

### An English Capitalist on Lock-outs.

Recently, Mr. Thomas Lishman, of Stockton (formerly manager of the Millbank-Forge, Hart-warren, now, in partnership with his brother, delivered a lecture on strikes, at Hartlepool, in the course of which he said, to strike for the shortening of the hours of labor, put short hours further off than ever. The way to cure low wages was for working men to hoard up money and become themselves the employers of labor, as was done in co-operative societies, and limited liability companies. The lecturer instanced the great effects of the Rochdale Co-operative Society, and what had arisen from two pence a week collected among twenty-eight weavers. The annual profits of that society, now more than thirty years old, were £5,000. Teetotalism was also a tremendous help in this matter of doing away with strikes. But the worst of all these matters was a lock-out. He was entirely opposed to strikes; but still more deadly against a lock-out. It was not for a raising of the number of the hours of labor that a lock-out occurred; but a spirit of vengeance actuated the man who locked his employees out. Trade societies would be beneficial if they would neither recognize "strikes" nor "lock-outs." Already, the workmen in the iron shipbuilding yards of this district had lost over £2,000, which would be forever lost to them and to the district. If the men saved the money expended in strikes they would be able to start concerns of their own.

### Improvements in Gas Engines.

In gas engines, as at present arranged, it is common to fire the charges of mixed gas and air by means of electricity, but this is inconvenient, as it is found difficult to keep the batteries in working order. Mr. Hugh Smith, of Westbourne Park, therefore proposes as an improvement to fire the charges by means of vapor which burns spontaneously on coming in contact with air; the vapor he employs is that of the liquid phosphide of hydrogen; and he passes small pipes, which he calls explosion tubes, from the gas main to each end of the cylinder, and on these tubes are applied, just before the connection with the cylinder, bottles containing the liquid phosphide, so that the gas may pass over the liquid. When the cylinder is charged with gas and air, a tap on one of the explosion tubes is opened, and the gas, carrying with it the vapor of the phosphide, enters the cylinder, and the vapor there meeting with air, an explosion at once takes place, driving the piston along the cylinder, and in this manner the piston is driven from end to end of the cylinder. This method of firing the charges is applicable whatever be the form of the combustion chamber, whether it be, as assumed, in the foregoing description, a cylinder with a piston working within it, or of other form and construction.—*London Artizan.*

### Paper from Wood.

We stated some time since that the paper on which the SCIENTIFIC AMERICAN is printed contained thirty per cent of wood pulp. A company has been formed with a capital of \$500,000 for preparing the pulp, and on the 12th inst., they met to examine the works, which are situated on the Schuylkill, near Philadelphia. A poplar tree taken from the hillside was converted into clear, white, soft paper, in the space of five hours. In the evening a banquet was given by Messrs. Jessup & Moore, at the Continental Hotel. About 200 guests were present, and speeches were made by the Mayor of Philadelphia and other prominent gentlemen.

**A STEAM HOIST.**—At the Newark Castle Wharf a steam hoist (without any engine), made at the Trent Iron Works, has been successfully tried. A timber frame forming the base of the machine, incloses a large cylinder. On the steam being admitted to it a beam of iron, armed with strong teeth, is forced out, and from this motion is given through a simple arrangement of wheels, which causes the chain barrel to revolve. The direct action of steam is thus brought into use without the intervention of a steam engine as in ordinary steam cranes. The working is easy, and without noise.

**A BALLOON** train, to ply between the Place de la Concorde and the Champs de Mars, is spoken of as one of the schemes to be tried during the great gathering in Paris next year.



**E. A. V., of Md.**—Illuminating gas may be made by the destructive distillation, in a close retort, at a bright red heat of wood, bituminous coal, petroleum, and other organic compounds which contain hydrogen and carbon. Several forms of apparatus for the purpose—some very cheap and simple—have been illustrated in our columns. The simplest, and probably the best apparatus for obtaining light from petroleum, is a kerosene lamp.

**C. W. B., of N. H.**—In order not to lose any power in conducting your water down an inclined pipe to your turbine, you must have the pipe of sufficient size to keep up the full pressure of the head upon the wheel.

**B. H. P., of Iowa.**—The specimen which you send us is a piece of a tin pail. If you "found it 40 feet below the surface and 17 feet in sand stone rock," some person must have carried it there. We have known miners in California to be puzzled by finding pieces of their own shovels in their diggings.

**A. S., of Iowa.**—The most effectual mode of making bridge bolts rust proof is to cover them with zinc—galvanizing, as it is improperly called. Next to this the best plan is to paint them with linseed oil and white or red lead.

**E. S. W., of Conn.**—For directions for making black ink, see page 211, current volume.

**B. P. B., of Conn.**—Blowers must of course be so placed as to allow a free supply of air.

**G. A. S., of N. Y.**—Professor Chandler's elaborate discussion of boiler incrustations having been so recently published in our column, nothing in your paper, can be new to our readers, excepting, possibly, the suggestion that lime in the feed water may combine with the grease from the engine to form lime soap.

**E. C. E., of Pa.**—It will take any person of ordinary intelligence, certainly not more than thirty minutes to understand chemical symbols. He needs to be told only that they are the initials of the names of the elements, and that the atomic weight of any element is the number of times which its atom is heavier than the atom of hydrogen. We can conceive no greater waste of time than the attempt to teach chemistry without first teaching Dalton's atomic theory.

**B. F. M., of N. Y.**—A cylinder is a round body of the same size throughout its whole length; a body with a circular base which tapers to a point, is called a cone. The form of the cigar steamer approaches that of two cones joined at their bases; it is therefore called conical in form—never cylindrical.

**J. B. F., of —.**—"I want to know what book is the best for a young man to take that wants to learn about steam and steam engines." One of the best is Bourne's Hand Book. We can send it for \$1 50.

**C. C., of N. Y.**—The directions for making a sun dial were published in Vol. 2d. New series page 96—No. 6.

**J. H. H., of N. Y.**—Chloroform, benzine, and naphtha are all solvents of india-rubber.

**S. P., of Pa.**—We cannot tell you how to become a locomotive engineer in the SCIENTIFIC AMERICAN.

**J. S., of N. Y.**—You have omitted to send anything but the size of your shaft, viz., 3½ inches by 13 feet long, and you wish to know whether it is strong enough for your water wheel. If we knew more about it we should give you an answer with pleasure. Mills that have balanced wheels and sashes can be run much faster than others not balanced.

**F. M. H., asks.**—"If I obtain a patent for spring bed bottoms with slots suspended by annular rubber rings, can I apply the same to carriage seats and sell rights for same without taking out a separate patent?" No A separate patent will be needed.

**Drawing Dust from Shops.**—It Brooklyn Inquirer will call, we will relieve him, or no pay. American Ventilation Company, 17 Courtlandt street, N. Y.

