

SADDLE.—JACQUES MEYER, Williamsburgh, N. Y.—This invention relates to the construction of saddles, and consists in combining new materials in the manufacture of the article for securing greater strength and durability, and hanging the stirrups and straps in a convenient manner for shifting lengths and detaching them readily from the saddle.

SHOVEL PLOW.—WILLIAM H. LUCE, Hampton, Ill.—This invention consists in providing a shovel plow for the purpose of eradicating weeds and loosening up and pulverizing the ground around corn, potatoes, and other crops, which are sowed or planted in drills or rows.

WATER-PROOF COMPOSITION.—SAMUEL B. B. NOWLAN, New York City.—This invention relates to a new and improved water-proof varnish, which is to be applied to all kinds of textile fabric, paper and other substances. The said varnish is said to have no injurious effect on the fabric to which it may be applied, and not to be liable to spontaneous combustion. The claim was published in our last week's issue.

MACHINE FOR CLEANING WHEAT AND OTHER GRAIN.—BENJAMIN BARNEY, Time, Ill.—This invention relates to a new and useful machine for cleaning wheat and other grain, and it consists in the employment or use of a rotary fan, vibrating shoe containing a riddle, cockle screen, and a chute, and a suction blast spout, provided with a valve, and arranged with the fan and shoe in such a manner that wheat and other grain may be cleaned very expeditiously and in a perfect manner.

ALARM MOVEMENT.—J. E. BUECK, Boston, Mass.—This invention consists in an alarm movement, from the escapement of which extends a stop lever, which bears against a segmental disk mounted on a shaft, to the upper part of which is secured a serrated segment in such a manner that by turning the serrated segment either by hand or by the action of a watch or other mechanism, until the flat part of the segmental disk faces the stop lever, the escape wheel is released, and the alarm begins to sound.

FEED-WATER HEATER.—GEORGE HASEOOSTER and JACOB STEPHENS, Richmond, Ind.—This invention has for its object to furnish a means by which the water to feed steam boilers may be heated, and the lime which may be in it be deposited before it is introduced into the boiler.

DRILLING MACHINE.—ROBERT NUTTY, New York City.—In the machine embraced in this invention the drill or drills are so hung and arranged that whether to operate or work against the face of the quarry or rock in a vertical, horizontal, or in any plane between the two, it can be readily adjusted and brought to the proper position therefor, and, when in any of such positions, be operated in the desired manner.

CULTIVATOR.—SAMUEL P. ETLER, Scotland, Pa.—This invention consists in so constructing a cultivator that by means of compound levers the plows may be shifted from side to side between the wheels, and by means of other levers the plows may be elevated out of the ground so that the cultivator may be conveyed from place to place without the teeth or plows coming in contact with the ground.

PLOW.—F. M. MOMERLIN, Morrison's Mills, Florida.—This invention relates to a new and improved plow, and it consists in a novel construction of the same, whereby a very strong and durable plow is obtained—one which may be manufactured at a reasonable cost, and be capable of having different molds attached, as circumstances may require.

CULTIVATOR.—D. J. NOBLE, New Boston, Ill.—This invention relates to a new and improved cultivator of that class designed for cultivating crops grown in hills or drills, and it consists in a novel arrangement of the two inner or laterally moving plows, and also in a novel adjusting device for the plow frame, whereby it is believed that the laterally moving plows may be operated with greater facility than hitherto, and all the plows made to penetrate the earth at a greater or less distance as may be required, and retained or held down in the ground the required distance, and at the same time be capable of being adjusted with the greatest facility.

ARCHED IRON BRIDGE.—JOHN H. GILBERT, Roxbury, Mass.—This invention has for its object the production of a much stronger bridge out of a much less amount of material, and, consequently, at a much less cost than has heretofore been done.

CHURN.—WILLIAM BURSON and D. C. BURSON, Allianceville, Ohio.—This invention consists in the peculiar construction of the dasher, and in the combination of a perforated gathering board with the box and dasher of the churn.

