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Home Made Guano.

The following is from a communication to the N. E. "Farmer;" it will be useful to many of our agricultural readers:—

"Some years ago I thought I would try my luck in keeping a few hens. The house I keep them in is a rough concern. I put some crotches into the ground, boarded up outside and inside, then filled in by sawdust to make it warm. It is well lighted with glass windows, and well ventilated, and a small stream of water runs through it. The roosts will accommodate about a hundred hens, that being the number I usually keep. Under the roost I throw three or four ox-cart loads of dry muck, chip dirt, &c., which I haul over two or three times a week with my manure hook. I bury their grain in it, and make them work for a living, which gives them exercise in cold weather. In the spring, I have a fine heap of home made guano. If there is anything imported that is better to make our crops grow, I am mistaken."

French Beet Root Sugar Factories.

According to the official returns of the beet root sugar manufactories up to the end of last March, the number of establishments at work at that period was 303, or 85 less than in the same month of last year. The quantity of sugar manufactured was 73,987,419 kilogrammes being an increase of 2,530,318 kilogrammes over the quantity manufactured during the corresponding month of last year.

Improved Hose Protector.

The annexed engravings represent a method of protecting the hose of fire engines crossing city railroads, so as to allow the cars to pass freely over the hose without touching or injuring them. A patent was granted for the improvement to David Demarest, of this city, on the 1st of last November. The nature of the invention consists in the employment of a portable inclined section of a railroad track, to be placed on the fixed track, which section has an opening for the hose to pass through, by which the hose can be laid over the fixed railroad, and then the portable track, inclosing the hose, laid down, to allow the cars to run over on the portable section.

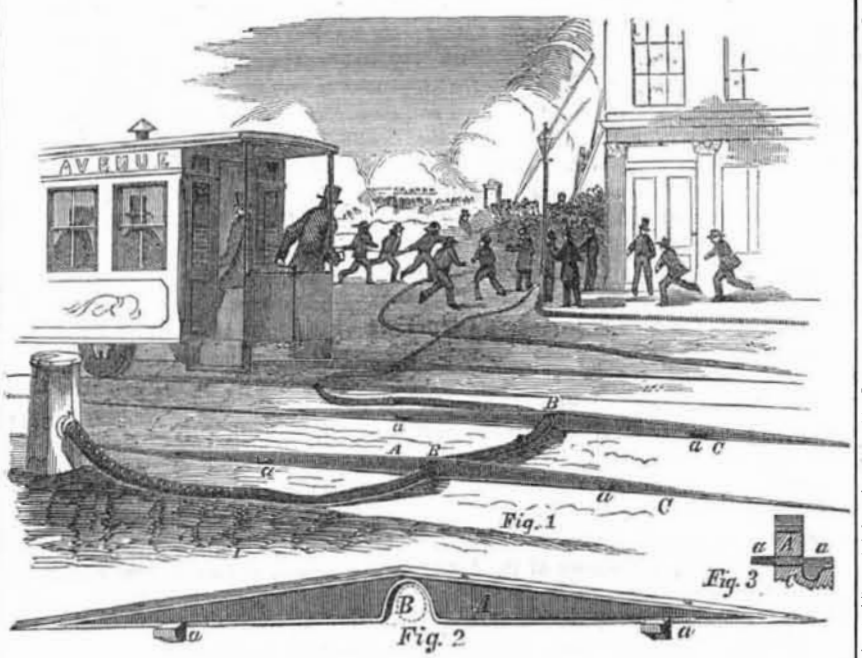
Fig. 1 is a perspective view; fig. 2 is a side view of a protector for one rail, and figure 3 is a small section. The same letters refer to like parts.

The hose, B, is represented as being laid from a hydrant to a fire across a city railroad track. Over this hose is laid the Protector, A, which has its greatest depth at the center, in which is the free opening that encircles and protects the hose. It (the Protector) is inclined towards the extremities, and has a rail on its surface or top; and it lies solid on the stationary rail, it being straight on its under side, C. It is also clamped firmly to the rail by the clamps, *a a*. All this is so plainly represented in the figures, that the nature, application, and construction of the apparatus will be understood at once.

