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### Flax Industry .... No. 3.

All vegetable fibrous materials are divided into three great classes. Cortical fibers of which flax and hemp are the type, derived from the bark of the stems of their respective plants : Foliaceous fibers, of which the "Sisal" and "Manilla Hemp," are the types, as well as the "New Zealand Flax," are obtained from the leaves and not the stalks of the stems of their several plants; hence the generic term foliaceous fiber2. And thirdly, as cotton is obtained from a pod or capsule, the generic term Capsular fibers embraces the different varieties of cotton, and all fibers produced in like manner.

All flowering plants are divided by botanists in two great classes, called Monocotylsdons and Dicotyledons, from the peculiar character of their seeds; or Endogens and Exogens from the peculiar character of their stems. The stems of all Endogenous plants are properly stalks, and receive their growth by increments of matter deposited from within. The stems of all Exogenous plants are properly trunks conical and branched; and such trunks increase by the deposition of woody matter on the outer surface. A section of a stalk exhibits a homogenous surface of porous materials, softest at the center, hardest at the circumference and without bark. If there is any appearance of a proper bark it is caused by the united bases of the adherent leaves, as will be seen in the palm and palmetto. A section of a trunk exhibits concentric circles of bark and wood, hardest at the center and softest at the circumference, and with medulary rays from the central pith to the young external wood. Hence plants of the first class may be at once known by the absence of bark from their stalks; and plants of the second class are always recognized by the presence of bark on their trunks.

All foliaceous fibers are derived from the leaves of Endogenous plants. All cortical fibers are the product of the bark of Exogenous plants.

In Endogenous plants the leaves have nearly parallel veins, and are generally adherents to the stalk. As examples we have the Indian corn, Spanish Bayonet or Yucca, Lily, Common Flax, Falmetto, Agave, Pine Apple, &c., &c.

In Exogenous plants the leaves have mostly branching and reticulating veins, always articulated with the stem, and hence spontaneously falling. As examples we have our ordinary forest trees, and the hemp and flax plants.

The Endogenous plants differ in their geographical distribution from the Exogenous plants, as well as in their botanical structure and mode of growth. In the Equinoctial regions, the Endogenous plants form about seventeen per cent. of all flowering plants. In the variable zone, between 36° and 52°, about twenty-five per cent.; and towards the polar circles, about thirty-three per cent. The most important substances which they produce are, farinaceous and saccharine materials and foliaceous fibers. The smaller grasses which yield wheat, barley, millet, &c., in terminal heads of grain; the large grass which yields maize in lateral ears of corn, and the still larger grass which yields sugar in the juice of its stalk or cane, are all well known to the world, but those Endogenous plants, whose green living leaves yield valuable foliaceous fibers, are comparatively little known, even to the scientific world.

of those unsuccessful but remarkable men, theory, published by you in the No. for the 3rd developing in the United States that which earth, suitable for the growth of cucumbers.amount of pressure to be allowed on boilers tural and commercial wealth to the whole coun- of explosions in the main are the same as those try. We allude to the late Henry Perrine. of your engineering correspondent, and so must amount of pressure allowed." The Local In. This gentleman was formerly the United any practical man's. Upon that basis I wish spectors have generally adopted 160 pounds as States Consul at Campeachy, and during a long to demonstrate the cause of the explosion rethe maximum working pressure on boilers hereresidence in that country and in Mexico, be. ferred to, and all similar negligences. When tofore built; it is in this the evil lies, and not came impressed with the immense value of water is below the flues or tubes as the case in the pump, or the incompetency of the Inthe products yielded almost spontaneously by may be, and the engine stationary, the pressure spectors, as producing these deplorable accithe various species of fibrous endogenous of steam keeps the water solid and below the dents. But the Inspectors could not well do plants. In 1838 he presented a memorial to flues, but upon the instant action of the engine, otherwise than to allow this amount of steam, Congress, showing that the Agave Sisalana the pressure is released, and the water flows say 160 lbs., for nearly all our Western boats the Bromelia Pita, the plants yielding the so- over the exposed surfaces of the flues, and the called "Sisal Hemp," the Musa textalis and awful results of an explosion follow, so that some as high as 200 lbs., for upon such calcu- water in the keg.

abaca, yielding the "Manilla Hemp," and the you perceive explosions can and do take place lations of pressure were the boilers and cylin plants of the pineapple-fiber yielding the "grass cloth fiber," with others of a similar character, were all susceptible of introduction, acclimation, ern country. He further showed that the &c. lands best adapted to these plants, were those which were regarded as exhausted and sterile, and that after the labor of introduction, but comparatively little care or attention was required for their successful cultivation.

