September 19, 1874.

DISASTER IN LAUNCHING A TURRET SHIP ON THE THAMES.

The ironclad man-of-war and steam ram Independencia, just built for the Brazilian government at Dudgeon's yard Blackwall, London,'is now lying, to all appearance, a wreck on the foreshore close to Cubitt Town Pier, with the tide at high water washing over her decks, having met with a disaster in launching. The ship is 310 feet long and very broad, having a beam of 63 feet, and she is of 5,000 tuns burden, build-

er's measurement, which is equivalent to a displacement of 10,000 tuns when armed and afloat. She has two turrets on deck; the decks are of iron covered with wood, and the sides are covered with a belt of 12 inch armor plates to a depth of about 14 feet. The armor being nearly all fixed while the ship was on the stocks, the weight of the hull was little short of 6.000 tuns. and the operation of launching was therefore felt to be one of considerable difficulty. Hydraulic rams were employed to start the ship, which went safely down the slips for about her own length, and then stuck fast. The rams and all manner of appliances were brought to bear, but failed to move the ship further; and when the tide fell she settled down with her stern in the bed of the river, about a third of her length only having left the ways. Her position is a critical one, and the outer shell of her double bottom

Scientific American. situated in the Middle States that during the present month

is a good season to transplant evergreens, and this work is best performed soon after a good rain, or when the ground is mellow enough to admit of getting as many perfect roots up as possible, but by no means permitting the trees after being lifted to be long exposed to the action of the sun or drying winds; cloudy weather is desirable for this work; and should the ground to be planted be light and dry, give a good settling of the earth about the roots with water, finish- as they are harvested.

Herb Cultivation.

The London Garden contains the following account of herb raising for commercial purposes, at Mitcham, England, a place long celebrated for its herb fields, from which the London herbalists derive their mint, sage, licorice, and similar herbs. Of these, as a rule, distillations are made by the growers, and they are disposed of in a semi refined condition, or the herbs themselves are brought into market as soon



THE FRIGATE INDEPENDENCIA AFTER THE ATTEMPTED LAUNCH.

her as she remains fast on the ways, extracted from the Rlustrated London News.

BURNISHING SURFACE COLORED PAPERS.

Marbled and other papers which have color laid on one side have been hitherto burnished or glazed by rubbing with a polished flint or other stone, worked over the surface by hand. Many attempts have been made to substitute glazing rolls and other appliances for the tedious process, but no good result has ever been achieved. M. Alauzet, of Paris, exhibited at Vienna a machine for manipulating the burnishing stone, and thus economizing the cost without impairing the beauty of the imparted surface. This machine, which may be used for dyed and undyed paper, is double acting; the sheets of paper are represented by e, while ashows the burnishing steel or stone guided and moved by the bar, b d t, and the rod, g, which is connected with the crank, f. The weights, t and l, may be increased or diminished according to requirements.

We are indebted to Engineering for the engraving.

----Lawn and Pleasure Grounds.

A writer in the American Farmer for September reiter. ates, what we have often stated, that the love and taste for horticultural pursuits is rapidly growing in this country. He also states the generally known fact that, up to the present

time; the great majority of thorough practical gardeners in the United States are foreigners, and even those, however well educated in that profession at home in their native land, have, under a different climate and other influences by which they are surrounded in this land of their adoption, to pass through another term of apprenticeship before they can make their services acceptably available; we speak here of thoroughly educated men in the profession, and not of that crowd of one-year pretenders by which the country is overrun. It has been often remarked that very few native born Americans take

has given way in the bilges. We give a representation of | ing the filling in around the stem with loose earth, which prevents the surface from cracking, should a drouth follow.

> this season, of such hardy shrubs as wigelias, forsythias, spiræas, and deutzias; make the slips about 3 to 6 inches long, removing the leaves entirely from the lawn half, and those on the upper half cut back so as to leave about one inch of the leaves and petioles; then plant them in a sandy soil in some shady place, observing to press the earth close to the cutting; these, when rooted, can remain until next spring, against planting out permanently.

> Samples of seeds of choice border plants should be from time to time collected, and placed in a cool airy place to dry; if the kinds collected are pure, and have not been contaminated by impregnation of worthless sorts growing close by, then you are stocked for next year and will have the pleasure also of helping your friends to a few, as the votaries of Flora ought by all means to eschew anything that would border on selfishness. When the flowers in your beds or borders become unsightly from decay, have them removed and the ground raked clean and smooth. Such articles as dahlias should be tied up neatly to stakes. For ourselves, we prefer training them so that they will lie upon the ground, where a greater number of finer flowers will be produced; we attribute the difference to the ground being kept cooler and more regularly moist during the heat of summer.

Toward the end of the month, prepare beds in which to

Lavender .- This is extensively cultivated at Mitcham, both farmers and cottagers bestowing special attention on it; and Cuttings made of the present year's growth root freely at this district presents a lovely sight in the last fortnight of July, when the different fields of it are in full bloom, the air for miles around being loaded with its fragrance. Lavender is increased by means of rooted slips, planted out, in rows about 18 inches apart and half that distance asunder, in March or April. Sometimes the sets are planted as wide in the row as the drills are apart. For the first year the produce amounts to but little; and, therefore, parsley or lettuce is planted between the rows. As soon as the plants have grown sufficiently to become crowded, every alternate row, and also every alternate plant in the rows left, is liftedsay in spring-and transplanted into another field, so as to form a new plantation. Thus the plants stand 3 feet apart each way, or 3 feet one way and 18 inches the other. Coleworts, lettuces, or other early and quickly matured crops, are raised among the lavender in the early part of the year; but, after June, all such catch crops are removed. The flowersare usually harvested in the first fortnight of August, and, as has been stated, are distilled at the farm on which they are grown.

