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(Illustrated articles are marked with an asterisk,)

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PERSISTENCE THE ESSENTIAL ELEMENT OF SUCCESS.

How many projects calculated for the improvement of the race have been suffered to die, after receiving shape and form, will probably never be known. There are many really inventive minds which possess no quality of perseverance. They nurse the germ of a discovery or improvement into vitality until it promises to arrive at a useful maturity, and then, apparently without reason, let it die a natural or an unnatural death, without serving any useful purpose whatever. Unable to rest, they immediately conceive another idea, which in its turn is stillborn or dies in immaturity. The lack of adequate return for the labor and mind employed in these cases is not because the improvement itself is not valuable, nor because the inventor wanted confidence in its merits; it is wholly because he lacked persistence of purpose. Frequently the invention is re-invented, the improvement re-discovered, and the original discoverer sees the product of his own brain which he himself neglected, enriching and benefiting others. Where one man with energy, perseverance, persistence in overcoming obstacles, and well directed endeavor, will succeed with a comparatively unimportant and trifling invention, another with one of general usefulness and great intrinsic value will never realize either wealth or fame.

He who merely conceives an idea and thinks about it, but makes no attempt to bring it to the notice of others and to introduce it into the living, breathing world, has no right to claim any credit or reward if afterward another shall utilize what he merely dreamed about. Not that success alone should be the measure of estimation for a well directed attempt; for many who have not succeeded themselves have opened the path and pointed the way for others. Such should and do receive the credit due to their endeavors. But the possessor of a useful idea who selfishly keeps it as a plaything for his leisure hours, as a hobby on which to ride, or neglects to develope it into activity, can claim nothing justly of him who gave it life and purpose.

The career of Cyrus W. Field in his thirteen years of labor on the Atlantic cable is an illustration of the value of persistency. He, a retired merchant, peacefully settled, as he believed, for the remainder of his life, determined to attempt the great enterprise, and enlisted by his enthusiasm some other gentlemen in the project. A land line of four hundred miles with a good bridle path had first to be constructed through the wilderness of Newfoundland. This employed a force of six hundred men for two years. Then a submarine line had to be laid across the Gulf of St. Lawrence. This was once lost and had to be replaced. Then the great Atlantic line was four times broken, but amid all these discouragements, seeing his own fortune and those of others literally "cast into the sea," subjected to the discomforts of over thirty Atlantic voyages, and enduring the annoyances of loudly expressed unbelief and illy concealed ridicule, he persisted until his proudest monument is his success in the laying of the great ocean telegraph.

If the inventor has discovered a really good thing, or the mechanic made an indisputable improvement, there is no adequate reason for discouragement if the world does not at once accept his view of it. If it has merits and they are persistently and continually presented in the proper manner, it is impossible but they will attract attention. If, however, the inventor is satisfied with having perfected his improvement, and does not follow up this success by further attempts in properly introducing it, he may as well give up the career of a successful inventor. There must be persistence: first in working out into active form and palpable shape the idea; then there must be the same persistence in presenting it to the attention of others, whatever may be the discouragements and rebuffs which meet him. Without this quality the inventor is useless to others and powerless to aid himself; with it, to him all things are possible.

RIGHTS OF PROPERTY IN INVENTIONS.

"The large share which the inventions of Americans have had in promoting industrial progress throughout the world, renders the degree of effective protection given to inventors in the United States and other countries, a subject of pressing importance. It is not merely that the spirit of invention is aided just in the degree that encouragement is given to the inventor, but that any country desirous of maintaining her superiority over other countries, will find that the utmost liberality in giving effective protection is coincident with the soundest policy. If France, for instance, were to do for other branches of industry what it has already done for its art-industry, insure to the inventor a property in his invention in perpetuity: and the patent laws of England at the same time to remain unchanged, it would certainly happen in no long period of time that England would be unable to compete with France in the very commodities in which at the present time she has the indubitable superiority. By giving perpetuity to inventions, England, on the other hand, besides giving a stimulus to the national talent, would attract thousands of foreign inventions, now kept back by fees unreasonably high, taken in connection with the limitation of time during which a patent is valid. So long as England alone possessed a patent law, this law, imperfect as it was, produced a beneficial result to her advantage as compared with other countries, but so soon as other nations adopted similar, or even better laws, the patent regulations in England should have been more completely amended. On comparing the condition of industry in different nations with each other, we find that in proportion to the length of time encouragement has been given to the inventor, and to the liberality and effectiveness of the laws affording protection, the industry of such nation has progressed. Turkey, Persia, and China are without patent laws, and the industry of these countries is, as a natural consequence, very nearly in the same state it was two or three centuries ago, when England was politic enough to attract by the promise of property in inventions, the inventors of the whole world to develop their ideas on English soil."—*London American.*

REMARKS.—The writer thinks that patents, instead of being granted for a limited term, should be made perpetual. This would be convenient for patentees, and encouraging to that large class known as assignees, who generally purchase the patent from the poor inventor for little or nothing, and then grow rich by taxing the public.