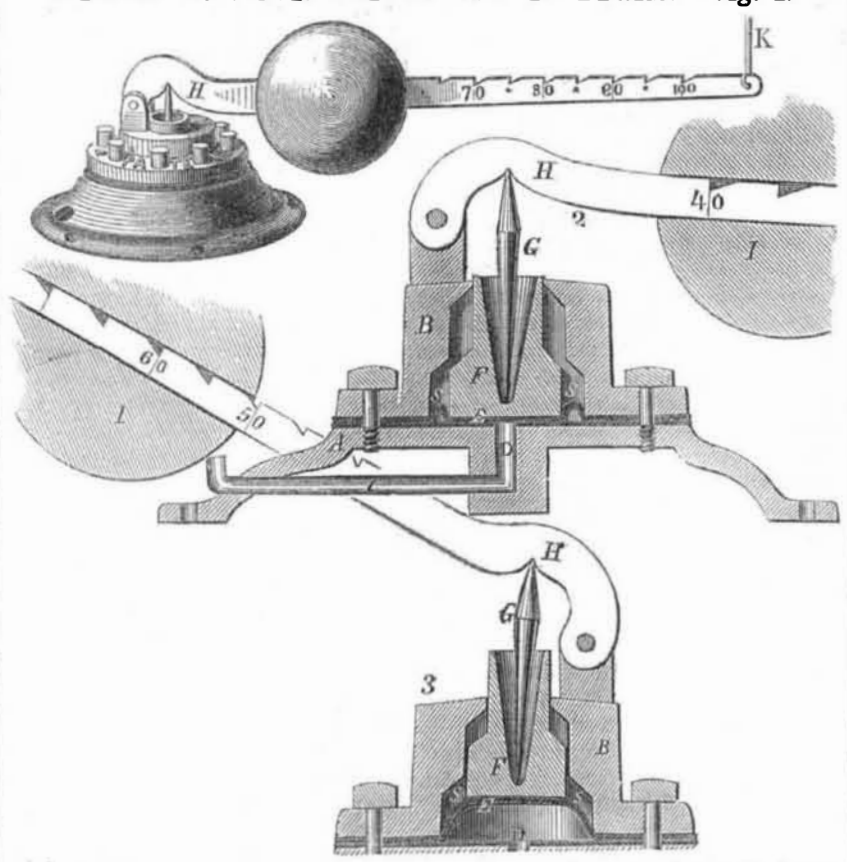
A car is represented as having passed over the portable track,—one section being used for each rail. All that has to be done in protecting fire hose, by using this improvement, is simply to lay down the Protector, asshown, and when a car comes along it merely passes up a slight incline and over the hose, without touching it. This protector is also applicable to the protection of hose from all kinds of carriages, over the whole width of a street, by making it broad on the surface for the vehicles to run upon. The improvement is a very good one, and is now used by either one or two of our city railroads. It protects the hose from injuries of a very serious character, to which they had been heretofore subjected, and it keeps them in working order—no small consideration—during the whole period in which they are required for use. These protectors ought to be carried to fires either by the engines, or a company specially appointed for that purpose.

The patentee is in the employ of the Sixth Avenue R. R. Co., and for more information respecting it, letters may be addressed to him at the office of said Company.

DEMAREST'S HOSE PROTECTOR.



REGULATOR FOR STEAM BOILER FIRES.---Fig. 1.



The annexed engravings are views of an improvement in Regulating the Dampers of Steam Boilers by the pressure of the steam, for which a patent was granted to Patrick Clark, of Rahway, N. J., on the 3rd of last January.

Figure 1 is a perspective view of the regulator; figures 2 and 3 are vertical sections through the center, in which figure 2 shows the lever down, and figure 3 the lever up. The same letters refer to like parts on all the figures.