**W. F. M., of N. J.**—A Barker's mill applied to a hydrant would probably yield less power than a little turbine, and would be more expensive.

**G. F., of Me.**—For a discussion of the power of wind mills we refer you to Morin's Mechanics.

**S. W. M., of N. Y.**—There is no other disinfectant for your stagnant pond so cheap as the surrounding soil. You must either fill or drain it.

**L. S., of Cal.**—In a syphon gage the length of the divisions in the scale is not varied by the difference in the area of the surface of mercury acted upon by the steam.

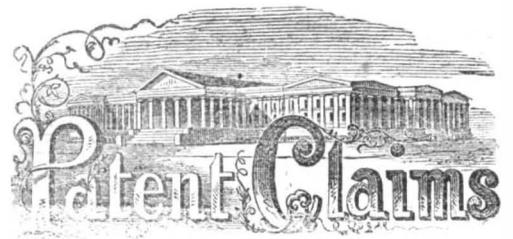
**W. G. B., of Del.**—Electroplating with iron is effected by reducing the iron from the proto-sulphate, or the neutral chloride. Brass cannot be deposited by the battery. Perhaps by employing a very powerful current you may deposit the copper and zinc simultaneously, and then unite them by heat.

**T. G., of Conn.**—We know of no such substance as the oxalic muriate of tin.

**E. S., of Ohio.**—To make cloth water-proof, cover it with a mixture of paraffine and a minute proportion of linseed oil.

**L. O., of N. Y.**—The specific gravity of the human body is very nearly the same as that of water; it is said that a lift of about four pounds is sufficient to float an ordinary person. The specific gravity of cork varies very widely with different samples, but it is probable that from one-tenth to one-fourth of a cubic foot would float a person weighing 175 lbs., provided the whole of the body and head except the month was submerged.

**T. H. M. H., of Pa.**—The swarming of bees is easily prevented by keeping them in a large hive or room. This plan is extensively practiced. The hymenial flight is liable to take place during the season for most profitable swarming.



ISSUED FROM THE U. S. PATENT OFFICE

FOR THE WEEK ENDING APRIL 10, 1866.

Reported Officially for the Scientific American

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

53,765.—Manufacture of Cans.—John T. Ackley and John K. Truax, Philadelphia, Pa.:

We claim the application of pitch or a bituminous or resinous cement to the inside or the outside of a box or can, made wholly or partly of paper, substantially as and for the purpose above set forth.

[The object of this invention is to produce a can made wholly or partly of paper or pasteboard, which will hold greasy and corrosive solids and fluids without leaking or oozing through its walls. The inner surface is coated with a resinous or bituminous cement, so as to protect the substance from which the can is made from the action of its contents, whereby a can composed wholly or partly of paper can be made capable of holding solids and liquids of a greasy or volatile and penetrating character. The outside may be coated likewise, if desired, and the lid or cover is also protected by the same means.]

53,766.—Churn.—Levi O. Allen, Gardiner, Maine:

First, I claim the compressing curb, C, and disk, H, acting in combination with the adjustable floats inclosed by them, as and for the purpose described.

Second, I claim the arrangement and mode of adjusting the floats relatively to each other and the containing vessel, as and for the purpose described.

Third, I claim the ribbed plates in each end of the churn box, in combination with the adjustable floats.

53,767.—Constructing Wells.—E. S. Alvord, Milford, Del.:

First, I claim the combination of the driving pipe, A, the inclosed short pipe, C, and the pump tube, B, arranged substantially as above described.

Second, I also claim the combination of the short pipe, C, the pump tube, B, when surrounded by gravel or other analogous filtering material, arranged substantially as set forth.

[The object of this invention is to construct a well by sinking or driving tubes into the ground, and forming at the bottom a cavity, the lower part of which is filled with gravel or other filtering material, to prevent dirt from entering the pump when it is operated.]

53,768.—Staging for Buildings.—William Arrouquier, Worcester, Mass.:

First, I claim an adjustable and portable staging constructed so that it can be attached to the window frames, or similar apertures of a building, which consists of the combination of the pieces, A, B, C, D, bolts, E, G, and supported piece, F, in the manner and for the purpose herein described and set forth.

Second, I claim the combination with the staging above described, I claim the metal frame or carriage, H, having friction rolls, i, h, j, and lips, g and f', as and for the purposes herein set forth.

53,769.—Cistern for Draining Peat.—E. H. Ashcroft, Lynn, Mass.:

I claim the tank or drainage vessel constructed as described, with perforated bottom, together with the perforated tubes connected therewith.

53,770.—Heater for Chimneys.—Thomas M. Aspinall and Stephen H. Whitlock, Piqua, Ohio:

We claim the arrangement of the heater box for insertion in the chimney above the arch and provided with a flue, A, A', for the passage of the heated air to, from the fire, a cold air induction opening, B, C, and a warm air delivery, C, substantially as described and represented.

53,771.—Leather Splitting Machine.—Cyrus W. Baldwin, Charlestown, Mass., and Lorenzo D. Hawkins, Stoneham, Mass.:

We claim the arrangement as well as the combination of the hand wheel shaft, its right and left screws, and the two wedges in the frame of the machine and with the boxes of the upper or gage roller and springs, or their equivalents, applied to such boxes, substantially as specified.

We also claim the combination as well as the arrangement of the abutments, K, K, with the hand wheel shaft, its right and left screws, and the two wedges applied in the frame of the machine and with the boxes of the upper or gage roller, J, and the springs or their equivalents applied to such boxes, substantially as specified.

53,772.—Tree Protector.—Burroughs Beach, West Meriden, Conn. Antedated March 30, 1866:

I claim a disk, A, constructed of wood, metal, or other suitable material, and of two or more parts, in such a manner as to admit of being snugly adjusted to the trunk of a tree in combination with the pendant flange, B, at the under side of the disk, substantially as and for the purpose set forth.

I also claim the tube, C, inserted in the disk in connection with the vessel, D, substantially as and for the purpose specified.

53,773.—Plow.—J. S. Beals, Alabama Center, N. Y.:

I claim the supplemental share, D, constructed substantially, as shown and described, and attached to the plow beam at the rear of the coulter and point of the share of the main plow, as and for the purpose herein set forth.

53,774.—Extension Table.—William Beadle, Keyport, N. J.:

I claim the leaves, D, D, falling parallel to the line of extension when in combination with the sliding tops, C, C, the removable top, or center boards, G, G, and stationary box frame, for the purposes set forth.

53,775.—Float for Boats.—Alonzo T. Boon, Galesburg, Ill., assignor to self and J. Scott Richnor, Muscatine, Iowa:

I claim the wire stability of the buoys or floats, B, by means of the ears, c, and plates, d, and their arrangement and attachment to the platform, A, substantially in the manner and for the purpose as herein set forth.

