NEW BOOKS AND PUBLICATIONS.

ANIMAL PHYSIOLOGY; the Structure and Functions of the Human Body. By John Cleland, M.D., F.R.S. With 158 Engravings. Price $1.50. New York: G. P. Putnam's Sons, corner Fourth avenue & 23d street.

An elementary work on the science, designed as an introduction to more extended treatises. It is also well adapted to interest the general reader in that most fascinating of studies—one's self—and is sufficiently free from technical verbiage to render the perusal of its pages pleasant while, of course, instructive. We note no especial difference in the plan of the book from the similar work prepared for collegiate uses by Professor Huxley, and it is necessarily a compilation from various sources. The illustrations are both excellent and numerous, and a valuable glossary occupies the concluding pages. The volume is a reprint from the English edition, and forms a part of Putnam's Advanced Science Series.

HYDRAULICS OF GREAT RIVERS: The Paraná, the Uruguay, and the La Plata Estuary. By J. J. Révy, C.E. New York: E. & F. N. Spon, 446 Broome street.

The government of the Argentine Confederation, three yea s since, authorized an investigation into the que tion of the watershed of their territory, extending from the Rio Vermejo to the Rio Negro, and from the South Atlantic to the Andes. This work was most thoroughly done by M. Révy, of London, England, and the result is before us in an exceedingly handsome volume, illustrated with maps, plans, and sections. The book will be valuable to engineers generally, and especially to those engaged in similar work, as the author's analysis of his results treats the subject of fluvial drainage in the broadest manner; and he gives due commendation to the Argentine Republic for contributing this volume to our libraries of physical geography.

PATENT OFFICE DECISIONS.

SPLINT MACHINE.—RUSSELL AND SCOW.—INTERFERENCE.

[Appeal from the Board of Examiners in Chief in the matter of the interference between the application of Samuel I. Russell, and the patent of Anton F. Snow, granted May 23, 1871, for improvement in machines for cutting splints.—Decided February 17, 1874.]

The case of Fawcett *vs.* Graham, C. D., 1869, p. 113, referred to and approved.

It is a well established principle that an inventor has the right to employ the mechanical skill of others to carry out his ideas without forfeiting his right to the invention.

In an interference, one who is shown not to have been an original inventor can derive no advantage from having obtained a patent.

Abandonment of an invention is not favored; it can only be established by positive proof, and not by mere presumption or inference.

THACHER, *Acting Commissioner;*

This case, as developed by the evidence, presents for determination the question of originality rather than priority of invention.

The Examiner of Interferences and the majority of the Examiners-in-Chief have found in favor of the applicant Russell. The rule of practice in such cases has been stated by the Commissioner in Fawcett *vs.* Graham. (C. D., 1869, p. 118.)

In this appeal it is not shown that the tribunal below erred in the finding of facts in the case; but the most that can be claimed is that the Board erred in deciding the weight of testimony to be with Russell. This judgment of two tribunals ought not to be set aside except upon the clearest showing that it is contrary to evidence. This, in my opinion, has not been done; on the contrary, after carefully reading the testimony of both parties, I have no hesitation in concurring in the decision of the Board and Examiner that, although the testimony is conflicting, the weight of evidence is with the applicant.

What Mr. Scow understands by invention may be gathered from a portion of his "answer 4," where, after stating that Russell suggested putting on an eccentric, he says he invented it as described in his patent. It appears that he believes the person who carries out the ideas and suggestions of another to be a true and original inventor. This may furnish an explanation of his claim to the invention patented. Russell was the employer; Scow was the foreman of one of his shops. Now, it is shown that Russell was in the habit of giving general instructions to his foreman, who proceeded to embody them in suitable form, and in doing so gave the necessary instructions to the workmen under him. From my reading of the testimony, I am tolerably well satisfied that this is the way in which Scow got up the new splint machine. But it is a well established principle that an inventor has the right to employ the mechanical skill of others to carry out his ideas without forfeiting his right to the invention. This, I believe, is what Russell did.

Considerable stress is laid upon the circumstance that Russell delayed to file his application until some time after the grant of a patent to Scow; and the assertion is made that this delay occurred with full knowledge of Scow's application and patent. I am unable, however, to find a particle of evidence that Russell had knowledge, either of the application by Scow or of the issue of a patent to him. There is, therefore, no presumption of acquiescence in Scow's claim to the invention, for he had never made it in the presence of Russell, who, so far as shown, had no information of the claim set up in the Patent Office; and if Scow is not an original inventor he is not to receive any advantage from having hurried to the Office and obtained a patent.