The nature of this invention consists in causing the damper in the chimney (or if a blower is used, the damper for shutting off the blast,) to be acted on by the pressure of the steam, so that when the head of steam in the boiler has attained the pressure required, the damper will be closed, but when the pressure is less than that, say by one pound per square inch, the damper will be opened.

A is a base or platform of cast-iron, on which is fastened by means of screw bolts, the cylinder, B, which is also of cast-iron. C is the pipe leading from the boiler, and connecting with this cylinder at D, by being screwed into the platform, A, to which the cylinder, B, is bolted. The pipe, C, is bent like a syphon, to prevent the steam from coming in contact with the diaphragm, E. This diaphragm may be made of vulcanized india rubber, or any flexible substance, having considerable strength and being impervious to water. It is shown in figures 2 and 3, intervening between the piston, F, and water, D. It is made cylindrical in form, of a length sufficient to allow of the piston moving through any distance required; about one inch is sufficient, but it may be one or ten feet, should the nature of the case require it. One end (the upper end) is closed. The lower end is open and is surrounded by a flanch about one inch wide, which answers the double purpose of holding it to its place, and making a tight joint between the flanch of the cylinder, and the top of the platform upon which the cylinder rests.

A flat disk of vulcanized rubber will answer in place of this diaphragm, where the distance moved through by the piston is not greater than one inch. The bore of the cylinder must be as much greater than the piston as will allow the diaphragm assuming the position shown at S and S. F is a cylindrical piece fitting the upper part of the cylinder loosely, and having a hole bored nearly through its axis from the top to receive the bar, G. The bar is smaller than the hole in which it stands, to allow of its accommodating itself to the varying position of the lever, H, which rests on its top; I is a ball or weight made to slide back and forward on the lever. It is used to counterbalance the static pressure on the bottom of the piston; K is a rod connecting the lever, H, with the crank of a damper. The machine as described in the foregoing being put in connection with the boiler and damper, the piston will be acted upon by the pressure of the steam, and when the weight of the ball on the lever, H, is little more than counterbalanced, the lever will be lifted, thereby closing the damper; of course, if the pressure now diminishes a little, the weight and lever will descend and open the damper, to be closed again if the pressure of the steam should rise above the given point.

After Watt had made his first and great improvement on the steam engine, and had so far perfected it as to cause it to go into general use, he turned his attention to the minor details, such as producing rotary from the reciprocating motion. The construction and application of the governor, the cut-off, &c. Among these details was his contrivance for regulating the draft of the boiler fire, which was introduced at an early period of his career. His genius did not fail to see the advantages that must result from its use, both in the economy of fuel and the saving of time, as well as a preventive of accidents resulting from too high a head of steam to the person attending the engine, who might be employed more usefully than in watching his fire. He therefore invented a regulator for boiler fires, which went rapidly into use, and is still used on all the engines now in operation in the mines in England, and in many of the manufactories where low pressure steam is used. In his day it was thought that steam, having a pressure of five pounds above the atmosphere, was as high as was compatible with safety, and the construction of his fire regulator was suited to the circumstances.

As time passed on, however, and improvements were made in the construction of boilers and boiler plate, and also in the construction of pistons, which could be kept tight against higher pressures, high pressure boilers were introduced, and the principle of the fire regulator which he invented not being capable of

modification to answer the purpose on these boilers, they had to be used without any such contrivance. Many years after his death, and within the recollection of some of our older engineers, Perkins, the celebrated American genius, whose invention for preparing steel plates for engraving will render him memorable so long as science holds a place in the memory of man, invented an arrangement to answer the same purpose for high pressure boilers that Watts did for low pressure. This contrivance gave motion to the damper by means of the expansion and contraction of metallic bars, the expansion and contraction being consequent on the changes of pressure of the steam in the boiler and its consequent change of temperature. The amount of first motion of this contrivance was so small, and consequently needed so much multiplying, that it was liable to many derangements which destroyed its utility. Still it was used to some extent, and was only given up on account of the difficulty of keeping it in order.

This regulator, it is believed, possesses all the good qualities aimed at by the eminent men above mentioned. It is comparatively frictionless, and does not depend on the contact of metals to form a tight piston.

