloth of it is woven by a machine. He must not take rifle, axe nor knife, for all these are made by machinery. He must go forth to make his house like the beaver, and take his prey like the panther.

We frequently hear of machinery being denounced because of its superseding hand labor, but machinery has not decreased the demand for labor; it has only changed its direction; it has become the drudge, man its director. And if machinery is to be condemned, where shall we begin? The seamstress may complain that sewing machines have taken away her labor. That may be, but it would just be as reasonable to complain of the needle and thread she uses, for they are made by machinery. The laborer who has been sweeping the streets may complain of the street cleaning machines, but was not his own shovel made by a machine. A few moments reflection upon the uses of machinery ought to convince the most ignorant and skeptical of the benefits conferred upon man by machinery. It is a test of civilization—it is a grand civilizer. Take it away from man and he sinks into the most degraded savage.

Preserving Vegetables.

We have received a number of letters requesting us to give the best means of preserving vegetables and fruits in a state as nearly fresh as possible. The information is no doubt of great importance. We can only give our opinion respecting a method which we think would be successful if tried fairly. It consists in expelling all the moisture from the vegetables and fruit at a low heat, in such a place as an oven. Then placing them in common glass bottles, heating them up to almost 212°, then corking them up tight, sealing them over with wax. Moisture is necessary in the decomposition of vegetable substances; therefore, we think the above plan would answer. The Swedes have pursued this plan for preserving potatoes, for a great many years. On page 261, vol. 4, SCIENTIFIC AMERICAN, there is a method illustrated for preserving fruits, such as grapes, apples, &c., by carbonic acid gas; it appears to be good. Those who can have ice houses built like the one illustrated a few weeks since, on page 356, of course will find it the best method of preserving fruit with its original flavor and freshness.

Cutting Steel with Tin—Gumming Saws.

Messrs. Editors—In 1828, Ezra Goodell, (millwright,) had occasion to true a circular piece of tin of about three inches in diameter, and for this purpose he put it into a quick lathe used for turning rake teeth, and held a ground file against it. To his surprise, the file was cut by the tin, instead of the latter by the former. Among other experiments he tried the gumming of saws with a piece of sheet tin in the same manner, but he found that it left such a hard surface on the saw that it could not be filed. This led him to abandon further experiments in that line. At that time there was no SCIENTIFIC AMERICAN to record such experiments for the benefit of society.

Cleveland, Ohio. O. P. STEVENS.

Captain McClure.

In the British House of Commons, the committee charged with the consideration of the subject of rewarding Capt. McClure, for his discovery of the Northwest passage, have recommended that the sum of \$25,000 be presented to him.

Reaping Machines.

The *American Farmer* gives an account of a trial between Hussey's, McCormick's, and Atkins' Reapers in a heavy field of oats. All of them worked well, but the self-raking attachment of Atkins is described as giving it a superiority over the others. The three machines cut 36 acres of oats in seven hours, or 12 acres each.

A gentleman of our acquaintance made a visit through a great portion of Long Island during the past week, to witness the farmers getting in their harvest. He was astonished at the great number of reaping and mowing machines employed, and the farmers assured him that but for them they would not have been able to secure their large crops. Hand help could not be obtained; good laborers were receiving \$2 per day and board, and enough of them could not be obtained at that. The reaping machines have proven to be "the farmers' best friends this season."

Progressing Backwards.

It is rumored that the British government are about to re-enact the newspaper stamp act. The plan of throwing off the stamp duty of 2 cents on every copy printed, and substituting a postage charge to that amount when before, mailed papers were sent free, does not work well for the government. There is a great falling off in the revenue.

A Book for Tinsmiths.

In answer to some inquiries, John H. Hanna informs us, that a book named the *Tinman's Guide*, illustrated with copper and steel diagrams, was published by Thomas Quantril, a tinsmith, in Washington, D. C., a few years since. It is the only work of the kind ever published in our country. The author is now no more; but his widow resides in Dover, Ohio, and has the plates of the work and a revised copy.