It has also been urged that the evidence shows more than two years' public use of the machine by Russell prior to his application for a patent; but this is by inference only. Now, abandonment by public use or otherwise is not looked upon with favor. It can only be established by positive proof. Mere presumption or inference will not answer; and this suggestion, therefore, may be summarily dismissed.

The decision of the Examiners-in-Chief is affirmed.

DECISIONS OF THE COURTS.

United States Circuit Court---District of New Jersey.

CHARLES GUIDET *vs.* SAMUEL BARBER.—PATENT STONE PAVEMENT.

[In equity.—Before Nixon, Judge.—Decided December 30, 1873.]

NIXON, *District Judge:*

This bill is filed by the complainant for an injunction and an account for the infringement of reissued letters patent granted to complainant August 23, 1870, for "Improvement in Stone Pavement."

The single claim in the reissue is for "a pavement composed of stone blocks made in the form of parallelopipeds, having their narrow ends or edges cut smooth and their broad sides purposely cut rugged or uneven, when the blocks are arranged with their rugged surfaces transversely to the street, substantially as described."

The answer to the defendant alleges—

1. That the reissue to the complainant was fraudulent and void, because the surrender was not made for the purpose of correcting any errors or imperfections in the description or specification of the original patent, but to cover and claim as complainant's invention many things in the art known and used long prior to his alleged invention or discovery, and because the said reissued letters patent covered and included many things, of which the complainant was not the original and first inventor, and which were not described or claimed in the original letters patent.

As it is the duty of the Commissioner of Patents to see that the reissue does not cover more than the original patent, the presumption of law always is that the reissue is for the same invention until the contrary is shown.

No attempt is made by the defendant, upon whom the burden rests to prove the allegation of fraud in the reissue, and the court can hardly be expected to presume it. (Sec. 53, act of July 8, 1870, Judan *vs.* Dobson, 2 Abb. U. S. Rep., 404 Curt. on Pat., Sec. 281.)

2. The defendant also alleges prior use, and abandonment to the public by the complainant; but he gives no notice and offers no evidence to sustain the charges.

The only matter put in issue by the answer and the proof is the question of infringement. The defendant denies the allegations of the bill in this respect, and the burden is upon the complainant to show it.

The laying of a stone pavement on South Broad street, facing Lincoln Park, in the city of Newark, is admitted by the defendant, and the expert witness, J. Boyd Eliot, is called to testify in reference to its construction.

He states that he has made an examination of said pavement; that he understands the principle of its construction, and that it corresponds substantially with the invention described in the complainant's reissued letters patent:

1. Because it is composed of blocks of stone made in the form shown and described in the said patent, consisting of parallelopipeds or solid figures, whose sides are parallelograms; said blocks being provided with ends or edges formed sufficiently smooth, that when they are abutted together in position to form a pavement, the joints or seams between the said blocks are closed, or substantially so, in a longitudinal direction, or parallel with the sides of the street, or in the direction of the line of travel along the street, so that the wheels of the vehicles passing over it will meet with a comparatively smooth surface, or be prevented from sinking into crevices or openings between said blocks.

2. Because said blocks are so selected and laid with their broad sides abutting against each other as to produce open joints in a direction transversely to the street. In such a manner that a firm foothold is provided for the draft animal traveling along the street, substantially as described in the said patent. He expresses the opinion that the combination of these blocks of stone to form a pavement is of such a character as to perform the functions set forth in the complainant's reissued patent, and the advantages to be gained in the formation of such a pavement, recited in said patent, exists to a substantial degree in the pavement constructed and laid by the defendant.

This testimony stands without material contradiction, and there must be a decree against the defendant, unless it should appear, upon further examination, that the invention of the complainant is not in fact a patentable subject.

The counsel for the defendant upon the argument took the ground that there was nothing patentable in the complainant's alleged invention.

It was objected in reply that, as no such defence was set up in the answer, it was then too late to urge it.

Whether the objection of the complainant is valid and sufficient depends upon what the counsel of the defendant meant by affirming that the invention was not patentable. If he meant that it was not on the ground of a want of novelty the objection was well taken, for such a defence falls under the 61st section of the patent act, and should be specified.

But if he meant that the invention was not a patentable subject—that is, did not come within the description of "any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof not known or used before the application" for the patent, as required by the 24th section,—such a defence is authorized by the general pleadings, because the bill of complaint necessarily imports that the patentee has invented a patentable subject.

Assuming, therefore, that he meant the latter, the remaining question is whether the improvement claimed by the complainant is an improvement in "any new and useful art."