53,776.—Clamp for Brooms.—Theodore F. Boyer, Harrisburg, Penn.:

I claim the wire clamp described, the same consisting of the upper part, A, B, formed of a single piece of wire, a', as described, and two straight pieces, a2 a2, attached thereto, and of the lower part, C, D, formed and constructed like the said upper part, A, B, with the addition of the uprights, b1 b2 b3, as described; the said two parts being adapted for adjustment together on a broom, substantially as and for the purpose described.





e', and burner, f', substantially as and for the purposes set forth.  
Seventh, The combination and arrangement of the frames, H, levers, K R M T Z, irons, I P V, table, A, B, and block plate, D, substantially as and for the purposes set forth.

53,827.—Catch for Money Drawers.—Saunders Hubbell, Jr., Urbana, Ohio:  
I claim, First, The catch, E, the rod, F, and the spring arm, G, when operated substantially as and for the purpose described.  
Second, The drawers, C, D, when combined with the catch, E, substantially as described and for the purpose specified.

53,828.—Attaching Thills to Carriages, Etc.—Winford R. S. Hunter, Blackberry, Ill.  
I claim, First, The employment of a spring, C, in combination with the slotted thill head or iron, substantially as described and for the purposes specified.  
Second, I claim providing the slot, a, with the recess, c, as and for the purposes set forth.  
Third, I claim the combination of the spring, C, the bolt or pin, E, and thills, A, provided with a slot, a, arranged as and for the purposes specified.

53,829.—Oil Tank.—Joshua K. Ingalls, New York City:  
First, I claim the means of relieving the pressure within the tank or vessel, substantially as described.  
Second, I claim the jointed arm, c, or any equivalent device operated to regulate or adjust the pressure within the tank or vessel.  
Third, I claim the strainer or sprinkler, T, arranged as shown and operated in connection with the relief pipe, as described.

53,830.—Hame.—Francis X. Kaffer, Champagne City, Ill.:  
I claim the combination of the notched staple, a, with the flat spring, b, substantially as and for the purposes described.

53,831.—Bolt Heading Machine.—Charles Kane and James Kane, Pittsburg, Pa.:  
First, We claim the dies, I and K, having their pressing surface at right angles with the center of their motion and having projecting ledges or shelves, i, l, and k, k, so that when the dies come together they leave between them a parallel opposite space, the dimension of which is greater in a direction perpendicular to the line of motion of the dies.  
Second, The cutters, M and N, in combination with the pressing dies, I and K, arranged in the manner and for the purpose specified.

53,832.—Bolt Machine.—Charles and James Kane, Pittsburg, Pa.:  
First, We claim a bolt machine having a double set of dies one above the other, in the one of which to shave and in the other to cut the square neck of the bolt and head, the same arranged and operated substantially as described.

53,833.—Combination of Ruler, Blotter and Paper Cutter.—Lewis Katen, Greenpoint, Brooklyn, N. Y.:  
I claim the arrangement of the plate and the uprights in combination with the revolving blotter, the whole so arranged and constructed that they may be used for the various purposes herein set forth and described by simply reversing the position of the article.

53,834.—Beverage.—Jonathan H. Kenyon, Sempronious, N. Y.:  
I claim birch nectar compounded of the ingredients herein described.

53,835.—Bread and Meat Cutter.—Solomon Kepner, Pottstown, Pa.:  
I claim the combination of the holder, F, with the frame, C, and knife, H, substantially as described and for the purpose set forth.

[The object of this invention is to furnish a convenient instrument for slicing bread or meat, and it consists of a platform upon which, and a frame within which, the article to be sliced is placed. In this position it is held by a movable holder applied to its upper part, so that the descending knife may cut a slice of exactly the required thickness.]

53,836.—Tree Protector.—Dallas Knowlton, Liberty, Maine:  
I claim a tree protector having plate, A, cut open on one side as represented, and having apertures, C, therein with pin, D, all constructed, combined and arranged substantially as herein specified as a new article of manufacture.

53,837.—Cultivator.—John Lacy, Chicago, Ill.:  
First, I claim attaching the shovels to beams having an independent vertical movement and so connected to the movable frame, L H, that by moving the latter sidewise all the plows are moved with it, said movable frame being pivoted at b, substantially as and for the purpose set forth.  
Second, I claim interposing the conical rollers, a, between the fixed and movable frames to enable the latter to be more easily operated, as shown and described.

53,838.—Hand Corn Planter.—Richard Lambert, Cortland Village, N. Y.:  
First, I claim in combination with the slide, G, and rod, F, the adjustable block, H, substantially as and for the purpose set forth.  
Second, I claim the arrangement of the case, B, with the double bottom, M M the slide, G, rod, F, and spiral springs, L L, substantially as described.

53,839.—Method of Recovering Waste Alkali Used in the Manufacture of Paper.—Theodore F. Lehmann, Alleghany, Pa.:  
I claim converting the unspent caustic, alkali of alkaline solutions into a carbonate of the same by artificial application of carbonic acid.

53,840.—Steering Screw.—Frank Liburn, New York City:  
I claim the arrangement of the shaft, D, the beam, E, and cord, e, gear wheel, F, and shaft, G, constructed and used, as and for the purpose here in specified.  
Second, I claim the arrangement of the cars, H and K, with the toggle joint and propeller, B, as and for the purpose herein specified.  
Third, The combination of the propeller, B, with the steering propeller, c, when the two are connected and arranged to operate by the means, substantially as herein specified.

53,841.—Measuring Funnel.—James Lloyd, Springfield, Ohio:  
First, I claim the combination with a funnel of a measure index and the turning or sliding valve, E, and its valve seat, substantially as set forth.  
Second, In combination with a funnel measure, a movable gage or scale, J, as and for the purpose set forth.  
Third, In combination with the sliding valve, E, and the funnel measure, A, the movable gage or scale, J, substantially as set forth.  
Fourth, In combination with the funnel measure, A, and the sliding valve, E, the air tube, K, located within the spout, so as not to impair the exterior cylindrical form of said spout.

53,842.—Car Seat.—Edwin Lockwood and George W. Pitman, Bordentown, N. J.:  
First, We claim the detachable back, B, united with the frame through the arm pieces, C, by means of the hooks, D, and brace, E, and catch, G, P, so as always to maintain the same relation to the seat, A, substantially as set forth.  
Second, We claim in combination with the detachable backs, B, a double system of rods and levers so as to make either side of the seat adjustable, substantially as set forth.  
Third, In combination with the levers, K, we claim the rods, M M when arranged substantially as and for the purpose set forth.  
Fourth, In combination with the rods, L and L', we claim a series of detents, J, and the fixed rod, P, operating as a stop, so arranged that a greater or less inclination can be given to the seats, A, substantially as set forth.  
Fifth, We claim the adjustable foot rest, S, arranged substantially as and for the purpose set forth.