Steam Orzan.

A mechanic in Worcester, Mass., has built an organ to be operated with steam as a substitute for the air blast. The steam is used at a high pressure, and its tones can be heard more than three miles distant. Well, steam is a genius. He now whistles, sings, plows, spins, weaves, and a hundred other things, useful, sentimental, and musical.

Reform in Weights and Measures.

We are informed by a correspondent—J. Edi, of Verona, Wis.—that Charles Durkee, Member of Congress from that State, will make an effort to bring the subject of reforming our weights and measures, before the next Congress. We hope our readers in every Congressional District will bring this subject to the notice of their representative. There will be very little opposition, we should think, to such a needed and common sense reform.

A Wonderful Voyage.

The Canadian Barque *Arabia* has recently made a voyage from Liverpool, England, across the Atlantic, thence up the St. Lawrence, to Quebec, and discharged a cargo of iron; then went up to Kingston, C. W., took a load of lumber and sailed up to Chicago. It is said however, that the form of vessels built for the Lake navigation, is unfitted for that of the stormy Atlantic.

Coal Burning Locomotive.

The "Taunton," a coal burning locomotive, constructed on Dimpfel's principle, which has been illustrated in our columns, has been running with great success for five weeks on the Reading Railroad. Anthracite coal is used for fuel on it. Another of the same class of engines has been running on the Providence and Worcester Railroad, using Cumberland coal, with success.

To Keep Milk Sweet.

A. Boyd, a correspondent, informs us, that he has practiced a peculiar method with much success of preserving milk sweet in the pans. It simply consists in placing a piece of new hammered iron, or three twelve penny nails in each tin pan, then pouring the warm milk on them. He believes that electricity has something to do with producing the result. He had tried many experiments before he hit upon this one, which he found to preserve the milk sweet for a longer time than other plans tried by him.

New Inventions.

New Invention—A Mechanical Calf.

The following description of a cow-sucking apparatus is too good to be lost. We would wager our ancient friend Solomon a cent or two, if he were still living, that his proverb about there being "nothing new" under the sun, is a little short of the mark in the present instance. Pumping, of all sorts, has been carried on extensively from time immemorial, and in these latter days human individuals have learned how to "pump" each other. But we believe the subjecting of cows to this interesting process is an entirely new idea. Our correspondent, we trust, will pardon us for publishing his letter; we assure him that it will do no harm, for it will save him the useful purpose of a caveat:

"MESSRS. EDITORS—I have an idea it is as yet rather a rough invention; at least, it has not as yet resolved itself into a tangible shape to the outward organs of vision. And when it does, it is possible that it will be so crude and unlike any other thing, that it will "suck the cows." Well, that's just what we want of it. "Is there anything new under the sun?" Now before you answer, just wait to hear what my new idea is. Well, are you all attention? then here it is: An arrangement by which to remove the milk from any number of dairy cows simultaneously, in the short space of say ten to fifteen minutes.

This I propose to accomplish by placing the cows all in stalls adapted for keeping them stationary during the process. Lay a pipe the whole length of the stalls under the cows, and immediately below their bags or reservoirs of milk. Connect the cows with this pipe by means of flexible tubes each tube furnished with four mouths, which will be made of india-rubber so as to bite closely upon each of the four outlets (teats.) Now the cows being thus connected with the lower or main pipe, this pipe will extend into the cream or dairy house, and is then connected with an exhaust pump, when, if my ideas are correct, one hand will, in a few minutes, extract all the milk, and it will run down into the main pipe, thence into the proper reservoirs in the dairy for creaming.

You will see my idea is to pump the milk from each cow and all by the one and same process. I base my plan upon the fact that the calf removes the milk by producing a vacuum with his tongue and organs of the mouth, and the milk at once flows from the bag to supply it. Am I right; will my plan work? if so, is it worth a fortune. I intend to carry it into practice, so far at least as one experiment will do it.

