

THE
Scientific American.

MUNN & COMPANY, Editors & Proprietors.

PUBLISHED WEEKLY AT

NO. 37 PARK ROW (PARK BUILDING), NEW YORK.

O. D. MUNN, S. H. WALES, A. E. BEACH.

57 "The American News Company," Agents, 121 Nassau street, New York.

57 Messrs. Sampson Low, Son & Co., Bookellers, 47 Ludgate Hill, London, England, are the Agents to receive European subscriptions or advertisements for the SCIENTIFIC AMERICAN. Orders sent to them will be promptly attended to.

VOL. XII. NO. 6...[NEW SERIES.]...*Twentieth Year.*

NEW YORK, SATURDAY, FEBRUARY 4, 1865.

Contents:

(Illustrations are indicated by an asterisk.)

| | | | |
|---|----|--|------------|
| *Lamon & Gaskill's Feed-water Heater..... | 79 | Recent American Patents..... | 85 |
| The Plowing Well at Pitt Hole..... | 79 | Apparatus of Historic Interest Destroyed by the Recent Fire..... | 85 |
| Polytechnic Association..... | 80 | Sir Win. Armstrong's Present to Jeff Davis..... | 85 |
| Heat and Force of Solar System..... | 80 | *Goodnow's Car Truck and Brakes..... | 86 |
| Tinning Sheet-iron..... | 81 | Employment for Disabled Soldiers..... | 86 |
| Linen Manufacture of Ireland..... | 81 | *Chittenden's Horseshoe..... | 86 |
| Manufacture of Starch..... | 81 | Revived Corps..... | 86 |
| *Turning Tools..... | 82 | Marine Railway around Niagara Falls..... | 86 |
| Seasoning and Drying Lumber and Timber..... | 82 | Amendment to the Patent Laws..... | 87 |
| Valuable Practical Recipes..... | 84 | Are Bank Deposits Currency?..... | 87 |
| Water Supply of London..... | 84 | Corn Husk for Paper Stock..... | 87 |
| Rollers under Slide Valves..... | 84 | Hot Bearings..... | 87 |
| The Art of Agriculture..... | 84 | Invention Perpetual..... | 88 |
| New York Milk Business..... | 84 | Dry Friction..... | 88 |
| Market for the Month..... | 84 | Patent Claims..... | 88, 89, 90 |
| Internal Revenue from New York City..... | 84 | Notes and Queries..... | 91 |
| Newspaper Agency Business..... | 84 | *Reed's Rigging for Hay Carts..... | 94 |
| Admiral Porter's Report on the Monitors..... | 85 | *Crouse's Mill Shoe..... | 94 |
| Destruction of the Smithsonian Institute..... | 85 | | |

AMENDMENT TO THE PATENT LAWS.—IMPORTANT TO PATENTEES.

The editorial letter from Washington published in our last number refers to an amendment now pending before Congress, designed to relieve a very large number of inventors who have failed to pay the balance of the patent fee—twenty dollars—within the six months as provided by law, thereby forfeiting their rights.

The language of the act of March 3, 1863, which requires payment of the balance fee within the six months after date of allowance, is peculiar. It provides that in default of said payment the invention shall become *public property as against the applicant*. The public acquire no rights in the invention as against another and subsequent inventor, leaving the original and first applicant only to suffer the consequences of not having paid the second fee within the time specified.

The rule of the Patent Office treats all such lapsed patents as judicially dead upon the record, and examiners are not allowed to refer to them under any circumstances, even though an application be made by another inventor for the same thing. Though this rule may be correct as based upon the language of the law of March 3, 1863, it nevertheless contravenes the plain intention of the statute of 1836, which requires that patents can issue only to the original and first inventor of the art, machine, composition or improvement. The same statute provides that whenever, in the Commissioner's opinion, two pending applications are adjudged to interfere with each other, that officer shall declare an interference, and require testimony with a view to determine the question of priority as between the applicants.

The amendment of 1863, however, conflicts with the law of 1836, inasmuch as it shuts off from this interference the unfortunate first applicant who has not paid up within the six months. Many might hastily jump at the conclusion that it would be serving an inventor right who thus failed to comply with the inexorable demands of the law; but we think no unprejudiced mind will thus reason, when a fair statement of the case is presented.