> Licorice .- This was once largely grown at Mitcham, but, although it is grown in considerable quantities, it is not now so extensively cultivated there as formerly, on account of the cost attending its culture. It entirely occupies the ground for three years, and during that time requires great atten-

over close to the ground; and if time can then be spared, the

tion in the way of cleaning, besides the ultimate cost of trenching out the roots, or, rather, underground stems. The ground, being deep, is heavily manured in autumn or winter, when it is trenched and laid up in ridges, in a rough state, till spring. It is then leveled, marked off in drills about 2 or 3 feet apart, and some 3 or 4 inches deep, and in these the sets are planted in March. The sets consist of finger length pieces of the old root stems, each containing an eye or two. During the first year the ground is usually inter. cropped, as is also the case in the earlier portion of the second year; but after the

Chamomile. - To this sev-

eral acres are devoted, the

double flowered kind being

weight of the produce; but

both single and double sorts

are grown. In March, old

and somewhat spent plan-

tations are broken up and

the plants divided into good

rooted slips, which are

planted in well prepared

ground in rows 21 feet

apart, and 2 feet asunder in

the rows. A common prac-

tice, however, is to plant as

thick again as this, and to

thin out the plants after-

wards to the distances just

named. The plantations

are intercropped with let-

tuces in spring. As soon

as the blooms begin to ex-

pand, they are fit for gath-

ering, and from that time,

as long as they yield suffi-

ciently to pay, the flowers

are gathered several times

in a season by women, who are either paid a regular

day's wages, or a penny, or

thereabouts, per pound for

picking.



usually to enter upon the higher or lighter branches, or follow it as a mercantile or money-making pursuit. Yet it is true, beyond all dispute, that the love of horticulture is growing rapidly, as may be seen by the millions of fruit trees put out as orchards, and tens of millions of flowers used annually in the flower garden, together with the ornamental trees and shrubs which are sought after with avidity.

The residences that formerly stood isolated on the plain are now seen nestling in groves of umbrageous trees, embracing the noblest and most desirable kinds to be found in all temperate climes; now this state of things is pleasing for all lovers of Nature to contemplate, and should not every laudable incentive be used to further its growth? As havng a tendency in that direction, we would remind those

PAPER BURNISHING MACHINE.

to horticulture as a profession; and that when they do, it is plant tulips, hyacinths, narcissus, crocus, and lily roots; a middle of the second summer, and throughout the whole of sandy soil, made rich by well rotted cow manure, suits them the third year, the licorice requires all the room. When the stems are matured in the autumn of each year, they are cut

best.

Wood the Most Costly Building Materlal,

soil between the rows is forked over, some well decayed ma-Four fires on the 11th and 14th of July, in Illinois, Wisnure being occasionally worked into it at the same time. consin, and Iowa, destroyed wooden buildings, which cost The lifting of the crop, which usually takes place in the end of the third season, is a difficult operation, involving much originally \$350,000, and an aggregate of \$5,080,000 property. These buildings cost about \$70,000 less than brick ones would labor. A deep trench is cast out, lengthways, alongside the have done. The wooden buildings burnt at Chicago, July first row, and by means of forks, pulling ropes being even sometimes employed, the root stems are extracted. In this 14, first cost \$150,000, but carried with them property to the amount of \$4,000,000. The wooden buildings burnt in the manner the whole of the rows are treated, until all are sucgreat fire of 1871, when the entire loss was \$200,000,000, cessfully lifted. The roots may then be stored in sand or were worth \$2,000,000, or one per cent of the whole. Wood pits, like beets, carrots, or potatoes. Growers of licorice do is thus shown to be one of the costliest of building materials not always harvest the crop; on the contrary, they sometimes sell it as it stands in the field, and the purchaser lifts it himself.

Mint -Both spearmint and peppermint are largely grown at Mitcham, particularly the latter; indeed, this crop ranks second in importance only to lavender. It is first planted in rows 13 inches apart each way, and in the end of the next two seasons it is plowed in. The plantations are kept free from weeds during the summer by means of hoes; and about the end of the first week, or during the second week of August, is the usual time for cutting mint for distillation. In the Fulham fields, and in other districts in which market gardening is carried on, mint is largely grown for sale in a green state. For this purpose the dampest piece of ground is selected for its culture, if it is to be a permanent plantation but it will grow in almost any soil. It is planted in rows a foot apart, and the ground is intercropped the first year; but afterwards it runs through the soil in such a way that it becomes a complete mass of undergrown stems and roots. It is cut and bunched for market as required, the greatest demand for it being during the pea season. It is also forced in large quantities. "I have seen a range of 43 light frames filled with mint alone. These beds are made up in December or January, when the ground they occupy is excavated to a depth of 20 inches, and filled in with fermenting manure packed 6rmly. A few inches deep of soil are then added, and in this the mint roots are thickly planted. Linings of manure are also placed round the frames, the sashes during the night and in cold days being also covered with it."

Poppies.-Of the white kind, several acres are grown. They are sown in rows in spring, some 20 or 24 inches apart, and require no further care, beyond a little thinning and cleaning, till August, when their seeds ripen.