This memorial was accompanied with a petition, asking for a grant of a township of land in the southern extremity of East Florida, south of the twenty-sixth degree of north latitude, upon which a nursery of the fiber yielding endogenous plants might be established.

The Committee on Agriculture, to whom the petition was referred, were favorably impressed, and reported a bill granting the request of the petitioner, on the condition that the land so granted should be occupied and successfully cultivated for the desired purposes within a certain limited period. The bill was accompanied by reports both from the Senate and House, which embraced a large amount of information on the whole subject, and which is in fact, even up to the present time, almost the paring the results of practice, as seen and obonly American publications to which any refer. ence for information can be made.

The township of land having been obtained, Dr. Perrine earnestly devoted himself to the prosecution of the work. The various plants not otherwise be obtained; all of which are were imported at great expense from Central highly important and essential to the adop-America and the West India Islands, and soon the nursery or plantation was in a forward and flattering condition. Dr. Perrine did not, however, confine himself to the introduction of the fiber-vielding plants alone, but introduced in addition the pimento, the cochineal cactus, the cassave, the ginger, the banana, the sarsaparilla, and various other well-known tropical and semi-tropical vegetables and plants. His idea and purpose seems to have been that, gradually these exotics would become acclimated, and become extended throughout the whole south, in the same manner that the cotton plant, sugar cane, and indigo had been in years previous.

Unfortunately, however, at the very time when the noble undertaking seemed to give the greatestpromiseof success, the Florida war broke out, and the plantation, situated in the heart ders, viz.: "It was proved that the 'Kearof the then Indian country, was necessarily deserted. Dr. Perrine was forced to fly for his life, and abandon everything. Returning subsequently to watch the progress of his plants, he was surprised by the Indiansand massacred, and from that time the undertaking was aban doned. Many of the plants, especially the Agave Sisalana have remained, become acclimated, and spread over a considerable extent of country. Specimens found in the vicinity have been brought to the north within a recent period, which furnished an uninterrupted and continuous length of fiber, superior in every | iliary to prevent explosions; and requires an respect to the best manilla hemp, of upwards of ten feet. There can moreover be no doubt that this enterprise might still be successful, and had it not been for his untimely death, would have probably been carried out by its originator.

With these brief remarks we shall now leave for the present the subject of the Endogenous fibers, and in our next return to the considera-

thing for an engineer to put on his water until and cultivation in various portions of our south- he has got under weigh, attended to his fires,

ONE OF THE FRATERNITY. Washington, April 23rd, 1854. ----

## (For the Scientific American.)

Explosion of Boilers-Inspectors, &c. Being a constant reader of the "Scientific American," I have been much instructed, and often amused, by the remarks you have made. and the ideas put forth by your correspondents, particularly in relation to the late steamboat law, passed August 30th, 1852.

In No. 30, April 8, you have a well-considered Editorial on "steamboat disasters," in which you attribute a large share of those late accidents in the West, to the Inspectors, and "call upon the Government to appoint a commission to investigate their conduct," to which I say yes, let the commission be issued at once, as due to the relatives and friends of the lost and wounded: to the community at a commission must result in good, by comserved by our practical Engineers and Mechanics, with the rules and data laid down by Theorists-as determined by experiments and this collection of valuable information that cantion of laws, rules and regulations, to guide the Mechanic and Engineer having in charge so dangerous an element as steam has proven itself to be. As one of the Inspectors at this place, I feel called upon to unite with you in your call for a commission of investigation. and doubt not but all other Inspectors have no objection to it.

In your last number, April 15, you again allude to the subject, and quote largely from an article in the St. Louis "Intelligencer," which is based on the testimony taken before Commissioner B. F. Hickman, in the investigation into the causes which led to the explosion of the steamer "Kate Kearney." There is only one point in the report alluded to that I wish to call your attention to and that of your reaney' boilers bore, some months ago, a pressure by this test (Hydrostatic), of 190 pounds to the inch, 100 being her working limit by law."-This is a mistake certainly, so far as the limit of pressure to 110 pounds is concerned, for Mr. McCord, the Inspector, states that she was allowed 155 pounds, based upon the test of 190. Now the article from the "Intelligencer," and upon which you base some reflections as to the value of the hydraulic pump, places the Inspectors in a wrong position, and thus gives an opportunity to condemn the pump, as an auxexplanation as to the authority in this late law for the Inspectors to depart from 110 pounds per inch, as the maximum working pressure allowed, on a 42 inch diam. boiler and made of iron 1 inch thick. The law referred to, 3rd clause, section 9, says that the maximum working pressure allowed on all boilers hereafter built, shall be 110 pounds to the inch, based up-