The European masses have for centuries been ground down by monopolies. By means of patents for special privileges, taxes, imposts, and various legal devices, the lords, dukes, and other monopolists, have maintained a perpetual system of robbery and oppression upon the working classes, the baneful influences of which language is inadequate to describe.

If patents were made perpetual, a patent aristocracy would quickly spring up to revel upon the industries of this republican nation.

The aim of law is to benefit the whole people. Laws which burden the masses but fatten the few, are bad in principle, and should never be perpetuated.

Every citizen is bound to labor for the common good; and some philosophers say that the just reward for labor should be in accordance with the prices of bread and the severity of the work done; he to whom brain work is most suitable, receiving no more pay for eight hours' labor, than the man of muscle for the same period. But we do not endorse this theory. If patents were paid for on this principle, some of the poorest inventions would bring high prices, and some of the best only a trifle.

The object of the patent law is to benefit the people by putting them in possession of improved tools, machines, appliances, processes, and other agencies by which industry is assisted, intelligence promoted, and the comforts of life augmented. The law encourages inventors to make known their improvements by giving them brief monopolies and permitting them to tax the people. When the patent expires, the monopoly ends and the people come into free possession of the improvement.

We believe in the expediency of patent laws, but we think the world could revolve without them. We have been accustomed to attribute the stagnation of the Orientals to ignorance of revealed religion and lack of moral power. Our cotemporary thinks it is due to want of patent monopolies. True, the Celestials have no patent law, but the Chinese compass guides our patent ships, and Chinese powder thunders from our patent guns. Many of the most marvelous discoveries were achieved without the help of patent laws.—[EDS. SCI. AM.

SOURCES OF NATIONAL IMPORTANCE.

Neither extent of territory nor strength of armies and navies, alone constitute the power of nations; nor even the possession of vast deposits of the precious metals, although each of them under favorable circumstances may contribute to national importance. More important than either of these however, is population. The British empire, with an area of 3,555,092 square miles, has a population of 223,500,000. Russia with an area of 8,281,000, has 74,000,000 population. France, 546,000 square miles and a population of 44,000,000. The United States 2,819,811 square miles exclusive of Walrussia and a population of about 33,000,000. England's preeminent importance and influence is largely a consequence of the great population she controls, and the diversity of their productions. The people of every variety of climate and soil contribute to her wealth and add to her power. Outside of herself and her colonies she really requires nothing necessary to contribute to her ascendency; the resources of a world are virtually her own. Her colonies furnish her with all manner of useful material, which she manufactures and returns to them and sells to the world, while the islands known as Great Britain and her North American colonies supply food for her mechanics. Every essential element of prosperity, so far as material needs are concerned, she possesses to a greater extent than any other European nation. The main drawbacks to this independence are the wide separation of the parts of her empire and the difference in the language and customs of her people.

In these respects we excel her. Our territory is embraced in a single boundary line, and our people speak a common language. Our productions are those of the north temperate, temperate, south temperate, and torrid zones, and of every diversity of soil, situation, and climate. Our country contains every kind of metal and mineral, many varieties of useful timber, the best grain-growing lands on the globe, and a greater number of valuable manufacturing material than any other, except, perhaps, that of the British empire. Our population is increasing faster than that of any other country, and our institutions are not only liberal, but alike from one end of the country to another. Possessing these present and prospective advantages, it is difficult to conceive a limit to the future importance of the United States among the nations.

MALLEABLE CAST IRON.

For some reason, not fully clear to us, malleable cast iron has not assumed the position among the useful metals it is entitled to from its merits. There appears to be a prejudice against its use which arises from a doubt as to its strength. For resisting a transverse or a longitudinal strain it may not be equal to wrought iron in tenacity, nor to cast iron in rigidity, but in some situations it is actually superior to either wrought or cast iron and in some respects better than steel.

If cast from the proper metal and then properly annealed and softened by the process of semi-fusion, it is more homogeneous than either ordinary cast iron or steel. When these conditions exist it may even be forged and drawn under the hammer without crumbling; its tenacity is wonderful under some circumstances. The carbon is almost entirely abstracted, reducing it to the condition of nearly pure iron without, however, the fiber of wrought iron produced by hammering or rolling, which fibrous condition is sometimes an element of weakness: for instance a small gear with a large hole upon which a great strain comes, has been proved to be much stronger made of cast malleable iron than of wrought iron or steel.

A case came under our observation some years ago, where the spindle gear of a screw-cutting lathe containing only 20 teeth was broken. Between the bottom of the teeth and the hole for the spindle, the metal was less that one quarter of an inch thick. The ordinary cast iron gears would fly in pieces whenever the carriage was reversed. A blank was forged of a bar of tough wrought iron, turned into a ring and welded with a scarf weld. Of course the fiber or grain of the iron followed the circumference, and the vertical sections of the teeth were cut through it. This gear would not stand. Cast steel gears, both annealed and hardened, were tested and failed, when a gear was cast and made malleable and worked satisfactorily for many months. In another instance the wheels for a wringing machine, which connected the rollers, could not be made to stand when of ordinary cast iron. They were made of cast malleable iron and no after trouble was experienced.