Sage.-This forms an important crop, which, under favorable circumstances, is pretty remunerative; the stalks being cut over, bunched, and sent to market at once. New plantations are formed with rooted slips, obtained by dividing the old plants; they are inserted, late in spring, in rows 1 or 2 feet apart, and about a foot asunder in the row. During the the first season parsley or lettuce forms an inter-crop, which also occupies the ground during the earlier part of the succeeding ones. Except hoeing and cleaning, the plantations need no care so long as they continue in a thriving condition; and when the lines get broken, and blanks and sickly plants occur, the plantation is broken up. Both the reddish and green-leaved kinds are cultivated.

Squirting Cucumbers.-These are raised in frames, like vegetable marrows, and are planted out, about the end of May, in rows some 4 or 6 feet apart, and 4 feet asunder in therow. They flower and fruit at the same time, and the fruits are gathered before they are ripe, otherwise a mere touch would burst them. The fruits are usually distilled by the growers.

The Physical Failure of the Hawaiians,

Dr. Nathan Allen, in an interesting paper upon the decadence of the Hawaiian race, makes the following observations: The census of 1872 returned the whole number of the inhabitants. 56.897-males 31,650, and females 25,247.

In 1820, when the missionaries first landed upon these islands, the population was estimated at from 150,000 to 200,000, but may not have exceeded much the first mentioned number. We have, then, in a little over fifty years, a loss of full two thirds of the whole inhabitants.

The efforts of the missionaries were attended withremarkable success. A government of the people has become firmly established, education is generally diffused among all classes, and family instruction has for a long time been established upon a sound basis. In fact, all the advantages of a Christian civilization seem to be enjoyed in an unusual degree by this people.

But. notwithstanding these conditions, the population has kept steadily decreasing every year. Now, what can be the cause? It cannot be from any fault or change in the climate, which has always been represented to be remarkably pleasant and wholesome. It cannot be for the want of good government or for any outward conditions that are unfavorable to growth. It surely has not been for the want of food, as there has never been any complaint from this source; food has been provided in abundance, a variety in kind-cheap and bealthy. There certainly have been no wars, pestilence, earthquakes, famines, or calamities of that kind to account for this change. It is true the small pox, the measles, and the leprosy have prevailed there at times, carrying off large numbers, but by no means enough to account for the change.

There is no evidence that there has been any extraordinary mortality on these islands, especially among children, but lakes, and remind one somewhat of Lake George and the there is evidence that there has been a steady decrease in the Italian lakes. number of births. The decay goes steadily on, and from all present indications it seems likely to continue, till, as a race, they become extinct. Dr. Allen believes that the great primary cause of this degeneracy is not external to the body, but internal-affording strong evidence that the true law of propagation is based upon physical organization, and that external agents are only incidental conditions or secondary causes. The change of population going on at these islands affords a most fruitful theme for study.

The Transmutation of Metals.

In the seventeeth century faith in transmutation was unbroken. Helvetius declares that he saw a stranger convert an inferior metal into gold, at the Hague, in 1666. Even Glauber, the discoverer of the salt that bears his name, was a believer in the attractive delusion, and it is said that the discovery was made while endeavoring to find the philosopher's stone among the terra damnata of chemical operations. At last suspicion was generally aroused regarding the claims of the alchemists; and in a report read by Geoffroy before the Royal Academy of Sciences at Paris, on the 15th of April, 1722, the tricks were exposed by which impostors had practised on the credulity of the public.

From this document we learn that the ordinary way of producing the appearance of transmutation was to employ a crucible or melting pot with a double bottom, the exterior being of some infusible material and the interior of suitably colored wax. In the space between these gold or silver was placed. Lead or quicksilver, the latter being preferred on account of its volatility, was then introduced into the vessel, together with the powder of projection. Heat being applied, the wax and the base metals disappeared, and a button of gold remained at the bottom. Sometimes a true crucible was used, and the gold or silver introduced into the fused materials by means of a hollow wand or stirrer, the interior of which had been filled with the powder of the metal the production of which was desired. Lead, in which holes had been drilled and filled with gold and then closed up, was also employed; or a piece of gold was washed with mercury and then transmuted into pure gold by an acid.

Where only a part of the baser metal was to be converted, nails, or bars, consisting half of gold or silver and half of iron or some other metal, were prepared, the gold or silver being painted to resemble the other metal. The removal of this coating or transmutation was accomplished by means of alcohol or some liquid that could dissolve the paint. A nail of this description was at one time preserved in the museum at Florence; and the knife that belonged to Queen Elizabeth, which was half gold and half steel, was of the same nature. Such objects as coins, half gold and half silver, were at one time very common, and were distributed by alchemists as evidences of their power, in order to entrap the credulous.

The Austro-Arctic Exploration.

M. Sidoroff, says the Eastern Eudget, member of the Geographical Society of St. Petersburgh, has addressed a report to the Russian Admiralty with regard to the Austrian Polar Expedition, of which nothing has been heard since August, 1872. M. Sidoroff says in his report that the Tegethoff was last seen by Count Wiltczek in a gulf near Cape Nassau, whose outlet was then being choked up with ice. Since that time various seamen coming from Novaya Zemlaya have reported that the quantity of drift ice in the Icy Sea had considerably increased, and that in the summer of 1873 it was extraordinarily abundant. Formerly the ice on the coast of the above island only extended to a distance of five versts in the month of June, while in midsummer, 1873, the width of the icv zone amounted to about 100 versts. M. Sidoroff believes that if Cape Nassau had been free of ice, the Tegethoff would certainly have gone round the northeastern point of Novaya Zemlya, which is only a day's journey from Cape Nassau, and thus reached the Gulf of Yeniseisk with difficulty. It is therefore probable that the expedition is frozen up and in want of provisions and M. Sidoroff accordingly recommends the Russian government to send food, etc., by land to Cape Nassau, adding that he will contribute \$500 to the expenses of the undertaking. The Admiralty has approved of this proposal, and is now taking the necessary steps for carrying it out.