53,843.—Apparatus for Carbureting Air.—Charles B. Loveless, Syracuse, N. Y.:  
First, I claim placing the oil and gas chambers under water in the tank, substantially as described, and for the purposes specified.  
Second, The closed cylinder, C, containing the oil and air chambers, substantially as set forth.

Third, The glass indicator, C, constructed and operating substantially as described.

Fourth, The oil feed pipe, F, passing in part through the water, substantially as described.

Fifth, The supply gas pipe, L, passing in part through the water, substantially as described.

Sixth, The tank, A, and blower, B, in combination with the closed cylinder, C, substantially as described.

53,844.—Washing Machine.—Philip Lutes, Platte City, Mo.:  
I claim the structure of the upper portion of the washing machine, consisting of the central piece or lid, A', and the hinged end pieces, A2 A2, with the intervening spaces or openings, G G, as set forth.  
Second, I claim the combination and arrangement of the concave tub, A, rollers, B, rubber, C, arms, C', handle, C2, bearings, D, central piece or lid, A', hinged end pieces, A2 A2, and intervening spaces or openings, G G, the whole being constructed and operated substantially as and for the purposes described.

53,845.—Machine for Cutting and Finishing Marble.—James W. Maloy, Boston, Mass.:  
I claim, First, The combination of a revolving tool or tools with a feeding table or platform, susceptible of two motions, one tangential to the circle described by the said revolving tool or tools, and the other at right angles to that of the first, as set forth and for the purpose specified.  
Second, The combination of the two traveling tables or platforms, operating together as described.  
Third, So arranging and operating the table or platform that support therefor, the use of the adjustable lever swivel clamp for holding the latter automatically to the revolving tool or tools.  
Fourth, The arrangement of the clutch nut, d, d', screw shaft, q, q', revolving shaft, i, i, and vertical shaft, b, b, operating as described for the purpose of feeding the traveling table along and yet permit its disengagement from the said devices, as specified.  
Fifth, The use of the adjustable lever swivel clamp for holding the material to be acted upon firmly in its place, as described.  
Sixth, The use of a revolving grinding or rubbing cylinder so arranged and constructed as to contain the grinding material and deliver it through apertures to the material to be acted upon, as set forth.  
Seventh, In combination with the revolving grinding or rubbing tool the pronged lever arm, h, h', for the purpose specified.  
Eighth, The arrangement of devices for feeding the revolving tool or tools up and down, the same consisting of the screw shaft, q, q', screw nut, O, O', and the shaft, t, t, as described.  
Ninth, The arrangement of devices for holding the sectional cutters in their place and so that they can readily be inserted or removed as specified.

53,846.—Friction Coupling.—Judson Mattison, Oswego, N. Y.:  
What I claim as my invention and improvement in friction couplings or shafting and machinery, is the use and application of vulcanized india-rubber, as an elastic friction substance to be used in the manner and for the purpose specified.  
I also claim the construction and arrangement of the oil vessels or canals, S and V, with their drains or holes, T and Z, for the purpose set forth and described.

53,847.—Soap.—Nathaniel Ridley Eaves Mayer, Chester C. H., South Carolina:  
What I claim in the composition in washing clothes, and other articles prepared substantially as described for the purpose set forth.

53,848.—Corn-Stalk Cutter.—George D. McClure, Denver Station, Ill.:  
I claim an improved corn-stalk cutter, constructed and arranged substantially as described and for the purpose set forth.

53,849.—Apparatus for Stripping Corn from the Cob for Table Use.—William E. McGill, Cincinnati, Ohio:  
I claim the combination of the spike plate with the sheller, operating substantially as and for the purpose herein set forth.

53,850.—Harrow.—Anthony Mero, New Haven, Mich.:  
First, I claim the construction of the bridge bar, B, with slotted and adjustable receiving and serving as bearings for the central turning posts, b b, of the harrows, substantially as described.  
Second, The combination of the forked drag bars, C C, with the forked bridge bar, B, and the central posts, b b, substantially as described.  
Third, The combination of the seat, E, with the forked bridge bar, B, and rotary harrows, A A, substantially as described.

53,851.—Cotton Bale Tie.—Isaac H. Merritt, Cincinnati, Ohio:  
I claim the combination of the band, A, and key, C, when so arranged that the separated lugs of the single key shall detain the respective ends of the band, substantially as described and represented.

53,852.—Medical Compound for the Eye.—Granderson Mershon, M. D., Brookville, Iowa:  
I claim combining the above-named substances in such proportions that the medicinal virtues of each are greatly increased, forming a specific for inflammatory diseases of the eyes.

53,853.—Bed Bottom Connection.—Frederick Metz, Lyons, N. Y.:  
I claim the combination of the socket, D, with the head, E, and bearing, a, of the clasp or plate, C, said socket and head being provided with the groove and tongue, c, c, or their equivalent, and the whole arranged in connection with the slats, A, in such a manner as to allow them to turn to opposite positions, substantially as specified.

53,854.—Spring Saddle.—John C. Miller, Louisville, Ky.:  
I claim connecting the seat of the saddle separate from and independent of the bars of the tree, and hanging the said seat upon the ends of springs at a distance of several inches above the bars of the tree, all constructed as herein described and set forth.

53,855.—Machine for Seeding Raisins.—Samuel C. Moore, Boston, Mass.:  
I claim the spiked or toothed cylinder, B, in combination with the grate or open frame cylinder, H, arranged to work together, substantially as described, for the purpose set forth.  
In combination with the cylinder, H, I claim the scraper, t, arranged inside of the cylinder.  
In combination with the toothed cylinder, B, I claim the prongs, r, for removing the fruit from the teeth of the cylinder.  
Also in combination with the toothed cylinder, B, I claim the rack of teeth, R, for removing the stones and seeds and pits from the teeth, Q.

53,856.—Farm Gate.—J. C. Murphy, Mendota, Ill.:  
I claim a gate constructed substantially as described in combination with the wheel, c, track, d, hook, M pulley, H, and inclined bars, a, b, arranged and operating as and for the purpose specified.

53,857.—Loom.—Ira Orndorff, Russellville, Ky.:  
I claim First, The changeable sectional pattern wheel when the sections are changed and held in place, substantially in the manner and for the purpose described.  
Second, The adjustable cams arranged on the side of the disk as shown in Figs. 7 and 8, to change the shuttle boxes, substantially as and for the purpose set forth.

53,858.—Loom.—Ira Orndorff, Russellville, Ky.:  
I claim First, The combination of the changing shuttle boxes with the lay, arranged and operated substantially in the manner and for the purpose set forth.  
Second, Changing the shuttle boxes of looms by a pattern cam and ratchet combined, arranged, and operated substantially in the manner and for the purpose described.

53,859.—Awning.—J. A. Pain, Clyde, N. Y.:  
I claim the arrangement of the jointed rod, l m n, the inclosed drum, d, and operating cord, p, substantially as described and represented.