It is poor economy to employ a cheaper material merely because it is cheap; but when cheapness and superiority may be combined, as is the fact with malleable iron in many cases, it is the part of wisdom to do so. It can not be doubted that malleable iron may be used for many purposes to which wrought iron and steel are now applied.

PRACTICAL MECHANICS AS VISITORS TO THE GREAT EXPOSITION.

A correspondent, alluding to the raising of funds in England to pay the expenses of practical workmen to the Paris Exposition, inquires why a similar movement here might not be feasible and advantageous. In our opinion, there is little in common between the two cases. First, England is separated from France by a very little distance and a very brief time. To go from New York to Chicago, or from New York to Boston by steamer and rail, is a much longer and full as difficult and dangerous jaunt; we are not certain but it costs more money. Compared with the trip from any part of England to Paris, a journey from this country to the same place. even if the start is made from New York or Boston, is a great undertaking.

Second, we do not think the same conditions exist in relato the requirements of the parties. A very large proportion of our employers of mechanics are themselves practical men, and quite a number of these have already gone to the Exposition. Our most successful mechanics—masters—are those who have raised themselves from the position of employes to employers. It is doubtful if this fact exists to so great an

extent in England. Many also of those of this country not now connected with mechanical business, whose means enable them to visit Paris, are intelligent and observant men, perhaps formerly workmen, who will not fail to note whatever may be interesting and useful to our mechanics, and give the public the advantage of their observations.

Tobacco Morality.

The characteristics of an individual are vividly portrayed in little things. An exchange in relating the traits of inner life in the workshop, alludes to the moral caliber of the men by the way they get tobacco of their shop mates, by begging, or borrowing as they are most apt to term it. One man will offer his fellow workman his tobacco box from which to help himself: another will take a bit from his box and hand it be grudgingly to his companion, and another will deny that he has any tobacco about him or perhaps that he ever uses it. One man, a Jesuit in nature if not in creed, used to keep two tobacco boxes, one he called "The World," the other "Providence." When asked for a pipe of tobacco, he would answer, "I have not a bit in 'The World;'" then calmly go off to one of the secret smoking places and light his pipe with a serene conscience. If taxed with falsehood, or asked how he had got his tobacco, "I put my trust in 'Providence,'" he would answer, and the prevarication was as good to him as truth.

OFFICIAL REPORT OF
PATENTS AND CLAIMS

Issued by the United States Patent Office,

FOR THE WEEK ENDING JUNE 25, 1867.

Reported Officially for the Scientific American

PATENTS ARE GRANTED FOR SEVENTEEN YEARS, the following being a schedule of fees:—

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$10
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On filing application for Design (seven years)	$15
On filing application for Design (fourteen years)	$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay $500 on application.

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65,987.—APPARATUS FOR FORMING BUMPER CARRIERS FOR RAILROAD CARS.—W. C. Allison, Philadelphia, Pa. Antedated June 10, 1867.

1st, I claim the combination of the block, H, handled eccentric, I, blocks B and C, and the devices herein described, or the equivalents to the same, for effecting the simultaneous action of the blocks, in the manner described.

2d, The combination, substantially as described, of the bending blocks, E and F and F', with the blocks, B and C.

3d, The combination of the forming blocks, E and E', with the handled eccentrics, t t'.

4th, The arrangement on each of the several forming blocks of its spindle and collar in respect to the corner of the block, as described.

65,988.—MODE OF KEEPING EGGS.—B. D. Atwell and Miss G. H. Crawford Portage City, Wis.

We claim the application of the above recipe for preserving eggs, as herein described, using for that purpose the aforesaid ingredients, or any other substantially the same, and which will produce the intended effect.

65,989.—BOLT CUTTER.—A. S. Bailey, Knoxville, Ill.

I claim the combination of the head, A, provided with the stationary cutter, a, sliding cutter, c, provided with the head, d, spring, m, and the pivoted handles, B C, having the cams, n, formed thereon, when all are arranged for joint operation as herein shown and described.

65,990.—MACHINE FOR DRESSING MARBLE.—R. P. Bailey, Niagara Falls, N. Y.

I claim the employment of a series of spring blades or scrapers, h, in combination with the clamping arms, C, and head or stock, A, for acting successively on the material to abrade it to the form of said blades, when constructed, arranged and operating substantially as and for the purpose set forth.

I also claim the arm or holder, C, when connected with the head, A, or its equivalent, by means of pivot, d, and the bearing bolts, e e, arranged to allow the blades to adjust themselves to the work when rotated in either direction, substantially as set forth.

I also claim, in combination with the blade, h, and its set bolt, k, the chamfering away of the clamp sides at i i, substantially in the manner and for the purpose set forth.

65,991.—DRILLING INSTRUMENT.—N. Barnum and G. C. Schreiber (assignors to N. Barnum), St. Louis, Mo.