MECHANISM FOR SEPARATING GRAIN AND OTHER SUBSTANCES.—JOHN S. BODGE, La Porte, Ind.—This invention is designed as an improvement on that kind of separators the screens or sieves of which are provided with covers constructed and arranged in such a manner and in such relation with the screens or sieves as to prevent the longer or broader grains, seeds, or other particles or substances to be screened or sieved, from assuming an oblique or perpendicular position while passing over the screens or sieves, and thereby compelling said longer or broader grains, seeds or other particles to pass over the screens or sieves flatwise while the shorter, smaller and narrower grains, seeds, and other particles are permitted to pass through the screen or sieves when the latter are in motion.

MACHINE FOR POUNGING HATS.—EMILE NEBARET, Newark, N. J.—This invention relates to a machine by which the operation of pouncing the brim and also the body and crown of a hat can be performed with the greatest ease and facility and with very little hand labor. The brim of the hat is secured between two conical pressing rollers which carry the same through between two spring jaws, the faces of which are covered with emery or sand-paper, or other suitable material, and the hat is guided in its motion by an angular guide-piece, in such a manner that by imparting to the conical pressing rollers a rapid revolving motion, the brim of the hat is carried through between the spring jaws, and the operation of pouncing the same is effected without exertion, and in a short time.

FASTENING FOR GATES.—POMPEIUS PHELIPPI, Beardstown, Ill.—This invention consists in having the upper bar of the gate extend a suit-able distance beyond the batten or upright at its free or unhinged end, or, having a bar extend from the batten or upright,

to catch into or over a hook attached to the gate-post, and using in connection therewith a lever or levers and a rod, arranged in such a manner that, by adjusting or operating the levers, the unhinged end of the gate may be raised and lowered with the greatest facility, and the projecting bar made to catch into the hook, or be raised out of it in order to fasten or unfasten the gate, as may be required.

MOLDER'S FLASK.—E. C. LITTLE.—This improvement consists in a cast-iron frame for molder's flasks, constructed with hinges and pins peculiarly fitted for connecting the cope and drage so that they are adapted to a match-plate, without producing any lateral movement to disturb the pattern.

CORN HARVESTER.—S. SEORIST.—This invention is designed as a labor-saving implement for cutting and gathering indian corn and sugar-cane, and leaving the stalks standing in shocks as the machine travels over the field, making clean and expeditious work.

STRAW CUTTER.—S. PETTIBONE, Coruna, Mich.—This invention consists in the combination of a fly-wheel with the lever to which the knife of a straw cutter is attached, and by which it is operated; also, in the adjustable bearing in which the shaft of the fly-wheel runs, which is constructed in such a manner that it may be moved up or down, as may be desired.

COMPOSITION ROOFING.—JAMES G. HOLLIDAY, Wheeling, W. Va.—This invention consists of a composition roofing, formed by combining coal tar, still bottom of petroleum, acid tar, finely-ground brick clay, and refuse lime from gas house, with each other.

STEAM GENERATOR.—E. P. CHASE, Rockland, Me.—This invention relates to a steam boiler, in which a water-heater and a series of steam superheating pipes are combined with the generator. The water is drawn from the heating tank and injected into the generator by means of a pump of any desirable construction, and a self-acting regulator governs the supply of water drawn by the pump, according to the pressure of steam existing in the generator. After having been drawn from the tank the water is injected in the form of a fine spray into an annular generator which is exposed to the direct action of a fire, and by these means the water instantly flashes into steam, which passes through a serpentine pipe, or through a series of pipes, in the space or flue surrounded by the annular generator, where the same is superheated, and whence it passes off to the engine or to the spot where it is to be used.

BURIAL CASE AND COFFIN.—JULIAN A. FOGG, Salem, Mass. Patented Sept. 4, 1866.—This invention consists in an improved manner of constructing coffins, whereby the same are made very durable and are prevented from falling to pieces before the wood is decayed, and the invention consists further in a new manner of securing a glass plate to the cover of the coffin, whereby the face of the corpse is displayed, and also in an improved manner of arranging the plates. In the claims of this case, which were published in our last week's issue, the inventor's address is given at Cheshire, England, but it should be Salem, Mass.