The Lake and City of Van.

The city of Van, on the extreme eastern border of Turkey in Asia, is a new station lately occupied by American missionaries. The Rev. Dr. Barnum writes home, to the New York Observer, an account of a journey lately made by himself and party from Harpoot, eastward over the Taurus mountains, a distance of 300 miles, to the city of Van. The author savs:

Lake Van, along the shores of which we spent several days in going and returning, is a beautiful sheet of water, without any outlet, sixty or seventy miles in length, and perhaps twenty or thirty in breadth. It is irregular in shape, and is surrounded by mountains, so that in traveling the whole length of the lake you obtain sectional views, which give one almost the impression of a series of three or four

(SEPTEMBER 19, 1874.

Leg Locomotion,

At a recent meeting of the French Academy, M. Marey communicated an account of some new researches on human locomotion. With his usual experimental skill he succeeds in recording the movements of the legs, on a rotating blackened cylinder (in reduced form, by means of wheel work). Weber supposed that, in walking, the leg was displaced merely by the action of gravity, and performed a pendulum movement. This has been variously disproved (by Duchienne and others); and now M. Marey demonstrates that the movement of transport is uniform throughout nearly its whole duration; in rapid paces it commences and terminates with short periods of variable velocity. This uniformity is due, in great part, to action of muscles of the leg, but two other elements have to be considered : 1, the angular movement of the leg about the pelvis, and 2, the horizontal translation of the pelvis itself, that is to say, of the point of suspension of the leg while it oscillates.

A Monument to Liebig.

The pupils of Justue Liebig propose to erect a fitting monument to the memory of their master, and now appeal to the chemists of all nations to aid them in the effort to raise a sum sufficient for the purpose. It has been decided to erect one monument at Munich, where Liebig spent the later years of his life, and, if the fund subscribed shall suffice. to place another-perhaps a copy of the first-at Giessen, the scene of his earlier labors.

Subscriptions in this country may be sent to either of the undersigned, who will forward the sums contributed to the Central Committee at Berlin:

Professor J. Lawrence Smith, Louisville, Ky., Professor E. N. Horsford, Cambridge, Mass., Professor Wolcott Gibbs, Cambridge, Mass., Professor C. A. Joy, Columbia College, East 49th street, N. Y., or Professor C. F. Chandler, Columbia College, East 49th street, N. Y.

One Hundred and Twenty Years Old.

There are certain portions of Virginia which have long been celebrated for the healthfulness of climate and the longevity of the inhabitants. Here is the latest example :

Mrs. Katie Shepp, living in the Massanutten Mountain, near Keezeltown, five miles east of Harrisonburg, Va., has, it is stated, now reached her one hundred and twentieth birthday. Mrs. Shepp was married in the year 1774, at the age of twenty. Her husband, who has been dead about sixty years, was in his twenty third year at the time of his marriage, and he was a wagoner in the war of the Revolution. Mrs. Shepp remembers many of the incidents then occurring in the vicinity. Her mind is clear, and she does the work of the family she lives with, as well as her own sewing, and has never used spectacles.

A Russian International Exposition.

A permanent International Exposition of machinery is to openat the Museum of the Imperial Polytechnic Society in St. Petersburg, Russia, on the 15th of October next. The object of the exhibition is to promote the introduction and employment throughout the empire of new and improved tools and machinery, whether of domestic or foreign manufacture, by demonstrating their advantages through public experiments. The enterprize is also intended to establish closer relations between the Russian manufacturers and those of other countries. Full particulars may be obtained by addressing Colonel Sytenko, President of the Russian Imperial Polytechnic Society, 2 Rue Panteley Mouskaia, St. Petersburgh.

Fishing by Means of Explosives.

A method of catching fish, employed for years by poachers in England, is to fill a large stone bottle with quicklime, then to pour in water enough to nearly fill the jar, and cork it up, securing the cork to the neck of the bottle by copper wire. The bottle is thrown into the water, and the pressure, caused by the working of the lime, explodes the bottle and stuns the fish, which then float helplessly on the surface of the water.

PHENIC ACID FOR THE PRESERVATION OF WOOD .- It is admitted that, if tar increases the durability of woods exposed to air and moisture, this property is owing to its phenic acid and its creosote. It is, then, rational to believe that, in replacing the sap of the trees with slightly phenic water. they are protected from rot. But phenic acid is insensibly driven from the wood under the influence of water. M. Boucherie considers that phenic acid can only be rendered useful by mixture with sulphate of copper, to defend stakes driven into the sea against the attacks of the teredo.

N. O. savs: "Your plan for clearing telegraph wires of kitetails, etc., by burning has at least one serious objection, and that is that wooden tenements prevail where kitetails most abound; and in burning them off, there is danger of destroying houses: at least the writer found it so in New Orleans, where he tried it several years ago. It is also a slow process, for rags, when wrapped tightly, do not burn painting. It may be restored by ignition in an earthen quickly."