1st, We claim the stock, B, with a tool cavity and tapering slots for the screw, c2, in its lower end combined with the spring, C, and set screw, c2, substantially as described and set forth.

2d, The slotted tool, c, in combination with the spring holder, C, and its set screw, c2, and the tool stock, B, when acting substantially as set forth.

65,992.—ROTARY PUMP.—J. A. Bazin, Canton, Mass.

I claim the packing, f k, constructed as described, and arranged between the wings of the pistons, substantially as set forth.

65,993.—BLIND FASTENER.—A. Bingham, Newtonville, Mass.

I claim the blind fastener as composed of the catch lever, C, the stop, D, its shoulders, h h, and the catch, E, arranged and constructed so as to be applied to a blind and a window frame or sill, substantially as specified.

65,994.—WATER METER.—E. Blakeslee, Plymouth, Conn., and J. S. Hunter, Hartford, Conn.

1st, We claim the valve, I, having the opening, a, and passages, d and e, arranged in relation to the ports in the valve seat so as to operate substantially in the manner described.

2d, In combination with the above we claim the weighted lever, k, constructed so as by its movement to reverse the flow of water, substantially as herein set forth.

3d, In combination with the above we claim the diaphragm or piston, arranged substantially in the manner described.

65,995.—HARNESS SADDLE.—Valentine Borst, N. Y. City.

1st, I claim the removable hooks, C C, adapted and arranged to and with the hollow bridge or pier, B, substantially as set forth, so that the saddle can be used with or without the hooks.

2d, I also claim the use of the terrets, D D, for securing the hooks, C C, in the ends of the hollow bridge of the saddle, substantially as set forth.

65,996.—MORTISING MACHINE.—S. C. Brown, Richmond, Ind., assignor to J. A. Fay & Co., Cincinnati, Ohio.

I claim the cutter, t, shaft, p, and pulley, m, attached to the flanged plate, n, when said plate is made adjustable upon the bed plate, r, substantially in the manner and for the purpose set forth.

65,997.—HAND LOOM.—J. D. Browne, Cincinnati, Ohio.

I claim the cranks, a b, and the rod or bar, D, having a center pin, c, and the guide plate, G, in combination with the shaft, C, substantially as herein described.

65,998.—MACHINE FOR FORMING SPECTACLE FRAMES.—Chauncey Buckley (assignor to Charles Parker), Meriden, Conn.

I claim the eye former or stretcher consisting of a plunger to enter the eye and a bed for the eye to rest upon, having an opening through it of the form of the eye desired for the plunger to pass into in combination with the holding pieces, d' d" as set forth.

I also claim the combination of the adjustable supporting plates, c, the bed and the plunger, substantially as described.

65,999.—MODE OF TREATING HYDRO-CARBON OILS.—A. M. Burke and S. Wright, Cleveland, Ohio.

1st, We claim the herein-described process of consecutively treating oils, first, by alkali in the still, as specified, and subsequently by the use of acids in the agitator as a continuation of the said process, substantially as set forth.

2d, As a means for carrying out the herein-described process we claim the valve or plug, D, provided with suitable devices for operating the same in combination with the pipe, C, and still, substantially as described.

66,000.—STEAM WATER ELEVATOR.—Martin Burton, Indianapolis, Ind.

1st, I claim the arrangement of the chambers, A and B, and pipes, G H and C, in the manner and for the purpose substantially as set forth.

2d, The arrangement of the steam induction pipe, F, water induction pipe, D, eduction pipe, L, and valves, E M and N, float, I, rod, J, and lever, K, substantially as and for the purpose set forth.

66,001.—ELECTRO MAGNET.—S. G. Cabell, Quincy, Ill.

I claim a compound magnet consisting of two or more helices inclosed in soft iron tubes with the tubes so arranged as to separate the helices and both tubes and helices arranged concentrically around a central tube or bar, as herein described.

66,002.—CORN PLANTER.—H. W. Camp and A. W. Fox, Oswego, N. Y.

1st, We claim the index, B, when constructed, arranged, and applied to machines planting in rows, for the purpose and as herein specified.

2d, The wheel, E, provided with a zigzag rim surrounding its periphery in combination with the feeding bar, F, when constructed and operating substantially as herein described.

3d, The shells, h, and gages, m, in combination with the feeding bar, F, the whole constructed and operating substantially as herein specified.

4th, The shoes, K, for removing obstructions and regulating the depth the seed is to be planted in combination with the hollow teeth, p, and roller, P, when constructed in the manner herein set forth.

5th, The ratchet teeth with pawl, d, and cone, c, in combination with the driving wheel, A, index, B, and wheel, E, when these several parts are arranged and operating substantially as herein specified.

66,003.—CALENDAR CLOCKS.—C. M. Clinton and L. Mood, Ithaca, N. Y.

1st, We claim the twenty-four-hour escape made by the segmentary wheel, A, segment, B, and arm, C, when substantially made as described.