without any action upon the part of either the ders proportioned, at the time this law went inforce pump or the "doctor," for it is not a general to operation. Hence the Inspectors were compelled to depart from the 110 lbs. rule, in order to avoid the loss and total destruction of very many valuable boats, and in doing so, fixed a limit beyond which the engineers should not go, and often below what had been previously carried. The hydraulic pump has detected defects in boilers and flues in several instances. In one case at St. Louis, the shell of the boiler gave way at a pressure of 190 lbs.; in another at Cincinnati, the flue of a boiler 13<sup>1</sup>/<sub>2</sub> inches diameter, 3-16 inch thick, collapsed at a pressure of 170 lbs. Who can say, but in these two cases the terrible consequences resulting from these disasters have not been averted? Because explosions of boilers and collapses of fiues have taken place where the test has been applied, this is no argument against the hydraulic pump-imperfect as it is; for it is very easy to destroy the tenacity of the iron in the shell of the boiler, and the circle of flues of boilers, in one trip of the boat, after the test has been applied, in which, if it were possible large, and to the Inspectors themselves. Such for the Inspectors to be informed of such a state of things, and which has no doubt often occurred, the Hydrostatic pump would certainly detect it, particularly the defect in the flue.

> But I am glad you have called attention to this pump, and drawn the attention of our engineers to the distinction between pressure slowly and gradually increased, and the sudden generation of it, —applied either to steam pressure or hydraulics. The pump is deficient in this respect; still it has the power, if our boilers and joints could only be made tight; as it is, the leak, is in most instances equal to the capacity of the pump. These remarks have been extended beyond what I anticipated at the beginning; but the subject is interesting, and there are so many points involved in any discussion, relating to explosions, that it is impossible to do justice to any particular requirement of this law without connecting others .-Thus it is, that in your remarks about the pump, you allude to a sudden power, in the generation of steam from "static to dynamic pressure," as a cause of explosions, which involves some other requirements of this law, such as the fusible alloy and the capacity of the engineer. That this sudden decrease of steam pressure takes place, and is produced by the opening of a valve, has been practical demonstrated; and that it is the last act in the drama preceding the explosion, is equally clear; the amount of power depends upon the amount of water thus suddenly converted into steam, and the space in which it is confined. The question now arises, how far does this sudden increase of power affect the temperature of the boiler and its contents, water and steam, and can the fusible alloy be so compounded, and used, as to meet this immediate difficulty, depending as it does upon temperature for its action—so as to prevent an explosion? Upon these points, we of the West would like to have your opinions, with a view to a better understanding of the causes of explosions, and to further legislation. Yours, W. W. GUTHRIE. Cincinnati, April 23.

## Growing Cucumbers.

tion of the Linum Usitatissimum. The following from an exchange we have on a hydrostatic test of 165 lbs.-or 50 per cent above the working pressure, and thus provides tried and proved :- Take a large barrel, or Cause of Explosions. In the "Scientific American" of the 8th "that with boilers heretofore made, the Inhogshead; saw it in two in the middle, and It may not be improper in this connection to April, there is an account of the explosion of the spectors may depart from these rules, etc., but bury each half in the ground even with the pay a tribute of respect to the memory of one steamer "Reindeer" at the first turn of her in no case shall the working pressure allowed, top. Then take a small keg and bore a small wheels, &c., there is also in the "Scientific exceed the hydrostatic test." The Board of hole in the bottom; place the keg in the cenwhose fortune and the best portion of his life American," of the 24th of September last the Supervising Inspectors, at their meeting, gave ter of the barrel, the top even with the ground, were devoted to the enterprise of securing and criticism of an engineer upon Lieut. Hunt's no construction to this "proviso," as to the and fill in the barrel around the keg with rich must ultimately be productive of great agricul. of September previous. My idea of the cause heretofore made, but instructed the Inspectors Plant your seed midway between the edges of "to put the test at least 15 per cent above the the barrel and the keg, and make a kind of arbor a foot or two high for the vines to run on. When the ground becomes dry, pour water in the keg in the evening-it will pass out at the bottom of the keg into the barrel and rise up to the roots of the vines, and keep them moist and green. Cucumbers cultivated in this way will grow to a great size, as they are made independent both of drought and wet weather. In wet weather the barrel can be covered, and in were in the habit of carrying that pressure, and dry the ground can be kept moist by pouring

## Scientific American.

# Scientific American.



Reported Officially for the Scientific American.]