The city of Van lies at the eastern end of the lake, and is surrounded by a wall and moat. Just back of the city is a high bluff which is surmounted by the most picturesque castle which I have yet seen. On the rocks are several inscriptions in the cuneiform character, but in the Armenian language. The city is said to have been founded by Semiramis, nearly 4,000 years ago; but I believe this distinguished queen is coming to be regarded by historians as a myth. At any rate the city is very ancient, whoever may have been the founder. Stretching away from the city and the lake for several miles toward the mountains on the east are beautiful orchards and gardens, and here the majority of the people live. The Armenian population of Van and its surrounding villages is very large.

TO RESTORE OLD ZINC WHITE .- If kept for a long time zinc white becomes granular and gritty, and useless for crucible.-M. A. Speidel.

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THE British government is spending \$50,000 at Woolwich on a new 80 tun gun, which, when finished, is expected to beat the world. With a sixteen inch projectile, weighing 1,650 pounds, and a maximum charge of 300 pounds of pewder, it will pierce the best iron plates, twenty inches thick, at 500 yards, sixteen inch plates at 5,300 yards, and will pitch a sixteen inclushell into a ship or fortress at a distance of 10,300 yards. The steel block forming the inner tube was the largest ever cast, weighing over twelve tuns; while the trunnion piece, about eighteen tuns, was the largest forging ever produced at the arsenal.

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UTILIZATION OF WASTE SOAP LYES AND OILY LIQUORS .-Instead of separating the fatty matters from the water by means of mineral acids, the author proposes to treat them with salts of magnesia. Magnesian soaps are thus formed, containing 60 per cent of fatty matter, and which may be used in the manufacture of gas for lighting purposes. -M. I. Vohl.

Predatory Chickens.

One Max Adeler describes a novel method he adopted for ridding his garden of a neighbor's chickens. We copy the article from the London Garden, but we suspect it emanated from this side of the water, and we would not wonder if the Danbury News man was its author. It certainly reads like him; but no matter where it originated, the invention is made, and in Adeler's case it proved useful.

He says: "We had a good deal of trouble last summer with Pitman's chickens; as fast as we planted anything in our little garden, those chickens of Pitman's would creep through the fence, scratch out the seed, fill up, and go home. When the radish bed had been ravished in this manner for the fifth time, we complained to Pitman. He was not disposed to interfere. 'Adeler,' he said, 'I tell you it does 'em good; and it does them beds good to be raked over by chickens. If I had radishes, give me chickens to scratch around them and eat up the worms. Radishes that haven't been scratched ain't worth a cent.' Then we climbed over the fence with the determination to take the law in our own hands. We procured half a peck of corn and two dozen small fish hooks. Fastening the hooks each to a grain of corn, we tied wire to each hook. Then we scattered the whole of the corn on the radish bed, and fixed the ends of the wires to the biggest sky rocket we could get. The rocket stood in a frame about 10 yards away from the hooks. That very morning Pitman's chickens came over, and instantly began to devour the corn. We were ready; and as soon as it was evident that the hooks were all swallowed, we applied a match to the rocket. It is regarded as probable that no barnyard fowls that have existed since the days of Noah ever proceeded toward the azure vault of heaven with such rapidity as those did. A fizz, a few ejaculatory cackles, a puff of smoke, and Pitman's roosters and chickens were swishing around the celestial constellations without their feathers, and in some doubt respecting the stability of earthly things. Pitman never knew what became of his fowls: but when we read in the paper next day that twentyfour underdone chickens, with fish hocks in their craws, had been rained down by a hurricane in New Jersey, we felt certain that that sky rocket had done its duty."

Gas Light,-Average Prices,

The following information, showing the average net price of gas throughout the United States, has been procured by the Washington, D. C., Gas Light Company:

1. Maine\$3.8	87 20. Mississippi \$5.25
2. New Hampshire 3.9	6 21. Michigan 3.43
3. Vermont 4.8	
4. Massachusetts 3.8	6 23. Ohio 3.32
5. Rhode Island 3.8	5 24. Indiana 3.54
6. Connecticut 4.0	3 25. Illinois 3.87
7. New York 3.8	8 26. Kentucky 3.92
8. New Jersey 3.8	
9. Pennsylvania 3.4	
10. Delaware 39	
11. Maryland 3.5	
12. Dist. of Columbia. 3.1	
13. Virginia 3.8	
14. West Virginia 3.1	
15. North Carolina 6.6	
16. South Carolina 3.8	
17. Georgia 5.0	
18. Florida 8.0	
19. Alabama 48	

Total average net price of gas in the United States. .\$4.32}. ----

Proposed Statue to Daniel Webster,

Gordon W. Burnham, a wealthy resident of this city, proposes to erect in the Central Park, at his own expense, a bronze statue of Massachusetts' late statesman, Daniel Webster. Mr. Burnham has a special taste for bronzes, and his residence on Fifth Avenue contains probably the choicest collection in the country, The Central Park has already a handsome group (Eagles and Chamois) presented to it a number of years ago by Mr. Burnham.

The Park Commissioners have, we understand, requested that a model of the statue be submitted to them before they will consent to set apart for it the conspicuous and appropriate site on the Mall, suggested by the donor. The form of a renowned and representative American statesman, whose fame belongs to this country, deserves, we think, at least as prominent a position as that of Sir Walter Scott. It is to be hoped that Mr. Burnham's generous offer will not be withdrawn through any difference of opinion as to where in our everywhere beautiful Park his gift is to be displayed. The people will appreciate it, and heartily thank him for it, no matter whether it be located (as it should be) on the Mall, or

DECISIONS OF THE COURTS.