If an inventor wilfully neglect his duty as prescribed by the law, he is entitled to no sympathy, and ought not to ask for it; but the records of the Patent Office show most conclusively that there are hundreds of cases in which the applicant could not

comply with the law. Many inventors justly plead inability to make the payment in time; some are entirely ignorant of the law on the subject, and for want of such information do not pay up in time; but it bears with peculiar hardship upon persons residing in foreign countries and upon those who are engaged in the military and naval service of the country. Inventors of this class are subject to all the changes and vicissitudes of the service, and are rarely ever stationed for a long time in one position.

There are many very aggravating cases, involving the interests of our brave soldiers, which appeal with great force for such relief as will be afforded to them by the bill now pending before Congress.

The act in question provides that an applicant whose patent has elapsed under the operation of the law of March 3, 1863, shall have a right to renew his application within two years after date of allowance, upon the payment of fifteen dollars, and to use the papers and model originally presented to the Patent Office. This we regard as a fair and equitable treatment of all such cases, and we trust that it will meet the approbation of Congress.

The bill has been carefully considered in all its bearings, and has received the unqualified sanction of the Hon. Commissioner of Patents. It now only awaits the action of Congress to become a law of relief. It is vastly important, however, that it should pass at this session in order to allow all such cases to be included within its provisions. If it be put over till the next Congress the term of two years, as provided in the bill for the renewal of applications, will have expired before favorable action can be had.

Inventors who are suffering under the operation of this law of limitation ought to write to their members of Congress to look after the bill, and not allow it to slumber for want of attention.

ARE BANK DEPOSITS CURRENCY?

Hunt's Merchants' Magazine, under its new management, exhibits a mastery of economic science which gives remarkable interest and force to its discussion of financial questions. In the last number is an article on The National Finances, by Hon. Amasa Walker, the several positions of which seem to us sound, with one exception. This is embraced in the sentence, "The bank currency of the nation, at the present time, reckoning the circulation at \$250,000,000, and the deposits at \$450,000,000, is \$700,000,000."

The currency or money of this country at the present time is of two kinds. In the States lying on the Pacific it consists of flat disks of two metals, gold and silver. In the remainder of the country it is a mixture of metallic disks and notes, the metal being an alloy of copper and nickel, and the notes being partly those of the United States Government, and partly those of certain joint stock companies or associations of individuals, called banks. The managers of these companies have succeeded in so establishing their credit, that their notes are received by people in exchange for the most valuable property, and have finally come into use as money. This same credit induces people who have money on hand which they do not intend to use immediately, to leave it with some bank for safe-keeping. If the banks kept these deposits on hand in the form of money, it would be a portion of the currency of the country; but this is not the case.

Deposits are usually made with banks in the first instance in the form of notes. One trader sells to another \$1,000 worth of merchandise on six months credit, the purchaser giving his note for the amount. The seller sends his note to the bank for discount; the interest is deducted, and the remainder is carried to the trader's credit as a deposit.

If the trader now buys goods for cash, he draws his check for the amount; the seller of these goods sends the check to his bank, where it is entered to his credit as a deposit, and after its passage through the clearing house it is charged to the drawer, diminishing his deposits to the same extent. This is the ordinary course of business.

It will be seen that bank deposits are simply ledger balances, being the records of the transfer and ownership of merchandise. There is no more propriety in calling them currency, than there is in calling a barrel of pork, currency.

If a bank has on hand any notes of other banks, those notes are money, or currency. But they are part of the circulation, and are included in the \$250,000,000.

CORN HUSK FOR PAPER STOCK.

We are informed that the process for making paper from corn husks, of which so much has been said in the SCIENTIFIC AMERICAN, is about to be tried here on an extensive scale in a short time. If successful, printing paper especially is to be largely manufactured.

Corn husks have doubtless been fed out to cattle universally this winter, but expensive as hay is it is questionable economy to do so now when there is a prospect of obtaining a high price for the husks before spring. We therefore suggest that our agricultural readers carefully husband their stock of this staple, for a time at least, as the demand for it is likely to make it much more valuable than it is in the shape of cattle feed.