G. W. S.
Broome County, N. Y."

We would inform our correspondent that he is right as to the vacuum part. How well his idea will operate in practice remains for him to try. We trust he will give an account of his experiments. This is certainly a brilliant invention. Dairy maids, like Othello, will have occasion to exclaim that their "occupation's gone."

New Mode of Hanging Window Sash.

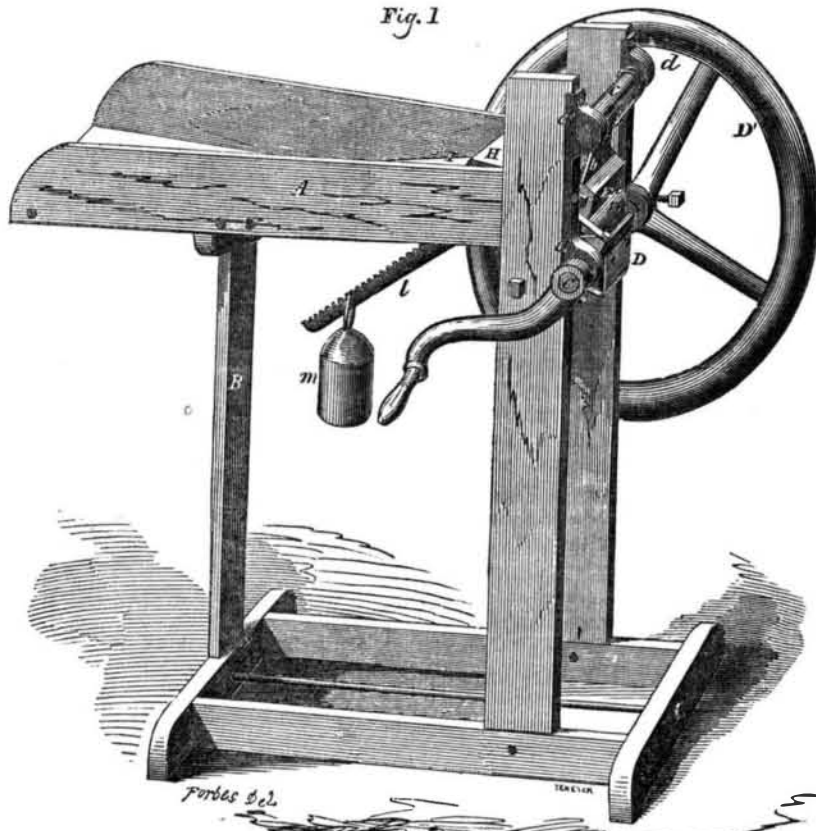
On the 26th of June last, a patent was granted to D. N. Dunzack, of Salem, Mass., for a new method of hanging window sash, to the claim of which, when published on page 338, SCIENTIFIC AMERICAN, we added a brief notice of its advantages. In addition to the remarks we then made—as the plan since then has been fairly tested—we have to name some more advantages which it possesses. First, by using hollow castings, one half the iron will suffice for a weight. Second, the sashes are more easily removed from the frame than in the common mode of hanging them, so as to allow facility for cleaning and glazing the windows. Third, the cord is not exposed to view at all, which gives them a better appearance. Fourth, there is no necessity for pockets being cut in the casings.

The window frame or casing is constructed in the usual manner for balanced sashes, viz.: having boxes on each side of the frame. Within each box there is placed one weight, which has a pulley attached to one of its ends, around which passes a cord, which also passes over two other pulleys attached to each side of the

frame at the center. One end of a cord is attached to the lower side of the lower sash, and the other end of it to the bottom of the upper sash. It is thus that both sashes are connected together by one cord and one weight on each side. The weights move without any jar-

ring or noise. By the common method of hanging sash, a window requiring weights of 18 lbs. can be operated by the new method with weights of 8 lbs., thus saving 10 lbs. of iron. This improvement deserves the attention of all house builders.