### LIST OF PATENT CLAIMS Issued from the United States Patent Office

FOR THE WEEK ENDING APRIL 25, 1854.

FOR THE WARE ENDING AFRIL 20, 1004. REVOLVING FIRE ARXS-JOSIAh Ells, of Pittsburg, Pa.: I claim the extension, on the fore part of the rotating chambered breech for a prevention of the fouling of the spindle by the smoke in fring, and also as a means of connecting and locking the bareel with the barrel, as set forth. The connecting and locking the barrel and breech to the lock by means of a bracket and spring extending in front of the lock blate, as described.

The connecting and the bracket and spring the lock by means of a bracket and spring the lock blate, as described. I disclaim originality in the combining of a rotating chambered breech with a barrel and lock only in the particular manner set forth Neither do I use what is coiled, the recoiled shield as such, the collar upon the extension, substantially, or preventing the actual reextension, substantially, or preventing the actual re-coil of the breech. I also disclaim originality in the use of the vibrating tooth and the spring in the hammer.

DISTILLING AND CONDENSING APPARATUS-J. R. Stafford of Brooklyn, N. Y.: I claim the employment, for the or Brooklyn, N. Y.: I claim the employment, for the purpose of separating the more and less volatile pro-ducts of distillation, of a vessel which has an opening for the escape or withdrawal of condensed matters and another opening, for the escape of the more volatile matters, and which has its temperature regulated by the admission of steam or air through a pipe passing it, as set forth.

[We think this is a very excellent improvement for the purpose named.]

the purpose named.] VINOUS FERMENTING IN CLOSE VESSEL-A. Harvey & C. wild, of Chichmati, Ohio: Weelsin, first, the appli-cation of pumpsor of exhausters and blowers or other equivalent apparatus, to draw the gas from one fermen-ting vat, and forcei tinto the fermenting liquid in ano-the ror the same vat, as described. Secondly, the arrangement of apparatus whereby a return current is created, and, the circulation of the gases caused, that is tosay, the return pipe and pump or mechanism equivalent, as set forth. Thirdly, the check valves, the disseminating pipes for the purpose of preventing any contrary passage of the liquid from vat to vat, from that which is intended, in pombination with the turn-off cocks for the purpose of ture using a portion of the vats and shortening the cir-cuit when desired, and the whole in combination with the pumps or valved pistons, for the accentation with the pumps or valved pistons, for the accentation with the pumps or valved pistons, for the accentation with the pumps or valved pistons, for the acceltration of the circuit when desired, and by this means equalizing its action and removing the danger of bursting the vats. Fourth, the pipe having two discharge nozzles at aif. for enthights of the liquid of the condensing vat and cocks in the upper nozzle, in order to regulate the amount of vent or discharge.

amount of vent or discharge. Dironing PLOW-J. C. Tiffany, of Caxackie, N. Y. : I claim, first, one or more adjustable coulters or cutters, in combination with a permanent coulter, with one or more adjustable elevators, with a mold board or mold boards attached, as described. I do not claim any of the parts or cevices enumera-ted, separately or alone, but in combination and in com-bination only. Second, I claim the flexible adjustable spreadier for moving the earth from Gr returning it to the ditch as required, as described. Third, I claim the flexible adjustable spreader in combination with the plow, as set forth. Fourth, I claim the devices, substantially as descri-bed, or their equivelants, for changing the position of

bed, or their equivalents, for changing the position of the rear end of the beam, in combination with the an gular slot, and curved Dlate, as described.

Class-Ison Oak out you plate, as utsorIbed. OAST-Ison OAR WHERES-Geo. W. Glass, of Allegha-ny, PA.; What I claim is not the corrugating the disk of cast-iron car wheels to render them susceptible of contraction and expansion. Nor yet do I claim the ma-king of car wheels with a space between the inner and outer disks or sides, as both these devices are well known. Nor do I claim the use of core holes in casting of the construction of card in a start of the start of the start of the construction of card in a start of the start of th

Thow, Nor do I think the use of cote holes in casting car wheels. The constructing of cast-iron car wheels of the shape and conformation described, being wheels with two disks united at the rim and tread, and at the hub, by a semicircular or semi-celliptical arch, the greatest exter-nal curvature of the inner disk being immediately un-der the flange and below the point of contact of the flange and tread, for the better supporting the flange and tread in combination with the braces of the con-struction and shapes shown.