We sincerely hope and believe that the preliminary trials with corn husks for paper stock will prove to be what it has been represented, and further, that energetic measures will be taken to put the manufacture in market, for newspaper publishers have no heavier tax in their business than the price of printing paper.

It is stated that proprietors of the leading papers in this city have secured the right to make paper from this substance, and farmers are requested to address D. A. Craig, General Agent of the Associated Press, New York City, in reference to any quantity of corn husks they may have to dispose of.

HOT BEARINGS.

Detention and delay of steam vessels by hot bearings is not an uncommon occurrence. We read in reports of trial trips "the ship was delayed some hours by hot bearings." These few words convey no idea to the uninitiated, of the engineer's anxiety, the impatience of the captain and sailing officers on such occasions. There are some screw steamers out of this port which have an inch and a half stream of water constantly running on the main shaft-bearing. Such nastiness as this creates is beyond expression. Those who go below in the performance of their duties are agreeably (!) surprised by warm jets of greasy spray, and besmeared from head to foot. The bilge pumps are forever going, or the bilge injection is kept wide open to free the ship from the water. No lubrication takes place, for the oil is washed out as fast as it is poured in, and the main bearing has little more oil than the stern bearing, which runs under water.

Aside from faults of design which are often the sole cause, there are others which relate to mere manipulation or adjustment which may be here alluded to. Bearings often heat from being what is technically called "collar bound," or so tight side-wise that there is no motion.

Paddle wheel steamers rolling in a sea-way invariably heat and cut at the collars when the brasses are tighter at the point designated. When cutting once begins the fine metal abraded gets in and tears up the whole surface, rendering it hot in a short time. Badly fitted boxes also heat quickly. There will always be one part of the bearing where the chief work is done. A horizontal engine bearing wears chiefly at the sides, and chocks are provided for the purpose of taking the brasses up at these points. Vertical engine bearings wear at the bottom and top, and the labor is always in the direction of the stroke of the piston. Thus the brasses and bearings are continually wearing oval, or out of roundness, and have to be chipped off to bring them down. When heating is not caused by defective adjustment, and is simply a fault of design, it is often of advantage to "doctor" the lubricant, and for this purpose black-lead and oil are useful. Sulphur and oil are also employed, and many engineers advocate the use of soapstone finely pulverized. Blacklead and tallow is also used for heavy bearings. All of these mixtures are nasty, and are chiefly valuable for their heavy body. Sulphur possesses no refrigerating power on a hot shaft, whatever it may do to the human body. Blacklead has a certain smoothness which is valuable, and there is virtue in tallow. There is still an-

other agent which has good qualities but it is rather dangerous to use indiscriminately. Quicksilver possesses the quality of imparting a smooth, greasy gloss to the roughest bearings. We have seen badly cut shafts very much improved by the use of quicksilver; so that although the ruts still remained they were silvered over, and the bearing was as good as new. On brass boxes, however, this substance should be used with great circumspection, for it forms an amalgam, or combines, so that the brass is rendered softer at the surface, and is quickly worn away. Steamers that race sometimes use mercury freely in their bearings, though the bad effects that follow are not apparent until some time after.

A shaft that is too slack in its box will heat; this may occur from the violent and sudden contact of the two parts which causes the metals to come in contact without the intervention of oil. It very often happens that all adjustment is in vain; that all the doctoring and cold water that can be applied are useless. In such cases it is advisable to change the composition of the brass box, by substituting a harder or softer one as the case may be.

The heating of a brass or bearing is a sure sign that there is some defect which ought to be remedied. Unequal expansion of the engine framing causes it, as well as being keyed too tightly. Experiments made by a French engineer proved that up to 6000 pounds on the square inch no heating took place provided the bearing was well oiled and in line. The number of square inches in a large bearing give a very great sum total in pounds on the whole surface and when heating occurs it detracts seriously from the power of the engine.

INVENTION PERPETUAL.

There is a moral grandeur in the progress of invention which strikes a reflecting person forcibly. The spectacle of the weekly departure of models from this office, to be forwarded to Washington, is one of great interest. It is not merely the presence of a hundred or more inanimate machines, mere ingenious combinations, which causes these sensations; but the fact that through them the material interests of society are very greatly enhanced.