PETROLEUM TANKS.—Much attention has been directed to contriving vessels for the storage and transportation of petroleum, and a score of patents have been issued for compositions for rendering barrels impermeable to the liquid, while other inventors have devoted themselves to contriving metallic tanks, which are easily rendered impervious, but are subject to casualties from the expansion and contraction of their contents. When tanks or large vessels are used, it becomes necessary to provide against the "swallowing" of the liquid therein, and about a dozen patents have been issued in which inventors have endeavored to reconcile two apparently opposite conditions: a full tank in which the liquid would not "swash," and one which would not be injuriously affected by expansion and contraction of the liquor. In the patent of Church & Knight, Sept. 11, 1866, an auxiliary chamber is provided, into and from which the liquid of the main chamber flows under alternate expansion and contraction. The means of communication between the two chambers is a bent tube whose open ends are beneath the surface of the liquid in the respective chambers, so that the liquid may flow from the full chamber to the smaller one as it expands and return when it contracts, without the admission of any air to the main chamber. A single plate and a pipe as long as twice the diameter or depth of the tank is all the addition required to provide tanks with this safety arrangement. Address Jas. L. Ewin, Lock Box 39, Washington, D. C.

COMPASS SCALE.—JOHN REID, Knoxville, Md. Patented Sept. 11, 1866.—A scale is furnished with a compass, which will indicate, by the needle, the position of the ruling edge of the scale. The compass is capable of rotation in a horizontal plane, and has an index and vernier to permit its adjustment to correspond to the variation.



A. L. W., of N. Y.—Vulcanized india-rubber cloth will bear a temperature of 160 deg. for a time. The kerosene stoves with an chimney at one end, operate very well. We have tried one thoroughly. They are for sale on Broadway.

—, of Mass.—For keeping the valves of a fire engine from freezing in winter, we know of nothing so efficient and unobjectionable as that which you suggest—glycerin. From some experiments made, we believe it will serve your purpose. Try it next winter.

G. A. H., of Ind.—Your small steel rollers can be polished as well as "tried" after hardening, by the use of "blue stone," or "Scotch gray" stone, secured in a support which will not allow it to follow the depressions of the roll. Holding a piece of the stone firmly on a rest will suffice. Any fine grained stone that does not scratch will do to bring the rolls to a surface. The lathe should not run fast enough for polishing. The whole secret is patience. This is what makes these fine rolls cost.

W. R. and A. E. H., of C. W.—To give you a diagram for setting your slide valve, would necessitate the preparation of engravings, which would entail too much expense. Full directions in regard to this subject can be found on pages 51 and 70 of Vol. XIII, SCIENTIFIC AMERICAN, current series. We think, however, you are striving after a mechanical impossibility, if we understand your query.

F. M. R., of Pa.—The Atlantic cable of 1858 is known to be imperfect. We are not informed whether the Company intend to raise it. It is not expected that it would prove to be in a serviceable condition for an ocean cable.

W. H. S., of Pa.—Coke is generally supposed to be capable of producing a hotter fire than anthracite. The intensity of heat is proportioned to the amount of combustion in a given space. The fuel which burns the quickest should give the hottest fire.

E., of Md.—If an empty bottle be corked and then sunk in deep water, the pressure will force the water into the bottle so as to fill it. But the water will enter through the neck, the cork will be condensed and generally will be inside of the bottle when it is drawn up. Glass is impervious to water. . . . The water at the bottom of the ocean is as quiet as the grave.

A. P. L., of N. Y.—Emery for coating a polishing wheel needs no preparation. Select the grades you need, spread the emery on a board, or table, coat the periphery of the wheel with hot glue, and, by means of a stick through the center, roll it back and forth over the emery. You can, however, purchase a vulcanite emery wheel, which will be superior to any you can make.

J. C. E., of Ohio.—Coat your cast iron screws with plumbago, or blacklead, instead of molding sand, and you will probably find little difficulty in casting a nut upon them.

J. H. L., of Wis.—After years of experience as an editor, testing gum arabic and gum tragacanth, we think nothing is better for paper pasting than common starch. It should be macerated, or dissolved, in hot water, and will keep longer than anything else we know.

SPECIAL NOTICES.

Warren W. Dutcher, of Milford, Mass., and Sarah Dutcher, administratrix of the estate of Elihu Dutcher, of Waukesha, Wisconsin, having petitioned for the extension of a patent granted to the said Warren W. Dutcher and Elihu Dutcher, on the 28th day of Dec., 1852, for an improvement in temples for looms, it is ordered that said petition be heard on Monday, the 10th day of December next.