TRAVMLING BRIDGES-Frederick Field, of Adrian, Mich. I do not claim a retractile draw bridge, nor any of the appliances by which such bridges are moved. 1 wish to distinguish my bridge from all others, and claim it as such, that it acts as a carriage as well as bridge, receiv-ing itsload upon it while resting on the abutments or one side of the span or spans to be crossed, carries the load over, and rests upon the other slide to receive its return load, and so back and forth, leaving the spa-ces between the piers open for vessels &c.

RAILROAD CAR SEATS.-WM. E. Milligan, ef New York City: I do not claim the device of making reversible seats in which the back turns down to form the seat, and vice versa, such having been used before, but I claim supporting the angle of the seat and back upon ways or in any equivalent manner, whereby it is trans-ferred from one side of the chair frame to the other in making the reversal, as described.

OILERS FOR MACHINERY.—De Wilt C. Smiley, of New York City: I do not claim caus having flexible bottoms; Sand and Tar. heat of 160° assisted by contact with zinc. fance form, fitting within or under projecting lips to the dovetail recesses in the stones, to draw and clamp the dovetail recesses in the stones, to draw and clamp the two courses together, the said dovetails fitting within the one stone of the one course and the two stones of another course, and being driven home by the interve-ning key to make tight the vertical and horizontal joints in the two courses and to clamp the two courses togeth-er firmly and permanently, as specified. the can, having a flexible bottom, when said interior chamber has its bottom extended to fill the interior diameter of the can, and form a diaphragm dividing the can into an upper and lower chamber, said diaphragm provided with two valves, one opening upward and the Experiments have proved that porous sand SOLDERING WROUGHT AND CAST-IRON-Fiand other stones, when steeped for about 8 lings of soft cast-iron are melted with calcined hours in hot coal tar, (160 Reaumur,) acquire a borax, the mass pulverized and sprinkled on her downward, arranged and operating in the manne greater degree of hardness and become imperlescribed. the parts to be united. They are then sepameable to water. Bricks require only 4 hours, [See notice of this invention on page 236 volume 8.] RAIL ROAD CAR SEATS .- W. B. Thomas, and Sa Hickock, of Buffalo, N. Y.: We claim the combinati rately heated and welded together on an anvil Iscendrate or this invention on page 250 volume S.] FILE OR BILL HOLDER-T. W. Brøwn, of Boston, Mass. I an aware that spring bands have been applied to the two boards of a bill or file holder, so as to draw them to-wards encanother, and upon papers interposed between them, and to admit of their being moved apart from one another, such band having generally been made in whole or in part of india rubber, I therefore do not claim the application of spring bands to the boards. But I claim the arrangement or application of the cir-cular grooved annulus, a spiral spring, and the cords together and with respect to the two boards, so as to operate as specified. and the coal-tar a temperature of 90 degrees Hickock, of Buffalo, N. Y.: We claim the combination o railroad car seats with hinged or pointed legs, construct ed and operated as described, by gentle blows.-[Journ. Fr. Inst. Reaumur to become as hard as rock. The lat-STRING ETE BATH. Simeon Fowle, of Pembroke, N. Y., disclaim the invention of bale, or of a cap, and of elas-ic cups for cmpping. I claim the combination of the ruined cap, connected ubularly with the bell, and arranged and operating as lescribed, to be used for purposes named. WELDING POWDER-to melted borax, 1-10 ter would answer best for sidewalks. salammoniac is added, the mixture poured on An Artificial Man. an iron plate, and an equal weight of quicklime The "Memorial Bordelais" states, that not ground up with it. Iron or steel to be welded REACTION WATER WHEEL.-Isaac True, of Roche Ind.: I claim the employment of the booked sur farfromSt. Sever, France, there is living an old is first heated to redness, the mixture laid on Ind.: I claim the employment of the hooked surfaces and the curved projecting surfaces, in ombination with the indentedring, substantially in the manner specified, in the construction of percussion and reaction water wheels, whereby the effective force of the percussion is greatly increased, as set forth. FIRE ABMS-Charles Buss, of Marlboro', N. H.: I claim making the trigger guard so that it shall not only per-form the function of a guard to the trigger, but that of a spring to press the straddler or index holder against the catch wheel, as specified. military man, who has a false leg and a false the welding surfaces, and the metal again heatarm, both movable by means of springs, a ed, but far below the usual welding heat .glass eye, a complete set of false teeth, a nose The pieces unite firmly by hammering. INVALD BEDSTEAD.-C. D. Van Allen, of New York City. I claim the a rangement and combination of the eleva-ting and depressing bed. with the stationary suspension mattrees, whereby the bed is raised to and lowered from the patient, when necessary, instead of moving the patof silver, covered with a substance perfectly BOTART PUMP-Reuben Burdine, of Washington City, n. C.: I claim the combination of the screw or screws upon the rotary shaft, with the radial curved wings or drivers (although I do not confine myself to the curved Were the earth reduced to a plenum it would resembling flesh, and a silver plate replacing 1 be no larger than an ounce weight. part of the skull. 

form as straight ones may be used) the whole contain-ed within a case or drum for receiving and directing the water intended to be elevated, as set forth.