It would be puerile to represent every inventor solely as a public benefactor, with no thought beyond the welfare of mankind in general. Invention with most persons is a calling through which they get food and raiment; but those who originate and carry out useful improvements are accessories after the fact, in legal phrase, and as much entitled to public respect and remembrance as the greatest philanthropist.

It is related that a clown once stood beside a rapid stream, patiently waiting until the water had run out, so that he might pass over dry shod. If this traditional personage should visit this office in the flesh he might stand agape with wonder and wait in vain until the shelves were bare of inventions; he might linger tediously while the expressmen bore in their parcels, in the hope that they would come no more; he might shuffle from one foot to the other, in the vain expectation that ere long these inventors would cease bothering his sight with the long train of their ideas in tangible forms. So long as the river runs will the inventions come forth. So long as man is man his mind will be busy, and there will be no stop or check in the improvements he devises.

In the summer time, or in harvest, with the falling of the leaf or the budding of it, all is the same, and instead of growing less there is an appreciable increase in the number of applications for patents. It is well that this is the fact, for by the exertions of the class in question hundreds have been added to our army, to our navy, to the field, the factory and the store.

DRY PRINTING.

We mentioned last week, in our editorial correspondence from Washington, that some eighty hydrostatic presses are employed in printing the fractional currency. On the 19th inst. there was a discussion on the subject in the House of Representatives, when Mr. Garfield made the following remarks:

"In regard to the dry-plate printing, to which the gentleman has referred, the committee did report that the machinery was very heavy and expensive, that

the experiment had not yet been completed, and that they could not recommend the system on the score of economy. It seemed to us to be an expensive experiment and one of doubtful success. But since that time the experiment has proved highly successful. I think there can scarcely be found an instance of so marked a success in any branch of mechanical ingenuity as this experiment in dry-plate printing. If the gentleman will visit the Treasury Department he will find that printing is there executed far faster by this method than by the old method; and not only faster, but far better. The printing is executed in such a way as to afford almost an absolute security against counterfeiting. Within the past few months one of the most accomplished engineers of England has visited the printing establishment of the Treasury Department, and he declares the printing machinery now in use there to be a master-piece of skill in mechanics. And I am informed to-day by a gentleman on this floor that Professor Agassiz, who has witnessed the operation of that machinery within the past week, pronounces it one of the wonders of the age—one of the marvels of mechanical science."

Ordinary copper or steel plate printing the paper is moistened in order to soften it before it is laid on the plate. This renders necessary a drying and pressing process after the printing. The object of printing the paper dry is to save all subsequent manipulation, but to print it dry, very powerful pressure is required, and this is furnished by the hydraulic press.



ISSUED FROM THE UNITED STATES PATENT-OFFICE
FOR THE WEEK ENDING JANUARY 24, 1865.
Reprinted Officially for the Scientific American.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

45,962.—Hoisting Machines.—Charles Abel, New York City:

I claim the construction and use of the worm wheel, D, with its connected wheel, E, and the worm screw, C, in combination with the pulley, A, substantially as and for the purpose described.

45,963.—Shutter Bolts.—Edward Andrews, Palo Alto, Pa.:

I claim the combination and arrangement of the bolt, B, the latch, D, lever, F, and spring, E and J, when used for the purpose herein fully described.

45,964.—Tapping Water Pipe.—Phineas Ball, Worcester, Mass.:

I claim, first, The combination of the clamping irons, H H', with the pipe, A, tap holder, D, and tap, C, substantially as and for the purpose described.

Second, The combination of the clamping iron, H, with tap holder, D, and tap, C, substantially as and for the purposes described.

Third, The combination of the packing, I, with pipe, A, tap holder, D, and tap, C, substantially as and for the purposes described.

45,965.—Horse-power Elevator and Excavator.—Stephen T. Bishop and Andrew Stevely, Fond du Lac, Wis.:

We claim, first, The combination of a tread horse-power, with an endless chain excavator and elevator, substantially as set forth.

Second, We claim the adjustable frame, E, or its equivalent, in combination with the tread horse-power frame, substantially as specified.

Third, We also claim the machine, constructed and arranged substantially as described.