Jearum Atkins, of Mokena, Ill., having petitioned for the extension of a patent granted to him the 21st day of December, 1852, for an improvement in rakes for grain harvesters, it is ordered that said petition be heard on Monday, the 8d day of December next.

Interesting Decision—Combination Tools are Patentable.

BEFORE THE EXAMINER-IN-CHIEF ON APPEAL.
Footed for the Board.

Application for a Patent for a Combination Tool.

The Examiner, in denying the application in this case, states: "The tool, as described and shown, is an aggregation of four distinct tools answering to four different purposes, some widely dissimilar and others analogous; but in no particular does anyone of these tools add any value to either of the others, or co-operate therewith to effect a common purpose, and hence no combinable relationship exists between them."
In Beach's application for a patent for combining a sharpener with a fork, we came to the conclusion that the principle above referred to answered to four different purposes, some widely dissimilar and others analogous; but in no particular does anyone of these tools add any value to either of the others, or co-operate therewith to effect a common purpose, and hence no combinable relationship exists between them.

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The Examiner refers also to another ground of objection, as follows: "The same patent cannot be for a combination of different machines, and for distinct improvements in each."
The words quoted are from the decision of Judge Story, in *Moody vs. Fiske*, et al. (1 Mason, 119), and are in accordance with an opinion by the same learned Judge in the previous case of *Barret vs. Hall* (1 Mason, 447). These cases were under the act of 1793, and in both, the language quoted was rather a general remark than the decisions of the cases. The language was explained and qualified in the subsequent case of *Wyeth vs. Stone* (1 Story, 291), in which Judge Story says: "It is, perhaps, impossible to give a general language in cases of this sort, standing almost upon the metaphysics of the law, without some danger of its being found susceptible of an interpretation beyond that which was then in the mind of the court. The case intended to be put in each of these cases was of two different machines, each applicable to a distinct object and purpose, and not connected together for any common purpose."

And afterward in *Pitta vs. Whitman* (2 Story, 621), the same Judge decided directly:—"There is, in my judgment, no difficulty in maintaining the validity of a patent (as in the present case) for a machine combining several distinct improvements, each of which is the invention of the patentee, and also of including in the same patent a right to each of these several and distinct improvements. In other words, the patentee may, in such a case, take out a valid patent for the combination, and also include therein a right to each distinct improvement severally contained in the same machine."

The same principle was affirmed by Mr. Justice McLean in *Root vs. Ball* (4 McLean Rep., 180), "the same patent may include a patent for a combination and an invention of some of the parts of which the combination consists."

Since the decision of these two cases it has been a very common practice to include in the same patent claims for the combination and for the parts of which it is composed, and suits upon such patents have been carried through every stage of litigation, and been sustained by the highest courts without objection from that cause, and the law must now be regarded as entirely settled on that subject.

We apprehend, therefore, that the Examiner has not investigated this case with reference to the principles that properly govern it, and we overrule his decision with a view to its re-examination. We express no opinion in reference to any of the claims.

The decision of the Examiner is reversed.

RECEIPTS.—When money is paid at the office for subscriptions, a receipt for it will always be given; but when subscribers remit their money by mail, they may consider the arrival of the first paper a *bona-fide* acknowledgment of the reception of their funds.

Improved Brick Machine.

This engraving represents a new brick machine of that class where the clay is placed in the pug mill and forced down by the mixing knives to the bottom, and then into the openings, A, in the mud boxes. From the mud boxes, by means of plungers operated by a crank on the main shaft, it is forced through openings in the front of the boxes on an endless band, B, the strips of clay corresponding in size to the bricks. The thickness of the strips of clay is varied by set screws raising or depressing the hinged die plate.

The molds, C, descend as soon as the strips of clay cease to move, and cut through them on to the endless band, underneath which is placed a strong stationary table. The molds are then held firmly down on the table. In case the molds strike a stone or other hard substance, in cutting through the clay, the springs, D, are so arranged that they yield and prevent any part of the machine from being broken. While the molds are held down on the table the followers are forced down and press the bricks. The pressure on the bricks is varied by set screws, E.