53,860.—Threshing Machine.—Nelson Palmer, Hudson, N. Y.:  
First, I claim the eccentric bolts, G, or their equivalents, to regulate the relations of the concave to the cylinder, substantially as set forth.  
Second, I claim springs of rubber or other material when placed

between the slats to give elasticity to the movements of the concave, substantially as and for the purpose set forth.

Third, I claim the board, H, when used substantially as and for the purpose set forth.

Fourth, I claim the board, H, when used in combination with the cylinder, A, and board, H, substantially as and for the purpose set forth.

53,861.—Method of Preserving and Drying Green Corn on the Cob.—David Parker, Shaker Village, N. H.:  
I claim the drying and preserving of green or unripe corn on the cob, by first scalding or partially cooking it, and then drying it rapidly by artificial heat in ovens or drying chambers, until all the moisture is driven off from the grains and cob, substantially as herein described.

53,862.—Harvester.—E. G. Passmore, Jr., Philadelphia, Pa.:  
I claim, First, The sliding shaft, D, its bevel wheel, L, gearing into a wheel, L', on the rake-half in combination with the gearing herein described, or equivalent to the same, for operating the cutters, the whole being arranged for the simultaneous stopping and starting of the cutting apparatus and rake, substantially as herein described.  
Second, The studs, g, made adjustable on the arms, N, and adapted to the flanged cam, substantially as and for the purpose specified.

53,863.—Knife and Fork Scourer.—R. R. Patterson, Springfield, Ill.:  
I claim, First, The scourer, I, or its equivalent hung within a frame or holder having suitable handle for moving the same, in combination with the bed, B, upon which the knives or forks are laid, when arranged together, substantially as and for the purpose specified.  
Second, In combination with the above I also claim the perforated receptacle or reservoir, a, for the scouring material when secured to the scourer or its holder, in such a manner that as it moves over the knives or forks, it will throw the scouring material upon the same, substantially as described.

[This invention relates to a novel and useful implement for the scouring and cleaning of knives and forks, whereby they can be scoured with the utmost dispatch and in a most satisfactory manner.]

53,864.—Feed Water Apparatus.—James H. Pease, Reading, Pa.:  
I claim, First, The arrangement of the injector of a locomotive or other boiler in combination with the feed pipe of its force pump, when such pipe has a suitable stop cock for opening or closing the communications through the same, substantially as and for the purpose specified.  
Second, The combination of the feed pump and the injector whereby to supply water to a locomotive or other boiler by one set of pipes and connections, substantially as herein described.  
Third, The stop cock in combination with the discharge orifice of the injector overflow, for the purpose specified.

53,865.—Saponifier.—Henry Pemberton, Alleghany, Pa.:  
I claim the use of the aluminates of soda or potassa, either with or without admixture of the hydrates of those alkalies in the manufacture of saponified or concentrated lye, substantially in the manner hereinbefore described.

53,866.—Buckle.—L. W. Perkins, Beloit, Wis.:  
I claim, First, The frame, A, and lever, B, constructed and arranged to operate in the manner and for the purposes herein set forth.  
Second, The removable strip, e, in combination with the jaw, D, and lever, B, for the purpose of adjusting the jaw, as described.  
Third, I claim making the faces of the jaws, C and D, corrugated or roughened for the purpose of holding the strip more securely, as set forth.

53,867.—Cultivator.—George Perry, Muscatine, Iowa:  
First, I claim the adjustable beams, C C, in combination with the slotted cross bar, A, and the slotted braes and notched latches, M M, substantially as and for the purpose set forth.  
Second, I claim the foot levers, G G, in combination with the supplementary frame, substantially as and for the purposes set forth.  
Third, I claim the buttons, O O, attached to the frame, D D, and rigidly securing the supplementary frame either up or down when desired, substantially as and for the purpose set forth.  
Fourth, I claim the levers, H H, and the parallel bar, I, in combination with the hinged standards of the interior shovels and oscillating beams, C C, the latter being also adjustably attached, substantially in the manner and for the purpose set forth.  
Fifth, I claim the mode of attaching the standards of the interior plows by the jaws, L L, to the beams, c c, substantially as and for the purposes set forth.  
Sixth, I claim a hinged shovel attached to the standard by a wooden pin, substantially in the manner and for the purpose set forth.

53,868.—Machine for Grinding Clay.—Benjamin Porter, Jackson, Mich.:  
I claim in combination with the central grinding shaft, G, and box, D, I claim the auxiliary grinding shafts, H H, substantially as described.  
I also claim the cleats or pieces, d d, on the inside of the box, substantially as described for the purpose set forth.  
I claim the combination and arrangement of the rock shafts, T T, arms, U U, slides, V V, arms, X X, and cam, a, to push out the molds when required.

53,869.—Machine for Catching Sheep and other Animals.—Robert Ralston, Kalamazoo, Mich.:  
First, I claim the jaws, being held disengaged by the brace or its equivalent, preparatory to its being fastened upon the leg.  
Second, The points of the jaws passing each other, thus alkwing them to fit closely to the leg of a small or large animal.  
Third, The combination and arrangement of the machine, substantially as and for the purposes set forth.

53,870.—Sash Fastener.—John C. Rankin, Mount Vernon, N. Y.:  
I claim the slatted plate, B, and the slide, E, or their equivalents, applied to the sash f a window, substantially as described.  
I further claim the slide, E, with its notches, d, d, spring, F, and button, e, box, C, and the plate, B, provided with the vertical slot, A, and cross slat, a, arranged and applied to the sashes, substantially as described.

53,871.—Locomotive Head Lights.—Thomas S. Ray and Samuel E. Cleveland, Buffalo, N. Y.:  
First, In a locomotive head light lamp for burning petroleum or coal oil, having a cylindrical rock tube, a top shield and deflector, so constructed and placed upon the wick tube as to form a combustion chamber above and around the base of the flame, we claim a circular opening made through the shield and below the deflector for the purpose of admitting air directly to and slightly below the base of the flame, substantially as described.  
Second, In a locomotive head light lamp having a cylindrical wick tube, we claim having the bottom of the wick tube open so as to admit the air free and unobstructed into the wick tube to supply the inside flame in combination with an outside case which admits air through perforated openings in its bottom, or through openings which cause the air to take an indirect route in its passage into the case, for the purpose and substantially as described.  
Third, In a locomotive head light lamp having a cylindrical wick tube and opening to the bottom for admitting air to the inside of the flame, with a deflector placed on the top of the wick tube for deflecting the air to the outside of the flame, substantially as set forth.