MACHINERY FOR LAYING ROPE-S. & J. A. Bazin, of Can-ter, Mass: We claim adapting the machinery ror forming both hard and soft cordage by means of the ring, so ac-tuated by the circular plate, and its rollers made to re-volve or held stationary, as set forth, so as to form an ever a twist in the rope when desirable, by giving an additional revolution to the bobbin frames, as descri-bed.

addition a revolution to the boost in the movable crane We also claim an improvement in the movable crane which consists in forming it of a bent shape with the right angular hinged arm operating as described, so as to feed the rope in a direction parallel with the axis of the winding reel. We also claim stretching the rope after it is laid, by means of the double pulley, with grooves of different diameter, as set forth.

HAMELET, AS SET 1071.
FEEDING SHEETS OF PAPER TO PRINTING PRESSES—Hen-ry Clarke, of New Orleans, La.: I do not confine myself to the precise mechanical device, as described, for that may be modified or varied.
But I ciaim loosening or detaching the top sheet of a layer of papers from those underneath it, by giving a part of said sheet a backward and forward motion, as shown, previously to its being operated upon by the pressure rollers or other device for conveying it to the printing pressor other machine, to which the sheet of paper is led, for the purpose of ensuring the feed of only a single sheet of paper at a time, as set forth.
[This is a yary incoming approximation of the purpose

[This is a very ingenious apparatus for the purpose and is noticed on page 148 of this Vol.]

FOLDING CHAIR BEDSTRAD-Geo. H. Cottam, of Hamp-ton Koad, Eng. Patented in England Oct. 5, 1852. I makeno claim to the parts separately; nor do I confine myself to the details given, provided the peculiar cha-racter of my invention be retained. I claim the mode described, of constructing folding sofa or bedstead chairs, viz., of a combination of three remeasend iointed arms as applied and made to one

rames and jointed arms, as applied and made to oper-ate together, as specified.

ate together, as specined. WEDGE MACHINE-G. C. Jones, of Alnar, and Peter King of Whitefield, Me.: We claim the peculiar form of the chisel having two or more projecting chisels at right angles to the face of the main chisel, and an appendage for mushing back the spring, as described. Second, the application of the spring, and its projec-tion, for the support of the wedge while being shaved, as described. Third, the peculiar form and arrangement of the grooves for holding the blocks to be shaved and giving shape to the wedges while being shaved, as described.

OPBRATING THE FEED TABLES OF PRINTING PRESSES-George Little, of Utica, N. Y.: I claim the mode descri bed, of operating there is tables of printing presses, to gether with the guides composed of india rubber, or oth er suitable realisting material.

ersmitable reasting inaternal. APPARATOS FOR FEEDING PAPER TO PRINTING PRESENS. Wm. Kuhlenshmidt & Wm. Hauff, of New York City: We claim, first, the employment of a semi ircular roller, so constructed, arranged, and operated that it will, in its backward movement from the paper cylinder, loosen or detach the top sheet of a layer of paper from those un-derneath it, and then take hold of he back end of said sheet, and in its forward or return movement toward the paper cylinder, raise the said back end of the sheet, and gradually separate the whole surface of the same from contact with the one under it, and then feed it to fingers of the paper cylinder, as described. Scoond, we claim taking up the sheet by its back end instead of by its front end, for the purpose set forth.

FIELD FENCE-D. R. Prindle, of East Bethany, N. Y.: Iclaim the method described, or its equivalent of fast, ening together the adacent posts or standards of a field fence, that is, by passing a piece of metal having a head on one end through two adjacent posts, and se-curing the same by a wedge or its equivalent at the oth-erend, the standards or posts being so heveled as to cause any desired angle to bemade by an y two adjacent panela.

GLASS FUENACES-Frederick Schaum, of Baltimore, Md.: I claim in glass furnaces making the external and internal configuration of the breast-work of the furnace wall with the re entering positions so as to partly em-brace the pois and to furnish room for additional or extra teaze or ring holes, as described.