The patentee, in the specification of his letters patent, describes his invention as relating to a pavement composed of stone blocks, which are made in the form of parallelopipeds, and the surfaces of which are so prepared that the blocks, when placed together, will form close joints in the direction parallel with the sides of the streets or in a longitudinal direction, while the joints running transversely to the street remain open at the top, and thereby a pavement is obtained which offers a good foothold for the draft animals, and at the same time a smooth surface for the wheels passing over the same.

The edges of the blocks adjacent to the transverse open joints are to be chamfered off so as to insure a good foothold for the draft animals.

To exhibit its superiority over other forms of stone pavement, he further states that if a street is paved with truncated pyramids, as used in the Russ or Belgian pavement, close joints are formed at the surface of the pavement, both in a longitudinal and transverse direction, and said surface offers no foothold to the draft animals passing over the same; but by placing a series of blocks together, as exhibited in Fig. 2 of the reissue, close joints are formed in a longitudinal direction, and open joints in a transverse direction, and a stone pavement is obtained which offers a firm foothold to the draft animals, while it presents a comparatively smooth surface to the wheels of vehicles passing over it, and at the same time each block is firmly retained in position by the adjoining blocks without requiring any intermediate layers of stone or other material.

Such an improvement in the mode of constructing a stone pavement is a patentable invention, and must be held to be new in the absence of proof to the contrary from the defendant, and it is doubtless useful in the sense in which that term is used in the act, to what degree or extent is wholly unimportant, as it is not a question in the case.

Let there be a decree for the complainant for an injunction and an account.

Edmonds & Field and *George Harding*, for complainants.
George Foske, for defendants.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From February 2 to February 7, 1874, inclusive.

GUM EXTRACTION.—D. D. Cattanach, Providence, R. I.
HOEING, ETC.—R. McKinley, Hyde Park, N. Y.
IRON SHEARS.—W. X. Stevens, East Brookfield, Mass.
LIQUID METER.—F. W. Brooks, New York city.
METAL TUBE.—E. P. Wilbur, Bethlehem, Pa.
MOLDINGS.—J. Gochwind, Union, N. J., *et al.*
PIPE TONGS AND CUTTER.—F. T. Ferguson, Boston, Mass.
ROCK DRILLING.—W. W. Dunn (San Francisco, Cal.), London, England.
SEWING MACHINE—W. G. Beckwith, Newark, N. J.
SPINDLE BOLSTER, ETC.—C. F. Wilson *et al.*, Brooklyn, N. Y.
STEAM BOILER, ETC.—B. T. Babbitt, New York city.
STEEL FROG.—J. Patterson, Hornellsville, N. Y.
STOVE, ETC.—J. E. Sherman, Bucksport, Me.
WELDING COPPER.—W. G. Rehbein *et al.*, Baltimore, Md.

IMPORTANCE OF ADVERTISING.

The value of advertising is so well understood by old established business firms that a hint to them is unnecessary; but to persons establishing a new business, or having for sale a new article, or wishing to sell a patent, or find a manufacturer to work it: upon such a class, we would impress the importance of advertising. The next thing to be considered is the medium through which to do it.

In this matter, discretion is to be used at first; but experience will soon determine that papers or magazines having the largest circulation, among the class of persons most likely to be interested in the article for sale, will be the cheapest, and bring the quickest returns. To the manufacturer of all kinds of machinery, and to the vendors of any new article in the mechanical line, we believe there is no other source from which the advertiser can get as speedy returns as through the advertising columns of the SCIENTIFIC AMERICAN.

We do not make these suggestions merely to increase our advertising patronage, but to direct persons how to increase their own business.

The SCIENTIFIC AMERICAN has a circulation of more than 42,000 copies per week, which is probably greater than the combined circulation of all the other papers of its kind published in the world.

Recent American and Foreign Patents.

Improved Washing Machine.

Theophilus C. Eberhardt, Hochheim, Tex.—The box of the machine and rubbing boards are made semicircular in form. The faces of the latter are corrugated and perforated. They are supported and oscillated by the square shafts, which pass out through square holes of sockets, and have handles. The outer surface of the sockets is made cylindrical in form. The rubbing boards are forced forward by bent springs secured to the inner ends of the sockets, which slide upon the boards, when the same are drawn outward or apart. By suitable construction, the rubbing boards, shafts, sockets, and springs all move together, so as to always retain their proper relative positions. To the outer ends of the sockets are rigidly attached levers. These are pivoted to connecting rods, which connect with cranks formed upon a shaft. The shaft carries on its ends fly wheels, which may be arranged to rest upon the floor for convenience in moving the machine.