2d, We claim, in combination with the arm, C, the use of the eye, D, or its equivalent, acting in a variable and changeable space, between the nut or burs, E and F, or their equivalents, both for the purpose of holding and adapting our various devices to each other and to allow a constant movement of our time escape-arm, C, while the rod, G, moves different or diverse distances according to the variable length of the months of the year, and also for adjusting the calendar and clock works to each other, as set forth.

3d, We claim the springs, I and H, acting on the correcting rod, G, and the segment, B, either one or both for preventing contingent or unintentional changes or displacements, and yet allowing the changes to be made by the mechanism of the clock and calendar at their appropriate times, as described.

4th, We claim the combination of the spring I, with the rod, G, as described, for the purposes of retracting the said rod or rods and its connecting parts and operating the calendar correctly through our other devices be the position of the clock and calendar what it may; and also for the purpose of obtaining a complete or supplementary driving power for our calendar, as described.

5th, We claim gearing the month cylinder into the month wheel either directly or by intermediate cog wheels, as described.

6th, We claim the vibratory shaft and cog wheel, or any similar device, and the gearing the same in any manner with the thirty-one-day wheel or days of the month device, when so made as to revolve the days of the week cylinder one or more days at a time, as described.

7th, We claim putting or locking the cam for throwing out of gear the vibratory shaft and its cog wheel on the weight lever or cross bar of the thirty-one-days wheel, and we claim the detent, Y b, for holding the said cog wheel and its connected parts fast while out of gear; and we claim the gearing of the day of the week cylinder into the vibratory device; the whole of these just named parts as a combined whole or each acting separately by itself, as described.

8th, We claim the fixed stop, N, for checking the upward motion of the weight lever or cross bar by the pawl or dog, M, or other convenient part connected with the said lever or bar, as described.

9th, We claim making our registers or cylinders of calendar clocks either wholly or in part of paper, or other similar light material, for the sake of their lesser weight and strain on the mechanism of the calendar, as described.

10th, We claim the specific device of a month wheel made by the variable depth of teeth, Ua Ub Uc and Ud, to accomplish every possible monthly change reasonably requisite in a calendar clock, as figured and described.

11th, We claim the device of putting the month wheel in direct communication with the thirty-one-days wheel shaft or any part or portion of the thirty-one days wheel or shaft, as described.

12th, We claim placing the month escape cam on the shaft of the thirty-one-days wheel so that one tooth or month of the month wheel escapes in every revolution of the thirty-one-days wheel

13th, We claim a wheel cam or escape so made and operated as to act as a stop or detent to the month wheel and yet allow at the proper time that wheel to revolve as described, and also the making of an additional length of teeth to the teeth of the month wheel so as to fit and embrace the said cam or escape, as described.

14th, We claim the hinged lever, substantially made as described, and operating so as to produce the described results on the month wheel and escape detent of the thirty-one-days wheel on either one or both of the said parts, as described.

15th, We claim the employment or use of a hinged lever on the shaft of the thirty-one-days wheel when accomplishing any one or all of the purposes described.

16th, We specifically claim the shoe-shaped and convex cams, one or both on the end, T, of the hinged lever, as described.

17th, We claim centering and connecting the devices of the hinged lever, R, the cam or escape, Va, of the month wheel, the month wheel, U, the vibratory arm and cog wheel, Y, and through the said month wheel and said cog wheel, the month and the day of the week cylinders, immediately with the axis, V, of the thirty-one-days wheel or that wheel itself, as described, thus simplifying and making more compact our calendar.

66,004.—GAS APPARATUS.—Charles Deavs, New York, N. Y.

1st, I claim the use of two or more retorts connected together in pairs so that the first shall volatilize the oil or oily substance, and the second shall complete the conversion thereof into a fixed gas suitable for illuminating purposes, the said retorts being constructed and arranged substantially as and for the purpose herein above set forth.

2d, The combination with the conductor pipe, K, of a cooling trough, L, the water from which supplies the wash-box, substantially as and for the purpose set forth.

3d, The combination with the discharge end of the conductor pipe, K, of a perforated or reticulated disk, h, substantially as and for the purpose set forth.

4th, The combination with the oil reservoir, U, and retorts, B, B', of a cut off, y, constructed and operated substantially as herein described.

66,005.—WINDOW SCREEN.—R. G. Dennell, Saco, and Liberty B. Dennell, Portland, Maine.

We claim the combination of the cylinder, g, pin u, and pins, h, h, or their equivalent, i, cavity, v, spring, f, rotary cylinder, k, cog, m, groove, n, pin, w, and mortise, y, when constructed and operating in the manner and for the purposes specified.

66,006.—BOAT DETACHING APPARTUS.—Wm. A. Devon, Port Richmond, N. Y. Antedated June 11th, 1867.

I claim, first, the construction and application of the jointed hooks attached to the boat by an extended shank, in combination with the slides, g, and interposing springs, arranged and operating substantially as specified.