The claim is for the diaphragm, E, in combination with the piston moving in the cylinder.

More information may be obtained at the Office of Clark's Patent Steam and Fire Regulator Co., 208 Broadway.

Flax Industry.—No. 5.

The manufacture of flax continued to extend and increase in Belgium until about the year 1838, when the English competition seriously injured the business. The number of pieces of linen of the better qualities manufactured in 1840, was estimatedat 400,000, and the value of all the production from flax in the same year at 60,000,000 francs. The linens which have for the most part contributed to the reputation of the Low Countries, are undoubtedly those made at Courtray.

It will not be foreign to our subject to correct at this point an error which has been widely extended, and has found credence with very many persons, viz., that which ascribes to Holland the manufacture of nicer varieties of linen. The facts are these:—After the troubles of the 16th century, almost all the linen goods manufactured at Courtray were sent to Harlaem to be bleached, and during the whole of the 17th century, the bleaching of this place was regarded as an indispensable compliment to all the high-priced linens. The goods of Courtray, almost without exception, passed into the hands of the Dutch, who, after they had given them the *blanc de Harlaem*, sold them as the manufactured products of Holland. In the 18th century the manufacturers of Courtray succeeded in imitating the Harlaem white, and henceforth all the branches of industry concerned in the flax manufacture became concentrated at one point.

General laws for the regulation of the linen manufacture were early enacted both in Holland and Belgium. By these laws all the cloth was carefully examined, and an imprint placed upon each piece, which made known its quality. This imprint, known to all the merchants of Europe, was a valuable guarantee, and at the same time, a recommendation. These measures, without doubt, powerfully contributed to develope the flax manufacture of these countries, and to give reputation to their products.

The culture of flax gradually extended into all the Cantons of Flanders, but those of Courtray, Tele, and Termonde, in the district of Waes, furnished, as at the present time, the best products.

In 1720 the price of ordinary flax was from 13 to 20 sous for a stone of Brabant, of the weight of three kilogrammes, (about seven pounds avoirdupois.) In 1763 it increased to 34 sous, this increase led to an ordinance which prohibited exportation. At this epoch flax of a superior quality brought 61 sous per stone of three kilogrammes. Since then it has often exceeded these figures, and from 80s to 90s, was obtained by many of the cultivators during the year 1849-50.

In 1840 the number of *hectares* (2 acres, 1 rood, and 35 perches) under cultivation with flax, was upwards of 41,000. Since this time the cultivation of flax has extended in all those Provinces which produce the better qualities, but has greatly diminished in those which produce the inferior varieties. The latter has to sustain the competition of the Russian flax, which is employed to a considerable extent in the coarser goods of the country. In 1846 the importation of Russia flax into Belgium exceeded ten millions of kilogrammes, (a kilogramme is equal to 2·20485 lbs. avoirdupois;) in 1841 it was unknown in Belgium. Another cause for the decrease of this production of ordinary flax is the failure of a number of manufacturers who formerly worked this quality; the demand for Belgian manufactured linens on account of foreign importations has, for the last few years, been supplied with difficulty, on account of the yearly increasing deficit in the better qualities of flax. While the consumption and production have both greatly increased, the former far exceeds the latter. Notwithstanding it may be stated that the cultivation and production of flax in Belgium is of greater importance at the present time than at any former period, especially when we consider the total value of the fabrics produced, which has greatly increased since 1830.

The history of the introduction and progress of the flax industry in Holland is embraced for the most part in that of Belgium, the latter country being formerly a province of the Kingdom of the Netherlands. As the character of the soil, however, in these countriesis essentially different, the culture of the flax in Holland presents some striking peculiarities. Holland is situated on the borders of a sea, from the waves of which it has been reclaimed and is now preserved only by the skill and enterprise of its inhabitants. Its position clearly indicates the nature of its soil, which consists almost wholly of alluvial deposits and peat.—The *polders*, or the bottoms of lakes which have been drained, being kept constantly moist by a careful system of irrigation, have a wonderful fertility. The low and marshy places are principally used for pasturing great numbers of cattle, but the plains are given up almost entirely to the culture of flax. At the time of flowering these plains present an immense blue surface, which attracts the attention of the traveler, and when agitated by the wind has much the appearanc of a vast lake or sea.