Device to be Attached to Fences for Turning Stock.

Jacob Haish, De Kalb, Ill.—This invention relates to modes of effectually turning stock with hoop band or other light railed fences, and consists in peculiarly formed barbs for deterring the animals from rubbing against the fence, or otherwise bringing to bear their weight, so as to break down, injure, or impair the same.

Improved Chest for Tea, Coffee, Rice, etc.

George Lillibridge, Little Cooley, Pa.—A vertical slide is arranged to regulate the size of the opening between the chest proper and a trough applied exteriorly, and thereby control the exit of the contents of the chest into the trough, from which they are removed by a scoop or other convenient device. The trough has a lid or cover as well as the chest, and thus the tea or other substance is kept from deterioration by the action of the atmosphere.

Improved Vault or Safe Door Fastening.

John B. Cornell, 139 Center Sreet, New York city.—This invention consists of auxiliary bolts connecting the locking bolt frame to the door, so that, when the primary bolts which hold the frame and door in intimate contact have been broken by an explosion, the auxiliary bolts, first allowing the door to be opened far enough to give vent to the force of the explosives, then arrest the further movement, and hold the door so nearly closed that access to the safe cannot be gained without cutting or breaking the door or bolts with tools. A second plan proposed consists of slots from the locking bolt holes in the frame extending obliquely upward or downward toward the inside of the frame a certain distance; these slots are so made that, while they will secure the locking bolts with ample security against the efforts of the burglars to pry and wrench the door off, yet the tremendous force of an explosive inside of the safe will force the frame along the bolts to the ends of the slots, and thus afford the necessary vent to dissipate the force of the explosion and still hold the door so as to demand too much labor for gaining access to be performed with safety after the noise.

Attachment to Self Raking Reapers for Carrying Binders.

Allen Elijah, Clarence, Iowa.—This invention relates to the stands employed upon that class of reapers wherein the grain is bound up into bundles before it is dropped, and the novel means for accommodating the binders. These means consist in a frame with a rear projection, a non-revolving shaft having end stirrups, and a stand connected with a stirrup by a chain at one front corner, and at the other with the projection of the frame.

Improved Stud and Button Fastening.

Philip H. Long, Newark, N. J.—This invention relates to the construction of stud and button fastenings for shirt bosoms, collars, wristbands, etc., and consists in a stud or button and base, so constructed that the two are securely fastened together by turning the stud or button as part of a revolution, and unfastened by a reverse movement.

Improved Fire and Water Proof Roof.

Tobias New, New York city.—The object of this invention is to provide means for protecting buildings (having interior wooden timbers) from fire as well as from water; and consists of a roof made of a stratum of fireproof material laid on felt or planking to about two inches in thickness. A piece of timber is bedded in the fireproof substance, and has its upper side flush with the surface thereof. On this is placed a water-repellent covering and over this an ordinary gravel, slate, tin, or other roof.

Improved Toy Gun.

John Alexander, New York city, and Hiram W. Gordon, Lynn, Mass.—This invention consists of a toy gun, in which a rod or pusher is thrown forward in the barrel by a spring, for expelling marbles and the like. The barrel has a funnel-shaped muzzle, in which marbles, peas, or other round bodies of different sizes can be held, by friction, in front of the pusher to be expelled, the said marbles and other objects being gently pressed in to secure them.

Improved Wind Mill.

William C. Nelson, Kentland, Ind.—The wheel is made in two sections, each having a separate portion of the hub, which is hinged to a middle portion which comprises a T head to the shaft. Each section of the wheel has a spring attached to the middle portion of the hub, and arranged to hold the section up to the wind when the latter is not too strong, and to yield when the latter is the case, and, by allowing the section to swing around toward the plane of the shaft, relieve the wheel, and thus protect it from damage. The wheel is arranged to receive the wind from behind the standard, on which its shaft is supported, and to dispense with a tail vane, which is required for keeping it in the winds, when arranged to take it in advance of the post.

Improved Animal Trap.

John M. Marberry, Johnsonville, Tenn., assignor to himself and John M. Palmer, of same place.—The wire cage has the usual entrances, and is attached to a bottom board. A small bait box, having wire sides and a hinged top, is secured to the bottom board by hooks and staples. The opening in the cage for the insertion of the bait box is closed by a prison box, which is attached to the cage by wire hooks. The box has a vertically sliding door which is held either closed or elevated by a sliding bolt. When the trap is to be put in readiness for catching animals, the prison box is detached from the cage, and the bait box removed through the opening thus uncovered. When bait has been put in the box, it is replaced and secured by the bolt, the box may be removed to a place convenient for dispatching the animal.