2d, The arrangement at opposite ends of the boat of detachable spring-hooks, constructed substantially as described, in combination with rod, rope or chain connections within the boat whereby they may be operated in unison to unlock the slides that secure the hooks in their closed condition, essentially as herein set forth.

66,007.—ANIMAL TRAP.—J. P. Emswiler, Knightstown, Ind.

I claim in a rat trap the combination of devices for disengaging the shaft, C, and actuating the fingers, K, and doors, D and F, substantially as described.

2d, The combination of the revolving fingers, K, shaft, C, eccentric, C1, rod E, and door, F, substantially as described.

3d, The combination of the revolving fingers, K, shaft, C, eccentric, C2, rods, D1, and doors, D, substantially as and for the purpose set forth.

4th, In combination with the revolving shaft, C, and fingers, K, and automatically acting door, F, opening into the upper chamber, I claim, the door, L, opening into the lower chamber, substantially as and for the purpose set forth.

66,008.—FARM GATES.—J. W. Epperson, Woodhull, Ill.

I claim, first, the spur wheel, E, operating substantially as described,

2d, The grooved rail, D1, of the gate, D, in combination with the spur wheel, E, and the revolving wheels, C, attached to the fence posts and upon which the gate slides on opening and closing.

3d, In combination with the gate, D, with horizontal rail, D1, and vertical strips, D2, I claim the spur wheel, E, shaft, E1, and winch, F, arranged to operate substantially in the manner and for the purpose set forth.

66,009.—DIES FOR SWAGING AND PUNCHING THE JAWS OF WRENCHES.—J. S. Farnsworth (assignor to E. G. Lamson,) Windsor, Vt.

I claim the combination of dies and punch, constructed and operating substantially as described.

66,010.—CURTAIN FIXTURE.—M. R. Fenton, Washington, D.C.

I claim, first, the hinges, A, A, in combination with bar, C, and roller, D, substantially as and for the purpose specified.

2d, Hinges, A, A, pulley, J, cords, s and n, and roller, D, combined and operating in the manner and for the purpose substantially as herein described.

66,011.—APPARATUS FOR BORING CYLINDERS.—L. B. Flanders Philadelphia, Pa.

I claim, first, the combination of the boring bar, B, the casing, I, its train of wheels herein described, or the equivalent to the same, the nut, w, and the stationary feeding screw, G, the whole being arranged and operating substantially as described.

2d, The cog-wheel, q, its circular recess and grooves, t, t, in combination with the hollow spindle, r, and the rod, s, with its pin, s1, and spiral spring, u, the whole being arranged and operating substantially in the manner and for the purpose set forth.

3d, The bearing, E, in combination with the adjustable and conical split ring, g, and ring, g1, or its equivalent, the whole being constructed and arranged substantially as described.

4th, The split ring, b, in combination with the bearing, E, as and for the purpose described.

66,012.—SIDE-HILL PLOWS.—P. H. Flansburgh, Eden Township, Cal.

I claim, first, the two plates, C, C1, placed side by side and operating independent of each other, either by a hinge or rack and pinion, substantially as herein described.

2d, The levers, H and H', with the toothed segments, G and G', operating the plows by means of the independent vertical racks, E and E', substantially as and for the purpose described.

66,013.—BLEACHING.—J. B. Fuller, Norwich, Ct., assignor to self, J. P. Upham, Claremount, N. H., and E. T. Rice, New York.

I claim, first, the method herein specified of subjecting the fabric or fibers to the operation of elastic squeezing rollers, to produce a circulation of the bleaching liquid throughout the fibres of the fabric, substantially as set forth.

2d, The method of utilizing the chlorine gas contained in the fabric or fiber after it has been squeezed by elastic rollers by immersing the same in water, as set forth.

66,014.—CHUCKS FOR IRON PLANING.—M. C. Gardner, Rochester, N. Y.

I claim the sliding jaws, B, B, and the bracket or support, D, back of one of the jaws, B, B, to chuck lengthwise the table and at the same time using the jaws, R, R, for chucking both crosswise and lengthwise the whole table, in combination substantially as specified and for the purpose set forth.

66,015.—CHURNS.—J. C. Gaston, Cincinnati, Ohio.

I claim the guard chamber, C, having one or more openings, c, in its side wall, b, substantially as shown and described.

66,016.—PLOWS.—Lewis Gibbs, (assignor to Bucher, Gibbs & Co., Canton, Ohio.

I claim uniting the bar, A, to the share, B, at the point, a, underneath the share, as and for the purpose herein described.

I also claim a clevis made in two parts, with dovetailed recesses cast therein, so as to fit a dovetail or shoulder formed on the end of the beam and united thereto by a bolt or key, substantially as herein described and represented.

66,017.—SPINDLES FOR SPINNING.—A. H. Gilman, Hopedale, Mass.

I claim the application of the step cap, C, to the spindle, A, by means or devices, such as when the cap may be encompassing or covering the step, and the spindle may be in revolution, shall not only cause the cap to be revolved with the spindle, but allow it, the said cap, to be freely raised off the step in order to enable such step to be supplied with oil as occasion may require.