The molds and bricks are then all raised together, and the bricks are forced out of the molds by the followers on to racks, F, to be removed. The molds are operated up and down by levers connected with an inclined circular track on the main shaft, so that it requires but little power to produce a great pressure on the bricks.

The machine is so constructed that while one set of molds are forming and pressing bricks, the other set are delivering the bricks on racks.

The bricks are pressed sufficiently hard to be handled without marring, so that only racks for one day's work are required.

The machine is also well adapted for making drain tile; the only changes required are to disconnect and remove the molds and place dies of any suitable size in the front of the mud boxes, then arrange a bed of rollers for conveying the tile to be cut into suitable lengths.

The machine is simple in construction, weighing about 2,500 lbs. It is worked by two horses, and will make from 20,000 to 30,000 bricks per day.

Patented July 30, 1866, by E. P. H. Capron and James F. Winchell, Springfield, Ohio. For rights or further information address Capron, Winchell & Co., Springfield, Ohio, or Baker & Short, General Agents, Columbus, Ohio.

Belladonna an Antidote for Opium.

A correspondent, a professional physician, in a letter to the *Medical and Surgical Reporter*, details the circumstances of a case where the patient had taken three ounces of opium tincture, or laudanum, which had exerted its effects three and a half hours. Fluid extract of belladonna was then administered in doses of twenty drops every ten minutes, which, in twenty minutes, arrested the progress of the opiate, and in about eight hours the patient was so far recovered as to sit up and converse. The writer says he is sure that belladonna saved this man's life.

Inflammability of Coal Gas.

Numerous accidents have occurred, especially in the destruction of vessels carrying bituminous coal, from the generation of an explosive and inflammable gas. An English exchange, in noting the fact, recommends thorough ventilation of the cargo as the proper remedy. It is a suggestion worthy of attention. A lantern taken into the hold of a vessel loaded with bituminous coal, which has been kept for days and weeks confined, not unfrequently

sets the ship on fire and causes the destruction of life. If a combustible gas, similar to the "fire-damp" of the miner, is generated by the confinement of coal in a ship's hold, the proper remedy is certainly proper ventilation, which can be easily secured by the introduction of pipes, perforated where they pass through the mass, and extending above the deck. If these vertical pipes are connected near the bottom by a horizontal tube, and the forward opening is provided with a funnel like that of a

River Falls, Wis., to whom apply for further particulars.

The Influence of Science.

The address of Gov. Andrew, before the Agricultural Society of Vermont, will well repay perusal, characterized as it is by the depth of investigation and exactness of information which we should be led to anticipate when emanating from such a source. His statements in relation to the agricultural and mechanical interests of our country are worthy the consideration of every one. The statistical information is of great value; figures are stubborn facts which no subtlety of argument can overthrow, their possession furnishes a power which no opponent is able to gainsay or resist, while the acquisition of such power cannot fail to be both pleasant and profitable when presented in the engaging manner of the address before us.