United States Circuit Court---District of New Jersey. PATENT SHAWL STRAP .- GEORGE CROUCH 08. HENRY SPEER, REINHOLD

SPEER, AND EGBERT MATTNER. [In equity.-Before Nixon, Judge.-Decided April 27, 1874.] NIXON, Judge:

NIXON, Judge: This suit is brought for au alleged infringement of a patent for "im-provement in shawl strans," originally granted to the complainant, and surrendered and reissued March 7, 1971. * The patentee states in his schedule that hefore his invention straps had heen used to confine a shawl or other similar article in a bundle, and a lea-thercross plece, with looms at the ends, had extended from one strap to the other: and above, and attached to this cross plece, was a handle: that the cross plece or connecting strap was liable to bend, and allow the straps to be drawn toward each other by the handle in sustaining the weight; that hence the bundle was not kept in the proper shape, and the handle was inconvenient to erass; and that his invention consisted in a ristd cross bar beneath the handle. * The defendante' first allegation is that there is nothing new or useful in

bar beneath the handle, combined with suspending straps that are to be passed around the shawl or bundle, such straps passing through loops at the ends of the handle. * The defendants' first allegation is that there is nothing new or useful in the combinant's parent. If they mean by this that it is not the subject matter of a natent, the objection must be examined and answered in the light of the provisions of the 24th section of the patent act of 1870 (168 Stat., 201). That section suthorizes a patent to be granted for "any new and useful art, machine, mannfacture, or composition of matter, or any new or useful improvement thereof," it will be seen that utility and novelty are the requisite conditions. The invention or the improvement claimed must have both, or the letters patent secure nothing for the patentee. Whether it is useful in the sense of the law is not whether it is capable of use for a purnose from which some advantage can be derived. If it he useful in this sense, the derive or extent of fur usefulnes is altogether unimortant. It is not necessary, in other words, that it should be the heat means of producing at the issue is nothing for the sub the derived. The right cross har and the loops holding the strans, securing them in their place, and made of the leather of the samile. If new add neat, ness and finish and value to the mean facture; and his is shown by the fact that these defendents.active business men and alive to the public demande, gave these methonds of manufacturing a preference or events in finishing and furnishing shawl straos for the markets. * In considering the case, it should be remembered that the batent is prima facts evidence that the patente was the original and first inven-tor. Any one who encorverts this assimes the burden of novelty in the com-platiant's patent. *

primo facts evidence that the patentee was the original and first inven-tor. Any one who rentroverts this assumes the burden of proof and un-dertakes to show affirmatively that there was a prior knowledge and use of the allesed invention under such circumstances as to give to the public the right of its continued use against the patentee. This the defendants have failed to do. The evidence introduced by them is frequently contradicted, and is inconsistent with itself and many well established facts. * There is ground for reasonable doubt in recard to its correctness. Where such doubt exists the complainant's prima facts case, even if un-corrohorated, must prevail. But it doesn to stand without corrohoration. The complainant called willing H. Cleveland. William Roemer, Peter Martens, Jacob Lagowitz, Joseph R. Davis, and Phillo P. Lynch to testify as to the state of the art. They seem to be intelligent and disinterated wiresses : have been for years, more or less, connected with the manufacture and the levention of the complainant, or deny its existence or mae prior to 1863. Upon the wall drace the origin of the right cross bar to the invention of the walling the complainant's patent, right be a decree suffaming the validity of the complainant's patent, right the date of the rejsaue, and also an injunction, restraining the defendants from further infribgreent.

[Jonsthan Marshall. solicitor and connectfor complainant. James M. Scovel, solicitor and connect for defendants.]

United States Circuit Court---Southern District of New York.

COMBINED RUBBER AND METAL SPRING. — THE NATIONAL SPRING COMPAN US. THE UNION CAR SPRING MANUFACTURING COMPANY. Blatchford, Judge.

This suit is brought on refasted letters patent granted to the plaintiffs Dec. 18, 1870, as assigneed of Erastus T. Bussell, for an "improvement in com-nined lodis rubber and steel sorings," the original patent having been gratted to Russell, as investor, November 29, 1858, and extended for seven years from November 29, 1857.

A Date of for a soft net of the soft of a column of a column of a column of a patent for a spring commence of a more a more structure of a spring by metal spring, and prevented from spreading by metal modif.

fings around it. A released nation theld valid which claimed a suring constructed of an indis rubher column enclosed in a softal metal anting, although it, was con-ceded in the original anning that such a spring was described in a Pre-Vious natent, it annearing that it was not so described. Although the original natent everywhere represented the india rubher column as deeply duited, yets released outent, was sustained which claimed an india rubber column in unqualified terms, without alluding to the flut-ing.

ing. The reissued natent was held valid, although it claimed the rubber col. umn whether solid or hollow, and the original patent made no mention of

umn whether solid or hollow, and the original patent made no mention of a hollow column. In the sheld to be no objection to the roisaued estent because it suggested that an e material which was the equivalent of india rubber might be ned instead of it, and has solid or veerable fiber, suita percha, etc., although these materials were not motioned in the original. The validation a percent is not impaired because the invention is em-braced in a prior English materit, if, previous to the latter, the American Datentes half reinventor filed and commissed their anolica-tion for a reissue heafore inventor filed and commissed their anolica-tion for a reissue heafore inventor. Under the sacing there is a stant of the sasignees is sufficient upon an suplication for the relate of a satisficient before. July 20, 1870; the cash of the inventor of plaintiffs.