I also claim the combination and arrangement of the collar, D, with the spindle, A, and the cap arranged with a step as set forth, the collar being for the purpose or object as explained.

I also claim the arrangement of the collar, D, and the stud, d, with the spindle, A, and the cap, C, provided with a recess or hole, c, to receive the stud and applied to a step, B, substantially as described.

66,018.—BOILER-FEED-WATER REGULATOR.—C. H. Gould, Cincinnati, Ohio.

1st, I claim the reciprocating rotary shaft, C, traversing the boiler side within a suitable horizontal sleeve, A, and provided with a float, F, inside of the boiler, and adjustably weighted lever, I, outside of the boiler, in combination with the adjustable rod, K, and valve guarded water supply pipe, substantially as set forth.

2d, I claim the arrangement of rod, K, bossed cap, P, diaphraghm, N, and water supply pipe, Q, for the purpose described.

3d, The oblong float, F, stem, E, reciprocating rotary shaft, C, sleeve, A, with steam tight joint or joints in combination with the rod, K, and diaphragm stop, N.

66,019.—SORGHUM EVAPORATOR.—W Hanson, Willoughby, O.

1st, I claim the employment of the partitioned tank, M, provided with stop-cocks and hood, P and P", in combination with the evaporating vat, K, auxiliary fire box, I, dampers, X, X, constructed with turned up edges, Y, Y, Y', arranged and operating as and for the purpose specified.

2d, The framed bars, C, constructed as described, and connected together in sections by free joints, R, and provided with levers, T and T', in combination with the evaporating vat, K, provided with ledges, L, operating as and for the purpose set forth.

3d, Constructing the body of the evaporator with a main fire-box, E, at its front end, a wide and gradually contracted fire chamber, H, and auxiliary fire-box, I, arranged and operating as specified.

4th, Providing the main fire-box, E, with elongated draft openings, F, F, F, through the bottoms thereof, and with brick lined intermediate spaces between said openings, so as to operate as and for the purpose herein stated.

5th, The use of extended lever arms, U, U', located as shown, in fig. 1, and operating the draingates, V, V', in the manner specified in combination with the evaporating vat, K, as set forth.

66,020.—MACHINE FOR BEATING AND PICKING COTTON.—David Harding, Lowell, Mass.

I claim the cylinders, O, N, R, armed with teeth as described, in combination with the main cylinder, C, the several parts being constructed and arranged as and for the purpose set forth.

66,021.—TORCH FOR LIGHTING GAS.—Wm. Edwin Heath, Pembroke Terrace, Great Britain, assignor to J. W. Bartlett, New York city.

1st, I claim the construction of the double case or cover having the perforated tubes, A and B, arranged one within the other, for the purpose and substantially in the manner set forth.

2d, The double handle, G, adapted either for burners constructed as shown in figure 3, or for ordinary gas burners, for the purpose and substantially in the manner set forth.

3d, The apparatus consisting of the tubes, A and B, cap, D, lamp, C, and socket, F, constructed and combined for the purpose and substantially in the manner set forth.

66,022.—ABDOMINAL SUPPORTERS.—William Henderson and J. Greenawalt, Pittsburgh, Pa.

We claim securing the end of the wire, L, by means of a spring catch, b, attached to the front plate, A, and operated by the knob, K, in the manner herein shown and set forth.

66,023.—DEVICE FOR CLOSING BOTTLES.—Conrad Herman, Baltimore, Md.

I claim the hinged clasp, A, fastened by means of the lugs, a, and screw, b, and having upright arms, d d', with the cover, B, pivoted to d', and fastened to d, by means of the lugs, o n, and screw, t, when arranged to operate substantially as described and set forth.

66,024.—LIME KILN.—Chas. Hinkley, Williamsville, N. Y.

I claim the combination and arrangement of the elliptic cupola, A, the inwardly widened furnaces, B B, sharp-edged pillars, h h, and flues, e e, as and for the purpose herein specified.

66,025.—PETROLEUM GAS BURNERS FOR HEATING PURPOSES.—D. S. Holden, New Orleans, La.

I claim a gas retort and burner, consisting of the concentric or annular oil chamber, C, in combination with a central air chamber or flue, B, provided with perforations, D', at or near the top of chamber, C, substantially as and for the purpose described.

66,026.—MACHINE FOR CLEANING MOSS.—Henry Hull, Pattersonville, La.

I claim the vibrating convex card, A, in combination with a fixed concave card, C, when the teeth of both project in the same direction and at the same angle as described for the purpose set forth.

66,027.—FIELD FENCE.—Marshal Ingersoll, Elyria, Ohio.

I claim the fence constructed and arranged in the manner and for the purpose substantially as specified.

66,028.—HYDRAULIC PRESSURE REGULATOR.—Isaac Judson, New Haven, Conn.

1st, I claim the combination of the two diaphragms, with the valve and its stem, when they are constructed, arranged, and fitted for use substantially as herein described and set forth.