53,872.—Harvester.—Owen Redmond, Rochester, N. Y.:  
I claim engaging the gearing with, and disengaging it from the driving shaft, C, by means of the loose sleeve, b, double couplings, d, d', springs, e, e', and turning sleeve, a, the whole arranged, combined and operated substantially as and for the purpose herein set forth.  
I also claim the combination of the connecting bar, K, and





ture of candy, together with the process of making the same, substantially as set forth in the specification.

53,914.—Transmitting Power.—Jacob Woolf, Burr Oak, Mich.

I claim the shaft, B, the arms, G G, with the shafts, H H, and weight boxes, K K, arranged substantially as described, and operating either by pulleys, E, E and I, or by belts, or by toothed gears, or by any device to accomplish the same end, so as to cause the weight, K, or their equivalents to be thrown out of balance in such a manner, that one shall be constantly further from the axis of the shaft, B, than the other, and thereby aid it in its revolution, as and for the purpose set forth.

53,915.—Rotary Engine.—Henry J. Behrens (assignor to himself, Henry C. Dart, and Edward Dart), New York City.

First, I claim the concentric fixed hubs, recessed substantially as described, in combination with the two-gear shafts, their attached pistons and the cylinder, substantially as herein set forth. Second, The pistons attached to the facing sides of the two disks, secured to their respective shafts, and so arranged that the pistons or pistons of one shaft work against the face of the disk of the other shaft, substantially as herein described.

53,916.—Hame for Horse Collars.—John E. Brown (assignor to himself, Charles A. Mott, and A. A. Peebles), Lansingburgh, N. Y.

First, I claim the adjustable collar, B, arranged with the spring, d, g, and the clasp, on with the holes, b, in the plate, a, at the outer edge of the hame, substantially as and for the purpose set forth. Second, The loop, K, bent in right angular form, notched at its rear or outer end, and secured to the hame by the eyes, g, to admit of the eye, J, of the trace strap being adjusted higher or lower in the loop, and retained as adjusted by the pole straps, substantially as shown and described.

53,917.—Baling Press.—J. B. Gridley, Louisville, Ky.

First, I claim in a baling press, the levers, G G, having their inner ends applied to or near the center of the follower, in combination with hangers, rods or bars, I, I, which afford the fulcra for said levers, and a rope chain or other draught device, whereby the loose ends of the levers are made to approach each other, substantially as and for the purposes herein specified. Second, In combination with the levers which are made to act upon the follower, by having their loose ends moved toward each other, and which have their fulcra upon hangers, rods or bars, I, I, a rope chain or any other device which shall impart motion to the follower, before the levers attain their effective acting position, substantially as and for the object set forth.

Third, I claim the means substantially as herein described, for adapting the levers, in assuming the position from which they act, to stand at the definite angle with the hangers or rods, I, from which they may be made to take the position in which to act, effectively upon the follower, said means, consisting either of the widening of the levers at the points where the hangers or rods are attached, or in the application of the metallic blocks, H, or their equivalents.

Fourth, I claim the combination with the levers, G G, hangers, I, I, and rope, K, of the follower, C, D, ribs, d, and guide slots, a, the latter being adapted to prevent the tilting or canting of the follower, in its movements through the press-box, as explained.

Fifth, I claim the particular manner of constructing the point which connects the levers with the follower, to wit: by means of the three parts, E F F, connected by a single pin, c, as herein described.

Sixth, I claim the metallic blocks, H, attached to the levers, G G, and provided with hooks, f, f, and guides, d, d, to which hooks, f, f, the rods, I, I, are connected, substantially as and for the purpose herein set forth.

53,918.—Metallic Fastening for Plow Beams.—Lewis Gibbs (assignor to Bucher, Gibbs & Co.), Canton, Ohio.

I claim a metallic fastening for uniting a plow beam and handle, made with lugs, flanges and recesses, and united thereto in the manner and for the purpose herein described and represented.

53,919.—Coffer Dam.—Aaron Filmore (assignor to himself, B. H. Austin, Jr., and Adolphus S. Austin), Buffalo, N. Y.

I claim a portable coffer dam, A, (with or without a movable end piece, A2), for the purpose and substantially as described.

53,920.—India Rubber Hat and Cap Band.—William H. Halsey, Hoboken, N. J., assignor to David W. Mapes, Orange, New Jersey.

I claim the combination of the two rollers, with their surfaces prepared as described, one roll having a sunken or depressed, and the other an elevated surface, substantially as and operating as and for the purposes set forth.

53,921.—New Article of Manufacture from Hard Rubber, to be used in Articles of Dress.—William H. Halsey, Hoboken, N. J., and Maurice Fitzgibbons, New York City, assignors to David W. Mapes, Orange, N. J.

We claim a new article of manufacture, hard rubber or gutta percha, or similar material, ornamented by being subjected to two or more successive pressures or impressions of figured rolls, substantially as above described.

53,922.—Hard Rubber or Gutta Percha for Articles of Dress and other use.—William H. Halsey, Hoboken, N. J., and Maurice Fitzgibbons, New York City, assignors to David W. Mapes, Orange, N. J.

We claim the process herein, substantially as described, which consists of subjecting hard rubber, gutta percha, or other similar material, to two or more successive pressures of figured rolls, substantially as and for the purposes above described.

53,923.—Stencil Brush.—Daniel K. Herr, Locust Valley, Pa., assignor to Theodore W. Herr, Lancaster, Pa.

First, I claim the combination of the brush tube, G, and the external casing, B, constructed and operating substantially in the manner and for the purpose specified.

Second, The brush, J, I, when expressly made or adapted to my brush tube, G, and to be used in combination with the external casing, B, in the manner and for the purpose set forth.

53,924.—Nail Plate Feeder.—C. D. Hunt, Fairhaven, Mass., assignor to the American Nail Machine Company, Boston, Mass.

I claim the combination and arrangement of the double rack bar, K, the pawls, I, I, the lever, G, the spring, M, and the cam, H, as applied to the vibratory arm, A, and the shaft, E, substantially as specified.

53,925.—Stovepipe Damper.—Sumner Marvin (assignor to himself and Alfred W. Boynton), South Royalton, Mass.

I claim the damper apparatus, composed not only of the frustum, A, having the opening, b, b, of the two dampers, G, D, and their connecting rod, E, made and arranged together, and with a flue or pipe, B, substantially as specified.

53,926.—Eyeletting Machine.—Andrew A. Reed, North Bridgewater, Mass., assignor to Elmer Townsend, Boston, Mass.

I claim the combination of the stationary work-supporting surface, the punch, and the setting mechanism, when the latter is arranged to feed the eyelet laterally, or under the hole punched for its insertion, substantially as described.

I also claim the construction by which the eyelet is removed by the feed pin, directly from the magazine, without the intervention of a chute or roadway, substantially as described.

I also claim the combination of a stationary eyelet magazine, with a rotating ring, provided with pockets, into which the eyelets are thrust, substantially as described, and from which they are removed by the feeding instrument, substantially as set forth.