BRICK MAKING-J. C. Fr.Salomon, of Washington, D. C.: I claim the combination of the Swing crane, mold-box and plat n. for pressing brick, arranged and opera-ting together, as set forth,

FORIMING AND HARDENING HAT BODIES-Albert Spen-cer, of New York City, and August Loeschner, of Brook-jyn, N.Y.: We claim the use and arrangement of the series of blow pipes, as set forth, when used in combina-tion with the two or more fan brushes and feeding appa-ratus, as set forth.

FORMING ROOFS-V, Sterling, of Bridgeport, Conn. : I do not claim the application of cements for roofs or plastering the same on boards or timber, the contrac-tion and expansion of which causes the cement to crack. Netther do I claim the plastering of cement too labh. But I claim the use of reticulated wire imbedded in cement, where cloth is used as a foundation, for thepur-pose set forth.

BULLET MOLDS- Wm. M. Storm, of New York City: I claim, Sirst, a hand bullet mold, so constructed that it may be forced open against the adhesion of the lead, so as to deliver its ball by the pressing together of its han-dles by the strong grasp of a single hand, whereby are attached the important ends described Second, in combination with a mold constructed as descibed. I claim the sheaves which are operated by the strong grasp of a single hand on the handles, or their equivalents, whereby the ball is deprived of its sprue and released from its matrix by the cloing or compressing together of the handles.

tient thus avoiding the necessity of moving or disturb ing the patient, as set forth.

GUARD FINGERS FOR HARRESTERS.-W. F. Ketchum. (Assignor to Rufus S. Howard) of Buffalo N. Y.: I claim modifing and casting the blank for the tootn in the open form described, (without a chill) then mallify-ing dressing up and bending them into the proper shape as required.

DESIGNS, DOOR AND PANEL OF COOKING STOVES.-M. C. Burleigh, o Great Falls, N. Y.

FRONTS OF CLOCK CASES,-William B. Lorton, of New York City. AIR TIGHT STOVES,-Garrettson Smith and Henry Brown, of Philadelphia, Pa.

STOVE PLATES.-John Burgess, of Troy, N. Y.: as ignor to Geer & Co., of same place.

RE-ISSUE.

FIRE AND BURGLAR PROOF SAFES.--F. C. Goffin, of New York Oity, (Assignor to A. B. Ely, of Boston, Mass.) Originally dated 14th Feby. 1854. I do not claim forming safesor doors with double casings. What I claim is the use of glass or slag in a vitrified state in the filling of safes or vault doors, either poured moulten into the spaces, or inserted in plates substantially, as described.

[One of the applications in the above list was made ne year ago. Inventors' rights are grossly outraged by such delays, and we hope to have recorded in this list the last case of the kind. Judge Mason should see to it that cases are not suffered to linger so long in the office. the last case of the kind.

#### Scientific Memoranda.

CLEANING METAL CASTINGS-To cleanse metal castings, they are usually thrown into water acidulated by sulphuric or muriatic acid; but as some metal is removed and the surface left rough, the process is objectionable. Thomas and Delisse found by their experiments that if several organic substances were added to the acid water, the scale of dirt and oxyd was removed, but the surface of the material unattacked. Elsner found that tar added to the acid water completely cleansed an iron casting, while another piece of casting in the usual acid water was nearly dissolved.

ENAMELED IRON-After cleaning the surface to be enameled, the enamel is laid on as a paste and burned in under a muffle. F. Walton (Lond. Journ. Arts, 1847) uses three successive layers, which are as often heated in the muffle. The first coat is made by fritting 6 pts. pounded flint-glass, 3 pts. borax, 1 pt. red lead, and 1 pt. oxyd of tin. One part of this frit, mixed with 2 pts. calcined and ground bones, is ground fine with water, spread over the metallic surface as a thick paste, dried, and then heated to redness in the muffle. The second coat is made of 32 pts. calcined and ground bones, 16 pts. kaolin, 14 pts. Cornish granite, and 8 pts. potash in solution: the paste thus made is fritted for 2-3 hours in a furnace and then powdered. Of this frit 53pts. are mixed with 16 pts. coarsely-powdered flint-glass, 51 pts. calcined and ground bones, and 3 pts. ignited and ground flints. The mixture is then ground with water, spread over the first coat and burned in. The third and last coat (which is similarly treated) consists of 12 pts. powdered feldspar, 41 pts. kaolin, 18 pts. borax, 3 pts. saltpeter, 12 pt. potash, and 12 pt. exyd of tin.