45,966.—Horse-power Elevators and Excavators.—Stephen T. Bishop and Andrew Stevely, Fond du Lac, Wis.:

We claim, first, So constructing and arranging a horse-power elevator and excavator as to render the machine movable with the horse upon the same, substantially in the manner and for the purposes set forth.

Second, We also claim the above-described arrangement of the wheels, U and V, in combination with the two sets of wheels, R and S, substantially as specified.

45,967.—Horse-power Elevator and Excavator.—Stephen T. Bishop and Andrew Stevely, Fond du Lac, Wis.:

We claim, first, The combination of the hook, L, with the bars, I, and the endless chain, substantially as set forth.

Second, We claim the use of the bar, I, for attaching the hook, L, or buckets, or both, to the endless chain, substantially as described.

Third, We claim the arrangement of hooks upon one part of the bar, I, and at the same time putting a bucket or buckets upon the other part or end of the bar, substantially as described.

Fourth, We also claim the arrangement of the hooks and buckets alternately, upon successive bars, J, substantially in the manner and for the purpose set forth.

45,968.—Horse-power Elevator and Excavator.—Stephen T. Bishop and Andrew Stevely, Fond du Lac, Wis.:

We claim the adjustable frame, C, in combination with the horse power, substantially as set forth.

Second, We claim the arrangement of the ratchet wheels, A and

shown in Figs. 1 and 3, in combination with the crank, N, and frame E, substantially in the manner and for the purposes set forth.

Third, We claim the combination of the ratchet wheels and crank, N, with the ratchet bar, Fig. 2, substantially in the manner and for the purposes described.

45,969.—Looms.—Wm. Breitenstein, New York City:

First, I claim the arrangement and construction of the sliding bars, C C', provided with suitable arms at their ends forming the shuttle holders, and operated in the manner and for the purpose substantially as set forth and described.

Second, I claim the construction of the shuttle holders, and the arrangement of the arm, m, operated by a spring, o, and acted upon by the lever, G or G', in the manner and for the purpose described.

Third, I claim the arrangement and combination with a shuttle holder of the shield plate, F, in the manner and for the purpose set forth.

Fourth, I claim the sliding bar, H, in combination with the levers, G G' G'', constructed and operated in the manner and for the purpose specified.

Fifth, I claim the arrangement of the hook levers, N N', with their springs, r r', attached to sliding bar, H, in combination with springs, s s', attached to the breast beam, B, and acted upon by the arms, p p', of the sliding bar, C C', for the purpose of operating said sliding bar, H, in the manner substantially as set forth and described.

45,970.—Stone Gatherer.—P. S. Brewster and C. M. Hines, Lime Hill, Pa.:

We claim the pivoted bar, C, provided with gathering fingers, c, and operated by means of the bail, H, levers, F, and rods, E G, substantially in the manner herein described.

Second, We claim the platform, E, in combination with the lock bar, A' a', spring, a2, and plate, D', when the whole are employed in conjunction with the gatherers, C c, in the manner and for the purposes specified.

Third, In combination with the gatherer, C c, we claim the rollers, B B', extending across the machine to raise the fingers over stones too large to be lifted by them, substantially as set forth.

45,971.—Corn Planter.—George Bunch, Grand River Township, Mo., and James A. Price, Breckenridge, Mo.:

I claim the sliding handle, I, and sliding bar, H, connected together and applied to the frame, A, and shaft, D, substantially as and for the purpose herein set forth.

[This invention relates to a new and improved corn planter, of that class in which the seed-dropping mechanism is operated manually by the driver while walking behind the machine and guiding the same.]

45,972.—Sewing Machines.—Caleb Cadwell, Waukegan, Ill.:

First, I claim the slide, E', having a groove, e', to actuate the pin, F, on the thread catcher, F', which guides the thread around the shuttle, substantially as described.

Second, I claim the pivoted bar, P, for taking up the slack thread, when operating in combination with the flipper, P', and projection, K', in the manner herein set forth.

Third, I claim the tension device, Q2 Q4 Q5, and the pin, Q2, for the spool, all mounted upon the spindle, Q3, on the arm, D, so that they may be removed and replaced at will.