2d, The combination of a ring or annular disk with either of the diaphragms when used to lessen the extent of the yielding surface of the diaphragm, substantially as herein described and set forth.

66,029.—POTATO DIGGER.—G. W. Kintz, West Henrietta, N. Y.

1st, I claim the double-winged mold-board plow, provided with the adjusting slats, b, and flaps, a, arranged and operating in the manner and for the purpose set forth.

2d, The combination and arrangement of the adjustable combs, D, with the double-winged slatted mold board, C, operating in the manner and for the purpose specified.

3d, The employment, in combination with the double-winged slatted mold board, of the rollers, e e, situated in the ends of the handles, as set forth.

4th, The combination with the double-winged slatted mold board of the shaker, composed of the plates, I, vibrating arms, o, and axle, G, with cogs, n, and the adjusting braces, L, as set forth.

5th, The employment of the pivoted vine puller, P, with ratchet rod, Q, so arranged as to operate from the rear for discharging the vines as herein set forth.

6th, The arrangement of the machine as a whole, consisting of the slatted mold board, C, combs, D, shaker, I I G L n o o, and vine puller, P Q, as herein set forth.

66,030.—ADJUSTABLE TIRES FOR WHEELS.—D. J. Kirkman and E. H. Gray, Winchester, Ill.

We claim, 1st, The cap, C, when constructed substantially as and for the purpose set forth.

2d, The shoe, D, when constructed substantially as and for the purpose specified.

3d, The cap, C, and shoe, D, as constructed in combination with bolt heads, e e, and screw bolt, d, substantially as and for the purpose described.

66,031.—PLOW.—D. J. Kirkman and E. H. Gray, Winchester, Ill.

1st, We claim the employment of a subsoil plow, F, when attached to the adjustable bar, m, said bar being constructed and arranged in the manner herein specified.

2d, The adjustable bar, m, double jointed arm, h, and hook, i, the whole combined in the manner and for the purposes set forth.

66,032.—NAIL EXTRACTOR.—A. Marden and A. H. Burgess, Philadelphia, Pa.

We claim the jaws, D D, when constructed with slightly tapering sides, hinged together at the top and having an intervening spring, which jaws rest in a corresponding tapering mortise, B, in the handle, A, and operate together in the manner substantially as described and for the purpose specified.

66,033.—MEAT CUTTER.—Wm. M. Miller, Tulpehoccan, Pa.

I claim the block, S, and spring arms, K, in combination with the screw nut, Y, and in the manner and for the purpose specified.

66,034.—BEAN PULLER.—S. W. Moore, Albion, N. Y.

1st, I claim the combination of the fixed and sliding bars, b f, armed with intermatching teeth, g' g', operating substantially as and for the purpose herein set forth.

2d, Hinging or jointing the teeth, g', in the manner and for the purpose specified.

3d, The employment of the guides or shields, i, in combination with the sliding bars, f, for the purpose set forth.

4th, The arrangement of the treadle P, rod, Q, pawls, m, and ratchet wheels, n n, in combination with the disks or cranks, M, connecting rod, L, and arms, H, operating to adjust and retain the roller, as herein set forth.

66,035.—BOOT CRIMPER.—Dewitt C. Mowrey, Milford, Mass.

I claim the combination and arrangement of the auxiliary jaws, with the clasp, the frustum, and straining screw.

I also claim the application of the auxiliary jaws to the clasp by means substantially as described, viz: by the arms provided with cars and by slots, having the supports arranged as set forth.

66,036.—MUCILAGE BOTTLE.—A. M. Olds, New York City, assignor to J. W. Hawxhurst. Antedated June 12, 1867.

I claim constructing and arranging, in connection with a bottle, an upright adjustable brush operating through its cap, substantially as and for the purposes herein set forth.

66,037.—EVAPORATING PAN.—S. Page, McAllisterville, Pa.

1st, I claim the adjustable plate, D', arranged as herein described, and employed to vary the size of the flue beneath the receiving or skimming pan, in the manner and for the purpose specified.

2d, I claim the combination with the finishing pan, G, and chamber, H, of the dampers, I J, arranged and operating in the manner and for the purpose set forth.

66,038.—GYMNASTIC SWING.—Alonzo P. Payson, San Francisco, Cal.

I claim a swing constructed with the supporting arms, C C, and the motive levers, E F, substantially as and for the purpose described.

66,039.—GANG PLOW.—J. C. Pfeil, Arenzville, Ill.

1st, I claim the lever, a, having the cam, e, attached and arranged to operate in combination with the tongue, C, and beams, B and B', as shown and described.

2d, Constructing the crank axles, E, with a tubular portion to fit on the end of the wooden axle, A, as shown and described.

66,040.—BURGLAR ALARM.—Charles E. Pierce, N. Y. City.

1st, I claim the lever, d, with projection, f, and indicating plate attached when arranged as and for the purpose set forth.

2d, The guards made up of the parts, n o and q q, or their equivalents, operating as described.