Improved Brick Kiln.

Nelson Sickels, Newell, Iowa.—The walls inclosing the kiln are permanent. The lower portion of the bricks to be burned, in which arches are formed. These bricks are arranged close together in the direction at right angles to the arch, but with spaces between them the other way; and long bricks are placed across the arches a short distance above the bottom suitable for burning coal. The bricks above the arch bricks to be burned are arranged with spaces in both directions to be filled or partly filled with coal. Wider spaces are made between the stack of green brick and the walls, also for containing coal to be burned. They are divided vertically into several compartments by rows of bricks extending against the walls to separate the coal and keep it from falling to the bottom of the spaces as it burns. The arches extend through the kiln from side to side, and have the coal placed in them throughout their whole length to be burned throughout alike. The fires are started at the mouths of the arches, and kept burning moderately until the bricks get dry; then they are allowed to advance throughout the kiln in all the spaces as fast as necessary.

Improved Trumpet for Railway Heads, etc.

Richard E. Frye, Manchester, N. H.—The upper part to the lower side of the mouth is beveled, and a slide gate or valve is arranged under clips or guides forward and back over the beveled portion, to expand or contract the mouth, as may be required, the upper wall of the mouth being formed in the end of the slide. To adjust and secure the slide is a screw-threaded rod, passing through an eye stud on the top of the trumpet, and having adjusting and binding nuts arranged on each side.

Improved Grate Cleaner Attachment.

Adolph Tieusch, Memphis, Tenn.—The object of this invention is to provide fire place and other grates to which it may be applicable with a permanent attachment for cleaning them, or removing the ashes and cinders that accumulate in the bottom thereof. To this end a shaft is pivoted beneath the grate, and provided with laterally projecting arms or fingers that will work up between the grate bars as the shaft is rocked by a foot lever or other suitable device.

Improved Fire Extinguisher.

John Dillon, 424 Fourth avenue, New York city.—By suitable construction access may be obtained to the interior of the case, which is fastened to the wall of the room, by turning back the cover and turning down the upper part of the front, or both the upper and lower parts of said front may be turned down. A reel shaft revolves in the interior of the case, and is made with shoulders, to prevent it from having a longitudinal movement. One end of the shaft is tubular, and with its cavity is connected, close to the reel disk, the end of the wire-lined rubber hose, to the other end of which is secured a nozzle. The wire of the hose enables the water to pass through it freely, even when wound upon the reel. When the hose is wound upon the reel, the nozzle is inserted in a hole in the bracket. The tubular end of the shaft projects beyond the bracket, and is made conical to fit into the tapering hole in the globular end of the short ingress pipe, the other end of which is connected with the water pipe of the house. The short pipe is provided with a stop cock, which, by suitable mechanism, may be opened and closed by lowering and raising the said lower part of the front of the case. By other arrangements the front of the case may be lowered and raised without disturbing the stop cock, allowing the same to be closed while the front is lowered to shut off the water when about to wind the hose upon the reel. The latter operation causes the water to run from the said hose, so that it may be free from water when wound up. A ring groove is formed around the tapering part of the end of the shaft, so that the water may pass constantly from the pipe to the interior of the shaft, and thence to the hose, even when the said shaft is revolving.

Improved Curtain Fixture.

Edward M. Davies, Allegheny, Pa., assignor of one half his right to Francis J. Rebbeck, of same place.—The axle of a wheel is extended suitably beyond the brackets in which the roller turns, provided at its outer end with a screw thread, and produced with a square or triangular cross section. A spring is placed between washers, either inside or outside of the bracket, as desired. The washer adjacent to the bracket is provided with a round hole in the center, while the other washer has a square or triangular hole to fit on the axle trunnion and prevent the spring from getting worn. A check nut binds washers and spring together, and is prevented, by its washer, from becoming unscrewed. The check nut is used to regulate the tension of the spring on the bracket, so that the curtain is held in place in any position, in case the cord should stretch, break, or get off the roller.

Improved Pipe Joint.

William P. Valentine, New York city.—The object of this invention is to produce an improved pipe joint for water, steam, gas, and other pipes, by which they may be connected at any suitable point and under any angle without the use of fire or solder, by simple mechanical means. The invention consists of sockets made of two semi-shells, and fitted, by means of a projecting shoulder, to the recessed ends of the adjoining pipes. The sockets are cut with an outer screw thread, and firmly connected when placed on the pipes by a sleeve with right and left hand thread, which is screwed over it without altering the position of the pipes, while a leather or rubber washer in the sleeve secures the tight communication.