[J. P. Fitch and George Gifford. for plaintiffs. H. C. Woodruff, for defendants.]

Recent American and Loreign Latents.

Improved Waste Valve and Overflow.

James Foley, Brooklyn, NY.—The end of the pipe leading to the basin is coupled with a casting or T, in the lower part of which is formed a concalvalve seat, and with its lower arm is coupled a pipe leading to the rewer. The upper part of the T coupling is connected with the end of a larger pipe, which is secured to a stand. Within the large nips is placed a smaller pipe, around the lower end of which is formed a ring flange, noon which is placed a rubberring to form the valve. By this construction, the value is closed and water admitted into the basin, it will rise in the large pipe until it reaches the level of the upper end of the small pipe, when it will flow of through the same. When the pipe is raised, opening the valve, the water will flow off through the sewerpipes, having a wholly unobstructed passage, in which there is nothing for hairs or other rubbish to odge against and thus obstruct the outflow.

Improved Mechanism for Operating Punches, Shears, etc. Charles H. Reynolds, Williamsburg, N. Y., assignor to himself and Henry C. Richardson, of same place.-In this machine, when the free end of a lever is moved to the rearward, the arm of the lower jaw will be moved downward and the arm of the upper jaw will be moved upward, bringing the jaws together with immense power. An illustrated descripion of the apparatus will be found on page 102 of our current volume

Improved Children's Carriage.

Julius Sues, Louisville, Ky .- A child's carriage is supported on front wheels by curved sills or bars and strong lateral springs, firmly bolted to the body and also to the rear end of the bars, the front end carrying the axle of the front wheels. By placing the front part of the body on springs, not only an up and down motion, but also a rocking motion, of the carriage is obtained, and the elasticity of the same increased. The hind part of the body is supported by two additional curved springs, of swan-necked shape, which are interposed between the usual elliptic supporting springs and the body. The front end of the spring is firmly attached directly to the body of the carriage, or to an intermediate bracket-shaped casting. The rear part of the spring is attached to the back of the body, near the upper part thereof. The support of the body by the springs is thereby strengthened, and the constant upward jarring of the springs arrested.

Improved Sleigh.

John A. Seigfrid and Chester B. Borden. Seneca Falls, N. Y .- The knees and the hub are cast in a single piece, and the hub fits on the beam as an ordinary wagon wheel fits on an axle. Traces are attached permanently to the knees and to the under side of the beam, so that they may be readily detached from the beams. The hubs are made about the length of or-dinary wagon hubs, so that the wheels will fit on the beams in place of the runners. The beams then become axles. The change from runners to wheels and from wheels to runners is very readily made.

Improved Stop Valve.

Richard S. Gillespie, New York city.-This invention is an improvement upon doubleseated valves, some of which are provided with a headed pin or spreader and two disks by the introduction of rollers that may act on the principle of a toggle joint. When a valve is forced down, a pin strikes the bottom of the case and forces another pin up against the lower end of the valve stem. As the valve stem moves further down, both pips are forced inward against the outer rollers, which force the middle rollers outward, forcing the faces of the valve against the valve seats. The rollers thus operate as a double toggle joint, pressing outward in lines at right angles with the valve stem. In raising or opening the valve, the first movement of the valve stem removes the pressure of the pins from the rollers the pressure of the rollers from the parts of the valve, and the pressure of the valve faces from the valve seats, so that the valve can be raised without any friction between its facesand seats.

Improved Reading and Copying Stand.

Charles E. Wells, West Pawlet, Vt.-The book to be exposed on the rack is securely fastened thereto, after being placed on the projecting lugs at the lower end by carrying a top slide piece with top lugs down. The slide piecemoves in a central slot of the rack, and is also provided with pivoted armshaving a lateral piece at their end with sliding book fasteners. Similararms with upward extending fasteners are applied along the lower part of the rack. These rods are swung forward as required by the thickness of he book, and the fasteners then applied to hold the leaves till they are turned over. As the fasteners rest only lightly thereon, the turning and placing in position of the leaves will occasion no difficulty.

Improved Carriage Wrench.

Henry Cutler, Ashland, Mass.-The adjusting handle consists of two parts, one chambered out to receive an eccentric, which is thus turped. The eccentric is governed in position, as it is revolved, by a pivot, where it enters a hole in the stock head. The jaws are levers, and the eccentric operates on their upper ends, the fulcrums being the pins. A spring be tween the jaws keeps them spread spart ; but when the eccentric is turned, the outer ends of the jaws are forced toward each other to gripe and hold the aut. With this wrench a nut may be removed and replaced without touching it with the fingers.

Improved Method of Retouching Photographic Negatives. Claude L. Lambert. Paris, France.-A large negative, after having been properly exposed, developed, fixed, and finished, is covered on both sides with a sheet of thin paper or other semi-transparent material capable of retaining the coloring matter to be afterward employed. Wherever necessary, either on the collodion side or on the reverse side, an impalpable galvanoplastic powder, or other finely pulverized substance answering the same purpose, is applied with a stump. The effects of light and shade may thus be modified, toned, or hightened, and such a high degree of finish imparted as will render any subsequent retouching of the positive paper print unnecessary, the sharpness of the lines being restored by the aid of pencil. The negative, after thus being treated, is placed in the pressure framewith a sheet of ordinary sensitized paper, prepared either with salts of silver or of chromium, to obtain a perfect positive. Should the lines of the negative be too sharp or well defined, they maybe softened in the positive proof by first partially printing it in contact with the large negative. and then completing the impression after having interposed a shect of very thin glass between the negative and the paper.