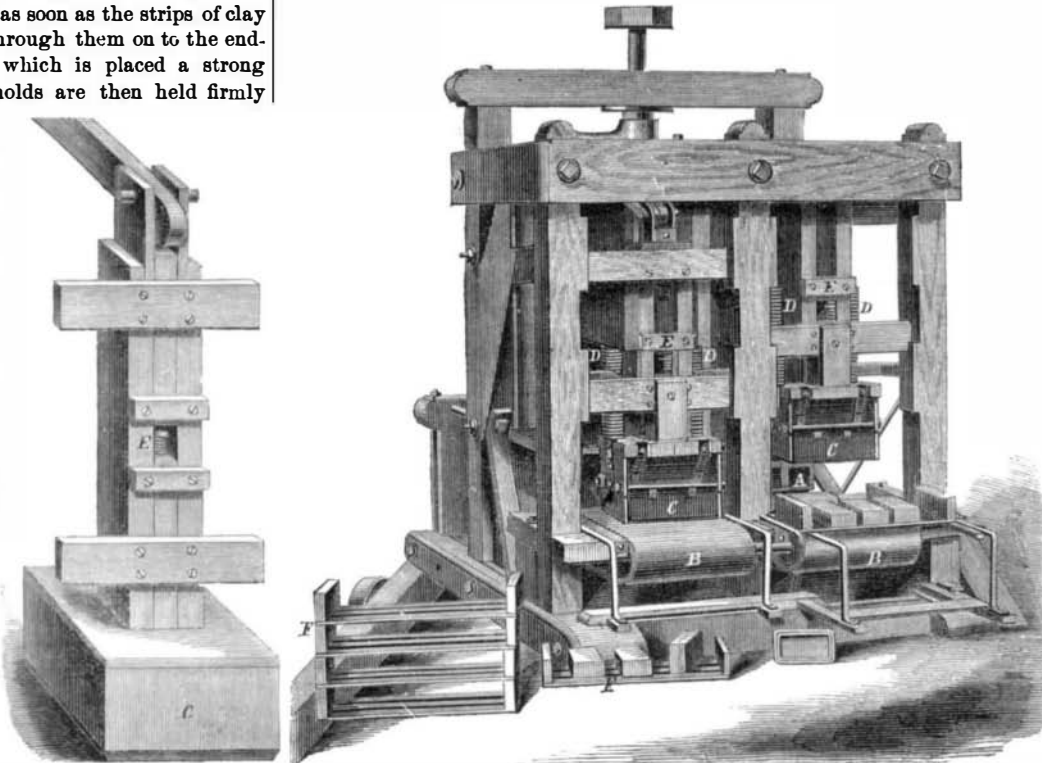
Among the important points brought forward, the following remarks on the value of improvements in machinery seem eminently just: "The activity, the ingenious cunning and the aspiring enterprise of American mechanical inventiveness—have made mankind its debtors, increasing supply, cheapening cost, relieving the hardships of labor, and doing its part toward the amelioration

of man's estate. Our own manufacturers introduced the production of heavy cotton fabrics, by the application of the least amount of labor to the greatest quantity of raw material, producing a description of goods cheaper to the consumer than any before existing. They were followed in this, not led, by the manufacturers of England, by whom even the characteristic name of the American article was adopted for their own imitations spun from the cheaper cotton of India. They have assisted in the reduction of the cost of fabrics to the consumer, so that cottons, selling in 1816 for 30 cents the yard, cost but eleven cents in 1846, since which, until the rebellion, they have vibrated with the price of cotton, between seven cents and nine cents the yard.

"One single cause, namely, the application of science to the arts, is seen in the development of manufactures by the highest mechanical agencies. It has brought together the remotest parts of the land; it has restored waste land and bogs, by drainage, by agricultural machinery, and the intelligent adaptation of crops and fertilizers. It is seen in manufacturing and agricultural machinery, in civil engineering, in the construction of bridges, locomotives, cars, steamers, and railways, in the treatment of soils, the management of breeding, the rotation of crops, and the composition of fertilizing materials, and in all the thousand manipulations of practical husbandry.

"I deem it not too much to affirm that the national existence is due this day to our agricultural and mechanical strength as developed by the science of modern times. At any previous stage of the world, I see not why an enterprising and obstinate foe, operating on interior lines, and within a territory so vast and so defensible, might not have maintained himself with ultimate success against an invading army three times as numerous as his own. Bringing to our aid the appliances and enginery of modern science and art, these conquered, by overcoming the obstacles of space and time."

At the late Nottingham meeting, the British savans gravely listened to the reading of a paper by a certain Lord, on the raising of weights by the swelling of soaked peas.



CAPRON AND WINCHELL'S BRICK MACHINE.

wind-sail, the mouth opening forward in the direction of the vessel's course, and the other pipe having an opening astern, a current would be generated which might safely convey the deleterious gases to the external atmosphere. The subject is worthy more attention than has heretofore been bestowed upon it.

NEWBURY'S SHOE CLEANER.

Every person has experienced the inconvenience of not being able to remove, by the usual means, the dirt and mud adhering in the crevices between



the upper and sole of a boot or shoe. The simple apparatus shown in the engravings is designed to obviate this trouble. It is a clamp of cast iron, A, the two jaws hinged, and the whole secured to the door step or the floor of the entry by screws. A brush or broom of semicircular form is placed between the jaws and secured by the thumb nut and bolt, B. When worn, the brush can be easily replaced by another. No further explanation is necessary, as the contrivance will commend itself to the approval of every housekeeper.



Patented through the Scientific American Patent Agency July 10, 1866, by L. M. Newbury, of Black