[For the Scientific American.]

Secrecy in Inventions.

I find myself under the necessity of asking your kind indulgence, while I explain my ideas a little more clearly on the subject of Judge Sprague's decision on the Sewing Machine case. I hold that the first inquiry, whether Hunt's machine was ever perfected, is altogether irrelevant, because the Patent Law, as far as my knowledge extends, does not ask whether a machine shall or shall not be perfected in order to become public. Nor does it ask whether "it had been abandoned and forgotten before a subsequent invention." It asks "whether the whole or a part of a machine had been before known or used." The only exception is in the proviso of the 15th Sec. of the Act of '36, "That whenever it shall satisfactorily appear that the patentee at the time of making his application for the patent, believed himself to be the first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery or any part thereof, having been before known or used in any foreign country; it not appearing that the same or any substantial part thereof, had before been patented or described in any printed publication." The Act of '37, Sec. 9, is additional to and explanatory of Sec. 15, of '36, and does not admit of a patent being granted for anything which was before known or used in this country. In your reply to my remarks you state that "A person might construct and use a machine in secret for twenty years and not give anything to the public, and after that, if another person invented the same machine, he could obtain a patent and restrain the inventor from using his machine." I think that construction of the law would hardly be sanctioned by the Constitution, which, in the last clause of Act 5th, of the amendments, says, nor shall property be taken for public use without just compensation." As there is no law against a person inventing and using a machine in secret, if he so elects, I think it must be conceded that he is in legal possession of such machine or invention, and entitled to the use of the same, and that use is property. Now I would ask how the public—not having any right to appropriate private property to their own use "without just compensation,"—would take the use of that machine and give it to another individual, who is a part and parcel of the public (for the public is made up of individuals) "without just compensation." I believe the law does not contemplate the granting of a patent to any one for anything which was before known or used in this country, for the reasons above stated; it would not harmonize with the Constitution, and whether I am right or wrong is respectfully submitted for your consideration.

EDMUND FIELD.

Greenwich, Conn., May 5, 1854.

[Our correspondent does not present the question properly for correct adjudication.—The patent laws do not *ask* anything, but they do provide for the asking of questions relative to what is public property in a machine when the validity of a patent is disputed on a trial for infringement. To invalidate a patent (as was attempted in the case to which he refers) it is necessary to prove that the machine patented, is either *not new* or *not useful*. "To constitute a prior invention," says Curtis (page 37) "the party alleged to have made it, must have proceeded so far as to have entitled himself to a patent in case he had made an application." Now as the Patent Law requires that the improvement must be *useful*, how can a machine be useful if it is *not perfected*?

Judge Sprague's decision was to the effect, that "it had not been proven that Hunt had invented a practical machine," consequently, in the eye of the law, it was no property—public or private. As it respects the question of abandonment (for a lost art or forgotten machine is out of order in discussing this question) our patent laws do provide for this, and decisions have been made in accordance with it—the one of Battin's Coal Breaker, for example.