53,927.—Sewing Machine for Sewing the Sweat Linings to Hats.—Frederick S. Sanford and Dwight Wheeler (assignors to Glover Sanford and Sons, and Dwight Wheeler), Bridgewater, Connecticut.

We claim the work plate, D, guides, E and F, constructed and arranged substantially in the manner described, in combination with a stitching apparatus, for the purpose specified.

53,928.—Detaching Bolts from Davits.—E. H. Sheffield, Stonington, Conn., and E. P. Pahner (assignors to E. H. Weston), New York City.

We claim the jointed hook, c, fitting into sockets, d, on the ends of a bolt, A, in combination with the retaining chains, f, and with suitable

mechanism for tightening or releasing said chains, constructed and operating substantially as and for the purpose described.

53,929.—Harvester Rake.—Thomas Taylor (assignor to Samuel C. Ridgeway and John Fox), Baltimore, Maryland.

I claim the combined action of the crank shaft and curved arm of the rake, moving in the swiveled guide for giving motion to, and operating the rake, as herein recited.

53,930.—Horse Shoe.—Cassius M. Werner (assignor to himself and Edwin A. Bigelow), Rockford, Ill.

First, I claim forming the clasps with open loops, as and for the purpose described.

Second, Casting the clasps in one piece with the flange bar, as described, for the purpose set forth.

Third, The combination of the sole, the ribs, the flange bars and the clasps, substantially as described.

53,931.—Artificial Leg.—James W. Weston and Frederick Buckner, New York City, and Reinhold Boeklen, Brooklyn, N. Y., assignors to James W. Weston, New York City.

First, We claim an ankle joint formed by a spring of rubber or other suitable material, provided with recesses on its top and bottom surfaces, in combination with corresponding projections on the foot and limb, substantially as specified, so that the foot is allowed a limited motion in any direction, but is brought properly back to its place by said spring, as set forth.

Second, We claim forming the ankle joint spring in the manner specified, with the front portion thereof more rigid than the back portion, in order that the foot may conform to the surface stepped upon, as set forth.

Third, We claim a connecting bolt with rounded heads or nuts in combination with the elastic ankle joint, substantially as and for the purposes specified, and in combination therewith we claim the sheet-steel socket for the heads, as set forth.

Fourth, We claim the elastic stop block or blocks applied as shown, to arrest the forward movement of the lower limb, as specified.

Fifth, We claim the hooks, H, formed of a bent piece of metal passing around the limb at the joint to strengthen the same, in combination with an elastic contractile band or spring applied between said hooks to throw the lower limb forward, as specified.

Sixth, We claim adjusting the limb to the conical shape of the stump by the lining of veneer or other suitable material, rolled up with the edges lapping and attached at the upper end to the artificial limb, in combination with the curved adjustable wedge, or its equivalent, as and for the purposes specified.

Seventh, We claim the conical filling pieces introduced into the artificial limb, as specified, to adjust the limb to the stump, as set forth.

53,932.—Saddle and Harness.—Achille Angeline, Genoa Italy.

First, I claim in the manufacture of cushions or pads for riding saddles, pack saddles, and harness of all kinds, of elastic substances, such as vulcanized gutta percha or caoutchouc when of the form and shape, substantially as set forth.

Second, The formation of said elastic substances into tubes, double tubes, dice, knobs, or spheres, substantially as and for the purposes herein set forth.

53,933.—Rocket.—William Hale, London, England.

I claim the application of the principle by which the expansion of the whole volume of the gas as it issues from the vent is made to subserve the purpose of producing rotation in the rocket about its longitudinal axis, substantially as described.

53,934.—Steering Apparatus.—Morris West Ruthven, Middlesex County, England. Patented in England Nov. 10, 1864.

I claim in combination with a tiller operated by gears, pivoted levers and links, substantially as herein described, a weight or spring which reserves or stores the power with which the water forces the rudder in one direction, and is applied to aid the helmsman in cutting the rudder over in an opposite direction, substantially as set forth.

53,935.—Peat Machine.—James Hodges, Penny Hill, Bagshot, England.

First, I claim the pulping trough and separator, E, F, provided respectively with the spider diaphragms, I, and fixed bars, K, and also provided with the shaft, G, having upon it the vanes, J, and bars, L, all arranged to operate in the manner substantially as and for the purpose set forth.

Second, The pulping and distributing trough, N, provided with diaphragms, c, having a varying number of arms, and also provided with valves, apertures, or slides, G, at its bottom, and with a shaft, O, having vanes, P, upon it, arranged to operate substantially in the manner as and for the purpose specified.

Third, The combination of the screw excavators, elevator and pulping mechanism applied to a vessel, and arranged for joint operation, substantially as and for the purpose set forth.

Fourth, The preparing of the peat bed with subsoil drains, substantially as described, when used in connection with a vessel provided with an excavator and pulping apparatus, substantially as set forth.

53,936.—Rudder.—Morris West Ruthven, Middlesex Co., England. English Pat. July 11, 1863.

I claim in combination with a rudder composed of a series of hinged sections, the connecting of said sections at their upper ends by means of a slotted crank or lever on one part that receives in its slot a pin or anti-friction roll on the next adjacent part, and so on throughout the series, to cause the parts when moved by the rudder to assume an approximate curve, substantially as described.

53,937.—Sluice for Propelling Vessels.—Morris West Ruthven, Middlesex County, England. Patented in England May 1st, 1865.

I claim the employment in the propelling of vessels of rotating sluices such as are herein described, each in combination with two outlet passages, the sluice in each case being arranged to turn with its axis while the periphery of each sluice are free as may be from contact with the inclosing surfaces of the chamber in which the sluice is contained, by which arrangement the sluice may be turned comparatively free from friction, and consequently requires but little power to turn it.

53,938.—Swing.—John F. Hartman, Fond du Lac, Wisconsin.

I claim the combination and arrangement of bar, B, and swing bars, D D, with the levers, E F G and H, and rope, I, substantially as and for the purposes set forth.

53,939.—Pump.—A. Leuchtwiss, Cincinnati, Ohio.

I claim the sharp-edged abutment, c, in combination with the discharge passage, a, screw, C, and cylinder, A, constructed and operating substantially as and for the purpose described.

REISSUES.

2,221.—Gang Plow.—N. F. Burton, of Galesburg, Ill. Patented Oct. 28, 1861.

First, I claim the device for adjusting the beams, A A', by means of pins, f, and clamps, e, e, and bars, g, g, substantially as set forth, whereby the depth of penetration of the plows, M and I, may be changed at pleasure.

Second, The combination of the subsoil plow, I, having a long-winged mold board, with the surface plow, M, arranged as and for the purpose set forth.

Third, The attaching of the axle, D, to the beams, A A', through the medium of the ball-shaped rod, H, in combination with the arm, B, attached to the axle, I, and having its bearing or fulcrum on the rod, I, as herein described, whereby the depth of the penetrator of both plows may be regulated at pleasure, and they may also be made to run out of the ground when desired.