Improved Seed Dropper.

Hermann Koeller, Camp Point, Ill .- To two cross bars are attached runners and seed hoppers, to the middle parts of which is secured a tongue. A slide receives a reciprocating movement to drop the seed from the revolutions of gear wheels, and may be adjusted to a longer or shorter stroke. To one small gear wheel is attached a wheel consisting of arms, the outer ends of which are notched to receive a chain, and to the lowersideof which is attached a ring to support the same. In using the machine, in coming to the end of the field, the driver slips a spring ring upon the link that dropped last to the ground, after dropping the last hill before turning, for a mark. He then counts the links that lie crosswise, and puts another spring ring in the link he wishes to begin to drop from, for a mark in starting. After turning around, the flanged chain wheel should be set so that the machine will begin to drop at the marked link. This will bring the hills in accurate check row.

Improved Combined Throttle and Governor Valve. Allan Talbott, Richmond, Va .- This invention relates to novel means to be used in connection with a governor for starting, stopping, or instantlychanging the speed of a steam engine without the employment of shifting belts or other mechanism.

Improved Bath Tub. Aso C. Brownell, Brooklyn, N. Y.—This tub frame is so constructed that the sheet metal lining cannot buckle by influence of shrinkage or swelling of the body of the tub.

Improved Combined Check and Martingale.

Louis Barron, Woodstock, Vt.-The object of this invention is to provide a combined check and maritngale, or in other words a check rein which, by an easy adjustment, is adapted to serve the purpose of a martin . gale. It consists of a strap split into two other smaller straps, the single strap fastening by means of a ring to the checkor water hook, and the two connected by a sliding loop on the face of the horse, and fastened to oppositesides of the bridle bit by means of detachable fastenings.

half hidden in the shrubbery in some by-path of the Ramble.

ROPE CORDAGE.-Recently a very interesting experiment was made at Kirkaldy's Testing Works, Southwark street, London, as to the relative strength of handspun varn rope, machine yarn rope, and Russian yarn rope. Mr. Plimsoll, M. P., Captain Bedford Pim, M. P., and others attend ed the test, which lasted over three hours. There were nine pieces of rope, each 10 feet long, being three of each of the above classes. The ultimate stress or breaking strain of the Russian rope was 11,099 lbs. or 1,934 lbs. strength per fathom; machine rope, 11, 527 lbs. or 2, 155 lbs. per fathom; handspun rope,18,279 lbs. or 3,026 lbs. per fathom. The ropes were all of 5 inches circumference, and every piece broke clear of the fastenings. The prices paid per cwt. were: Russian rope, \$11.75; machine yarn rope, \$11.75; handspun yarn rope, \$11.00 all described as best cordage and London manufacture. It will thus be seen that the handmade was cheaper by 75 cents per cwt., and broke at the testing strength of 7,180 lbs. over Russian, and 6,752 lbs. over machine made rope.

Improved Signal Light.

James C. McMullin, Chicago, Ill .- The object of this invention is to furnish a signal lamp for railroad trains and other purposes, which indicate by the successive appearance of the light thrown through lenses of differ ent colors or sizes from one burner, the distance of the light to be determined by the gradual appearance and relative position of the lights. The invention consists of a signal lamp which is provided with one or more tubular arms, with reflectors and lenses of different colors at their ends spread at suitable distance, and lighted by one common burner. A signal lamp is provided with one or more tubulararms. At the distance of one , or more feet, are a reflector and lens. The reflector is preferably two placed under an angle of forty-five degrees to the axis of the arms, so that the whole body of light is thrown forward through the lens as the rays are reflected under the angle of incidence of the light. Lenses of different colors or sizes may be employed, and thereby the distance of the train de termined by the successive appearance and position of the lenses. It has been found by practical tests that in a signal lamp having red and white eight inch lenses placed at a distance of thirty-four inches from each other. nothing but the red light is shown at a distance of one and one fourth miles. At a distance of one mile, red is shown with a rim or fringe of white at that side where the white lens is situated. At three quarters of a mile, red and white are both shown distinctly and separately; and at a distance of half a mile a considerable space appears between them. Any number of lenses can be illuminated at the same burner if placed at the ends of the connecting arms.

Improved Wheel.

Lewis H. Rogers, South Avon, N. Y .- The objectof this invention is to provide a wheel for vehicles of such an elastic construction as shall facilitate the easy movement of vehicles, and which shall at once be strong, light, and durable. It consists of a metallic hub having twosets of screw threaded stems projecting radially from the same, to which are fastened small plates held to said stems by a nut and washer, there being between the said washer and plate au elastic pad. Said plates are attached on each side of the stems to metallic spring spokes, and said spokes securely fastened to clips that are riveted to a metallic felly. Said felly is preferably made with a concave periphery, and between the felly and the tyre is placed a rim of rubber or other elastic substance.

Improved Portable Fence.

William C. Kay, Como, Miss.-This invention relates to that class of wooden fences which are portable. It consists of but two essentially different parts, the rails and the improved connection for the same, which latter consists of two symmetrically formed sections, made of inclined stakes, to which are attached strips of stuff varying in length from about three feet at the bottom to one foot at the top. Said stakes cross each other at about eighteen inches from the top, and are braced by a rail resting in the fork formed thereby. Said strips are securely fastened at one end to the stake; and as they incline toward the earth the strips of one stake cross those of the other, forming locks thereby into which the rails are placed.