So far as it relates to *secret* inventions, our correspondent's objections to our views are just as applicable to any machine built and used, after a patent has been granted, as before. The question of "private property" is one of a different issue entirely; the law declares what is property. Our correspondent is perfectly right in what he has said, about "private property," but a "secret invention" is not held to be property at all. Making this distinction, he will find no difficulty in coming to a right conclusion on the subject. Phillips, on the property in patents, page 317, says of an invention used in secret, "it is not a species of property;" "it is only the inventor's secret." It is true, there is no law against a person devising and using an invention in secret, and it would be a queer thing if there was. Such a law would be like a statute against something that never had, has not, and may never have an existence. To make the question plain.—Suppose an inventor secures a patent to-day, and in the course of three or four weeks afterwards, finds access to a room where a machine like his is in operation, and he then goes, and according to law, prays for an injunction, describing the machine and place—making oath that such and such a person is violating his *patent* by using a machine like that specified in it? What then. The Court orders the person against whom the complaint is made to appear and show cause why an injunction to restrain him from using said machine, may not be granted. The defendant appears and does not deny his using such a machine, but says he constructed it twenty years before, and has used it ever since. Well, where is your proof? He has none to present—it was kept secret—(his own statement is no proof.) There is nothing left for the Court to do then but to grant the injunction. If, however, he can produce one respectable disinterested witness to testify to the prior age and use of his machine, it would not, in the eye of the law, be considered a *secret* invention, but public property, to the use of which all were entitled who desired to use it. There is therefore a great difference between what is considered "private property," and a "secret invention." The laws of every country specify what is property—public and private.

A Curious Dining Hall.

We learn from a London paper, that Professor Owen was recently entertained at dinner in the garden of the Crystal Palace at Sydenham, in the model of an Iguanadon. The animal in whose mold the dinner was given was one of the former inhabitants of Sussex, England, several of his bones having been found near Horsham. His dimensions have been kept strictly within the limits of an anatomical knowledge. The length from the snout to the end of the tail was 35 feet; he was 12 feet high; the cir cumference of his body was 25 feet; and the girth of his fore leg 6 feet 6 inches. Twenty-one gentlemen dined comfortably within the interior of the creature, and Professor Owen sat in his head as a substitute for brains.

Velocity of the Wind.

Professor Stoddard, in a lecture recently delivered upon the hurricane in Knox county, Ohio, stated that in one town a grove of oak trees was almost entirely blown down. The trunk of one of these trees was about three feet in diameter. Assuming, however, its diameter to be but two and a half feet, a force of 147,000 pounds would be required to break it. The surface of the tree exposed to the action of the wind was about 1000 feet, which would give a pressure by the wind of 147 pounds per square foot, or a velocity of not less than 171 miles per hour, which is nearly one-fourth the initial velocity of a cannon ball.

The Comet.

Commander Plana, the distinguished astronomer at Turin, in speaking of the new comet which was visible there lately, mentions a curious circumstance in connection with the popular superstition about the influence of comets over worldly affairs. He states that when a large comet appeared in 1446, just after the Turks had overthrown the Greek Empire, Pope Callxtus ordered public prayers to exorcise both the comet and the Turks.

A Mammoth Vessel in the Upper Lakes.

The Cleveland Daily "Herald" says: "The ship, 'Canada,' of Buffalo, is in port here, to-day, for the first time. She isowned by Messrs. Walker and Bantam, and is under command of Captain Bantam. Her dimensions are—length of keel, 208 feet; breadth of beam, 32 feet; depth of hold, 14 feet; capacity, 1,100 tuns. Last year, she carried at one time, 50,000 bushels of oats, and at another, 40,000 bushels of wheat. She brought up a deck load, four of the largest size passenger cars; and is now loading for Chicago with 800 tuns of coal and 300 tuns of merchandise.

To Fix Carpets on Floors.

The foreign correspondent of the Newark "Advertiser," in writing from Florence, says: "Here iron rings are fastened in the floors when the carpets are laid, and they have large hooks in the binding, for which these rings are eyes; so that there is no taking out and nailing in of tacks, and carpets are raised and laid as noiselessly and easily as bed-covers."

The Ericsson Raised.

This vessel was raised on Thursday last week, and was towed to the Naval Dock at Brooklyn, for repairs. The damage sustained, it is said, will amount to about $50,000. The accounts of the daily papers of this City, respecting her late and unfortunate trial trip, are not to be trusted in anyone particular—excepting that relating to her being capsized.

Prince Paul, of Wurtemburg, is now in this country collecting botanical, and ornithological specimens, for the publication of a work, when he returns to Europe. This is a very creditable occupation for a Prince, and it would be more to the honor of them all, if they engaged in some such useful and instructive profession.

There are half a million more females than males in Great Britain.