Fourth, I claim the adjustable block, h3, and circular block, H2, in combination with the notched aperture, for imparting a variable movement to the feed surface, H, the whole being operated by means substantially as herein described.

Fifth, I claim the combination of the circular blocks, H7 H8, the former, H7, being moved vertically by turning on the lever, H8, so as to raise and lower the feed surface, in the manner and for the purpose set forth.

Sixth, I claim the thread-winding apparatus, R1 R2 R3 r, operating in connection with a spring, S, whereby it is held down to work in connection with the driving wheel, B, or retained out of contact therewith, as stated.

45,973.—Means of Working Ship's Pumps.—Ansel Cain, Holyoke, Mass.:

I claim operating the pumping apparatus of a ship or vessel by means of an oscillating weight, in combination with the mechanism described, the whole arranged substantially as set forth.

45,974.—Duster for Brick Machines.—Cyrus Chambers, Jr., Philadelphia, Pa.:

First, I claim applying sand or dust to the surface of undried bricks, in a chamber, in which the materials, or either of them, are kept in suspension by mechanical means.

Second, Passing bricks as they come from a brick machine through a box or chamber in which sand or dust are kept in suspension by mechanical means, substantially in the manner and for the purpose described.

Third, The use in a dusting apparatus of the cones, P, constructed and arranged as described for giving direction to currents of sand or dust, for the purpose specified.

45,975.—Railroad Car Brakes.—J. H. Champlin, Essex, Conn.:

I claim a friction block for railroad car brakes, formed from stone or its equivalent, combined with and made adjustable by means of the screws, a a', in the case, D, and arranged to operate substantially in the manner and for the purpose specified.

45,976.—Combined Seed and Potato Planter.—Otis N. Chace, Boston, Mass. Ante-dated January 8, 1865:

First, I claim the combination and arrangement of the toggle lever, d, and the frames, A and C, with one or more pulleys, substantially as described.

Second, I claim the projections represented by the knives or hooks, f f', etc., in combination with the stripping slot, i, or its equivalent, substantially as described, for the purpose set forth.

Third, I claim the combination and arrangement of the springs, j j', inclined plane, g, and seed box, H, with the projections, as represented by the knives or hooks, f f', etc., substantially as described, for the purpose set forth.

45,977.—Material for the Manufacture of Buttons, Handles for Knives, and other purposes.—Lucius E. Chittenden, Washington, D. C.:

I claim the manufacture of the articles above named, and the use in whole or in part for such manufacture, of the interior or nacreous portion of the shells of the fresh-water molluscan animals of the United States and North and South America, substantially in the manner above described, or in any other, substantially the same, which will produce the internal result or effect.

45,978.—Leather-channeling Tool.—Elliott H. Crane, Jonesville, Mich.:

I claim the combination of the adjustable gauge, G, with the shank, A, substantially in the manner herein shown and described.

I also claim the combination of the block, C, and cutter, B, with the shank, A, substantially as herein shown and described.

I also claim the combination of the cutter, F, with the cutter, B, block, C, and shank, A, substantially as herein shown and described.

I also claim the combination of the gauge, G, with the block, C, cutters, B B', and shank, A, substantially in the manner herein shown and described.

[The object of this invention is to facilitate the cutting of V-shaped channels upon the edges of harness straps, boot and shoe soles, and upon all kinds of leather articles where channeling is required. The inventor calls it the "Improved Universal Channeler," because it can be readily adjusted so as to cut channels on different lines. It is a good improvement.]

45,979.—Hooks and Eyes.—John P. Culver, New York City:

I claim a hook and eye, combining the widening, e, of the bill of the hook with the narrower opening, b, of the eye, substantially as and for the purpose herein specified.

45,980.—Method of Attaching Handles to Cross-cut Saws.—Charles Disston, Philadelphia, Pa.:

First, The handle, A, its ferul, c, and strips, b, the key, F, and self-adjusting plate, D, the whole being constructed and arranged for attachment to the end of the saw, substantially as described.

Second, The self-adjusting plate, D, hung to the strips, b, and having projections, e, c, adapted to notches in the edge of the saw, all as set forth.

45,981.—Scroll Saws.—Wm. H. Doane, Cincinnati, Ohio:

First, I claim the combination of the devices A B C a b, the same