SIMONTON AND WICKS' HAY AND STRAW CUTTER.



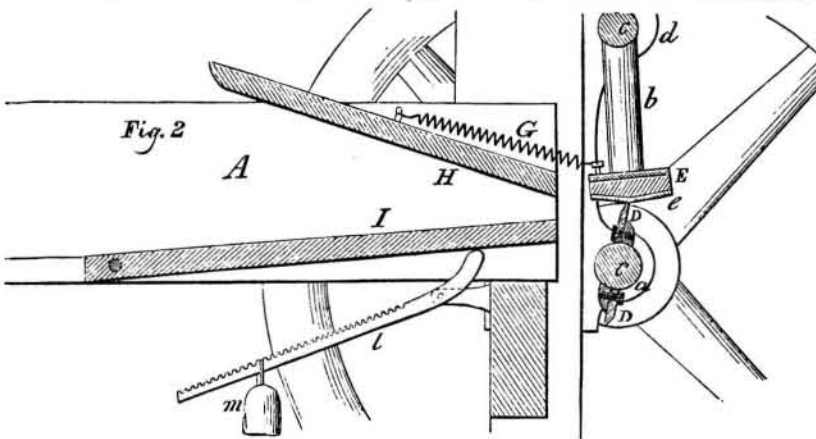
The accompanying engravings are views of an improvement in straw cutters for which a patent was granted to Thomas C. Simonton, and Loren J. Wicks, of Paterson, N. J., on the 10th of April last.

Fig. 1 is a perspective view, and fig. 2 is a longitudinal vertical section through the center of the machine. Similar letters refer to like parts. The nature of the improvement consists in the employment of a knife cylinder operating in connection with a vibratory bed, whereby economy of power and superior cutting action are obtained. A represents the feed box of the machine of the usual form, and supported in the usual manner by a frame work, B. At the front end of the frame, B, and about in line with the bottom of the feed box, there is a cylinder, C, having two knives, D D, attached to it, said knives extending the whole

length of the cylinder, and parallel with it.—The knives are attached to the cylinder at opposite points on its periphery.

The axis of the cylinder runs in suitable bearings, a a, attached to the frame, B, the ends of the axis extending a short distance beyond the bearings, one end having a fly wheel, D, upon it, and on the opposite end a crank.

Directly above the cylinder, C, there is a bed, E, which has two uprights or arms, b b, attached to its upper surface. The upper ends of these uprights or arms are connected with a shaft, c, which works in bearings, d d, attached to the frame. The under surface of the bed, E, is slightly convex, and just touches the edges of the knives, D D, when in a vertical position. G is a spiral spring, one end of which is secured to the inner side of the bed, F, and the opposite end to a guide board, H, at



the front end of the feed box, A. The under surface of the bed, E, is provided with a layer of raw-hide, e, or other suitable material in order to prevent the edges of the knives from being injured by coming in contact with the bed. I is an adjustable throat piece, the inner end being secured to the sides of the feed box by pivots so as to allow the outer end to be raised or lowered to govern the length of the cut.

OPERATION.—The straw to be cut is placed in the feed box, A, and a rotary motion is given the cylinder, C, by turning the crank, and the knives, D D, as they rotate cut the straw which passes between their edges and the under surface of the bed, E, which vibrates or moves forward by the pressure of the knives as they bear against it while cutting through the straw—the bed returning backwards as the knives pass it by the action of the spiral spring, G,

the knives and bed, by their operation, giving the proper feed motion to the straw. The feed motion may be modified, however, so that the straw may be cut longer or shorter by adjusting the throat piece, I, and therefore enlarging or contracting the orifice or mouth of the feed box through which the straw passes by the lever and weight, l m, so that the straw cannot pass too freely through the orifice or mouth.

The patentees state that it cuts straw, hay, and corn stalks, wet or dry, equally well, and that it is durable, simple, cheap, and adapted to horse or hand power.