SOLDERING SALT-(Chloride of zinc and ammonium).-Vessels may be tinned with this salt without previously cleansing their surfaces. It is made by dissolving 1 lb. zinc in muriatic acid, adding 22 pts. salammoniac to the solution, and evaporating to dryness; the yield is 24lb. of the double salt. To use it, the salt, moistened with water is brushed on the surface to be tinned, a little solder laid on it here and there. and the surface heated until the solder fuses when it flows wherever the salt was put, and unites with the metallic surface.

Compressing together of the handles. MACHINE FOR CUTTING AND SKIVING BOOT COUNTERS-Varanes Shell, of North Bridgeport, Mass.: I claim ar-ranging the knife at a proper angle in a traversing inife carriage which has a reciprocating motion in the arc of a circle for rounding the counter and chamfering its edges substantially as described. I also claim holding the clamp upon the leather while the counter is being cut, and releasing it from the same after the operation is finished, by means of the traversing pawl, acting in combination with the lever, and notched plates, as set forth. I also claim a machine for cutting and skiving boot and shoe counters which has a clamp for holding the coperation is performed, and a traversing knife which moves in the arc of a circle, and rounds and skives the counter at the same time, as set forth. making the reversal, as described. SECURING STORES IN FOWNDATIONS-J. P. Avery, of Sto-nington, Ct.: I do not claim the use of dowel joggies of double dovetail form for uniting stone together, as such have before been used; nor yet do I claim making tight the vertisal joints and binding the two courses together by a dowel or key driven through the stone in the top course and into or between the stones in the under course, as such has before been done by wedges letinto the ends of the dowel, and serving to spread it to make tight the joints in and between the courses. But I claim the combination and arrangement speci-fied, of the dovetails, and tightening key, or its equiva-lent, when the said dovetails are constructed of taper flange form, fitting within or under projecting lips to the dovetail recesses in the stones, to draw and clamp the TINNING-According to Becquerel, wellducing a more perfect and uniform distribution cleansed vessels of iron and copper may be of the positive metals, and consequently a tinned by dipping them into a solution of the much more definite alloy.-[Comptes Rendus. double salt of chloride of tin and sodium, at a

### Scientific Association.

The American Association for the Advancement of Science met in Washington, at the Smithsonian Institution, on the 26th inst. Prof. Dana, of Yale College, was introduced as the new President, by ex-President Pierce, and delivered a short and very appropriate address .-He said :---

"Gentlemen of the Association :- In taking this place with which you have honored me, permit me to allude briefly to one or two of the objects which have brought us together.

One great end, as proclaimed in the name of the Association, is the 'advancement of science,' which implies that we are not to delay sluggishly or ignorantly over old facts, but earnestly to gather in the new, that our 'facts' be not ephemeral, which the next passer-by will dissipate, but sure eternal facts, as enduring as adamant, that shall give solidity, increasing extent, and beauty, to the edifice of truth. Such facts are best welcome when least adorned, and disencumbered as nearly as may be of the rubbish of words. They reach their ultimate end when a clear insight into principles enables the philosopher to point out their exact place in the sublime system of nature, thereby to exalt our knowledge of its Divine author.

But there is another prominent object in view in this annual meeting. It is the cultivation of good feeling, kindly sentiments and sympathy among the lovers of science in the land; that with one aim before us-truth, and not self-as the end of every investigation, we may go forward harmoniously, rejoicing in each other's success, and glad for the new light we may each receive. This end alone accomplished, the meeting will have been abundantly profitable. But with success in both objects, we shall have occasion to remember long this gathering in Washington in 1854; and may such be the result."

We will give abstracts of the useful papers read before the Association in future numbers.

### Composition of the Sheathing of Ships.

M. Bobierre has paid considerable attention to this subject, and has arrived at the following conclusions as to the cause of the rapid destruction of some copper and bronze sheathing : -1. When unalloyed copper is employed, the presence of arsenic appears to hasten its destruction.-2. All bronzes which appear to have stood well, contained from 41 to 51 per cent. of tin, that quantity being necessary to form an homogenous alloy. When the percentage of tin is only 2.5 to 3.5, which is very frequently the case, no definite alloy is produced, and the mass is of unequal composition, and, being unequally acted upon, is soon destroyed .--- 3. When impure copper is employed the alloy is never homogenous, and is unequally acted upon in consequence. We thus see that the so frequent destruction of the sheathing of copper-bottomed vessels arises from the tendency to use inferior brittle copper, and by diminishing the proportion of tin, to economise the difference between the price of that metal and copper, at the same time that the cost of rolling is also less, in consequence of the greater softness of the poor alloy. Bobierre thinks that the addition of a very small portion of zinc very much improves the bronze, by pro-

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