More information may be obtained by letter addressed to them at Paterson, N. J.

Electro Magnetic Engine.

The Superintendent—John S. Gustin—of the Quinsigamond Iron and Wire Works, near Worcester, Mass., has put an electro magnetic

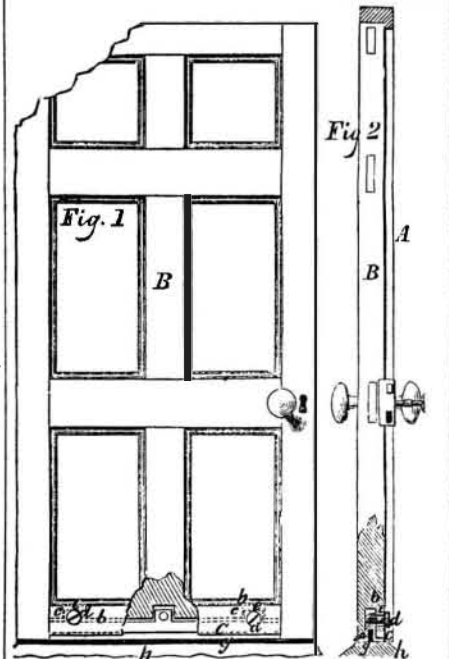
engine into an old boat, and has tried it, but not with any thing like the shadow of success to supersede steam. The principle of it appears to be the same as Prof. Page's, illustrated in Vol. 7, SCIENTIFIC AMERICAN.

Patent Door Weather Strip.

The accompanying figures represent an improved weather strip for doors, for which a patent was granted to Martin Croke, of this city (New York,) on the 26th of June last.

Fig. 1 is a view of the inner side of a door, and fig. 2 is a transverse vertical section. The same letters on both figures indicate similar parts. The nature of the improvement consists in placing a strip or strips of india rubber within a slotted metallic bar, which is fitted in a groove in the lower end of the door. The bar is adjusted in the groove by screws. The object of a weather strip is to keep the space between the edge or foot of the door and the sill or saddle perfectly close, to exclude dust, wind, and rain.

B represents a door attached to one side of the casing by hinges, a, in the ordinary way. The lower edge of the door, B, has a groove, b, cut in it, which extends the whole width of the door, and within this groove there is fitted a metallic bar, C, the upper edge of which has projections, c, attached to it, through which set screws, d, pass, said set screws passing through oblong slots, e, in the door on its inner side. In the under surface of the bar, C, there is a longitudinal groove or recess, f, fig. 2, in which a strip or strips of india rubber, g, are fitted, and secured therein in any proper manner. The lower end of the strip or strips, g, of india rubber bear against the upper surface of the sill or saddle, h, of the door, when the door is closed, as shown in fig. 2, and keeps the lower end of the door or space between the lower end of the door and the sill or saddle, h, perfectly weather tight. And in case the india rubber becomes worn, in consequence of use,



the bar, C, may be lowered by adjusting the set screws, d, which secure the bar in the groove, b, in the lower edge of the door. The heads of the set screws may be of any proper form so as to be rather ornamental than otherwise.

The weather strip as described, effectually prevents rain, and also the cold, from entering the house underneath the door. The bar, C, may be adjusted with the greatest facility by loosening the screws, d, and the india rubber will not wear the sill or saddle like the ordinary wooden weather strips.

Elastic weather strips have been arranged with springs, so that a wooden strip may be pressed against the sill or saddle. In these the springs soon rust, become worthless, and besides wear the carpet or floor cloth within the house, and the sill or saddle soon becomes worn in consequence of the friction of the weather strips in passing over them. This one is superior to those in every respect.

For more information address W. Messer, Agent, 68 Wall street, this city.

Lactic acid, in doses of 20 drops, to be taken in half an ounce of water, is reported to be highly useful in those forms of dyspepsia which resist alkalies. It deserves trial.