2,222.—Lock.—Rudolph Vollschwitz and J. J. Schaeffer, (assignors by mesne assignments of F. Randolph) New York City. Patented July 25, 1865.

First, We claim a lock with a tubular case, B, containing a bolt, D, and one or more tumblers, E, to be operated from either side by a key, K, substantially as and for the purpose set forth.

Second, The latch, F, in combination with the bolt, D, and tubular case, B, constructed and operating substantially as and for the purpose described.

2,223.—Revolving Fire-Arm.—J. J. Greenough, New York City, assignee of James Warner, Springfield, Mass. Patented June 24th, 1856.

First, I claim the employment of a pin or other projection as described in the shield or rear frame, for receiving the recoil of the breech constructed as herein described, at a point just behind and in rear of a chamber that is on a line with the barrel when in position to be discharged for firing the arm, as and for the purposes above set forth.

Second, I also claim making the pin or projection, E, adjustable, substantially as and for the purposes set forth.

Third, I claim the cavity, I, I, in the battery plate, c, in such position and of such form as to receive and hold the ball or balls in case of the accidental discharge of one of the chambers not in adjustment with the barrel, as described.

2,224.—Harvester.—Reuben Hoffsheins, Dover, Penn. Patented May 20th, 1862.

First, I claim a sweep rake which is mounted upon the heel of the finger beam proper, or upon the inner front corner of the platform of a harvester which has its cutting apparatus and platform hinged to the draft frame, all in such manner that the rake arm sweeps the platform from front to inner side, and maintains a correct position in relation to the finger beam and platform during the rising or falling movements thereof on the joint or joints by which the finger beam is connected to the draft frame, substantially as set forth.

Second, A rake rotating upon an axis which is perpendicular to the top surface of the platform, or nearly so, and having its arms successively turned up, substantially as and for the purpose described.

Third, The angular rake arms rotated independently of the axis, f, and controlled substantially as described, in combination with a guide way which is perpendicular, or nearly so, to the said axis, f, of the rake head, substantially as and for the purpose described.

Fourth, Elevating and depressing revolving rake and reel arms by means substantially as described, whereby I am enabled to dispense with the purpose described.

Fifth, An inclined standard or support, F', or its equivalent, rigidly mounted upon a loosely-hinged platform or finger beam, and adapted for supporting a sweep rake in an unchanging position in relation to said platform without obstructing the free motion of the platform or finger beam, substantially as described and shown.

Sixth, A standard or support, F, which sustains the sweep rake above the draft frame or driving wheel thereof, said standard being mounted directly and wholly upon a hinged finger beam or the platform thereof, substantially as described and for the purpose set forth.

Seventh, A revolving toothed-head or crown wheel, J, constructed with supports for rake and reel arms, in pairs, said supports being arranged outside and around the axis of said wheel, J, substantially as and for the purpose described.

Eighth, In a harvesting machine which has its cutting apparatus hinged or jointed to the main frame in such manner as to allow it to conform to both ends to the undulations of the ground, and a rake mounted upon the said jointed cutting apparatus, or upon the platform thereof, I claim so constructing and arranging the several parts that the support of the rake can occupy a position outside of the inner drive wheel, B, or a position which is between the joint of suspension, h, and the outer divider, G, and can also be hung, or be suspended below the draft frame, substantially as described.

Ninth, Effecting a combination of a rake and reel located substantially as described, and a finger beam and platform with the main frame, by means of a hinged draw bar, h, a hinged brace, I, a hinged suspender, J, and an extension bracket, Z, or their equivalents, substantially as and for the purpose described.

Tenth, The combination of a rake and reel, a yielding draw bar, b, inner shoe of the cutting apparatus and hinge-joint, e, on the draw bar, substantially as and for the purpose described.

Eleventh, Preventing a too sudden or abrupt deflection of a rake and reel mounted upon a hinge-joint cutting apparatus by carrying the point of suspension beyond the rake support, towards the centre of the draft frame by means substantially as described.

Twelfth, A continuously revolving rake which is mounted directly and wholly upon the platform or finger beam so as to rise and fall therewith independently of the draft frame, when said rake is located between the centre of the draft frame and the outer divider, and passes on at the front of the machine upon the platform and sweeps around to the inner side of the platform, substantially as described.

Thirteenth, The combination with a double hinged joint combined reaping and mowing machine, of a sweep rake which enters at the front of the machine upon the platform, in such manner that the rake and cutting apparatus rise and fall together while reaping; and also in such manner that the rake and platform may be readily removed and the cutting apparatus set at its inner and outer ends, allowed to float upon the ground and to accommodate itself at both ends to the undulations of the ground, substantially in the manner described.

Fourteenth, The combination of a suspended hinge joint cutting apparatus of harvesters and a combined rake and reel, which is mounted directly and wholly upon the suspended platform or hinged finger beam, substantially as and for the purpose described.

Fifteenth, Controlling the rake and reel arms by an upper and lower guide between which an attachment of the respect rake and reel arms passes, substantially as described.

Sixteenth, The combination of a combined rake and reel mounted upon a hinge joint cutting apparatus, and a yielding belt tightener, substantially as and for the purpose described.

Seventeenth, The employment of a yielding belt or chain tightener, or its equivalent, in connection with harvesters which are constructed with a hinged joint cutting apparatus, substantially as and for the purpose described.

Eighteenth, The pulley support, Q, with its pulleys, W2 W2, in combination with a band or chain, N, and pulleys, W1 W3, substantially as and for the purpose set forth.

Nineteenth, Providing in a harvester with the rake attached to the hinged finger beam or platform, an extensible means for driving the rake, which will permit the platform and rake to rise and fall together and accommodate themselves, independently of the draft frame, to the undulations of the ground, substantially as described and for the purpose set forth.

2,225.—Knitting Machine.—Joseph Hllen (assignee by mesne assignments to John Nesmith), Blair, Penn. Patented July 16th, 1850—extended 7 years.

First, I claim forming the needles in the manner substantially as described, and the carriage, which is capable of being separately projected and withdrawn in the operation of knitting, by the application thereof of mechanism, substantially such as described, for producing these movements.

Second, I also claim the above described means of projecting and withdrawing the separate needles, or any other substantial equivalent of a knitting needle when used to perform its functions.

Third, I also claim the arrangement of the needles on a cylinder, in the manner described, in connection with the described means of moving or revolving the cylinder as a needle carrier.

Fourth, I also claim the combination of the jack, the sinkers and depressors, substantially as described.

Fifth, I also claim the thread bearer, v, having an extended sideways motion to and fro on each stitch, by which lays the thread across the needle at each stitch, and returns with it to be ready for the next stitch.

Sixth, I also claim the spring vise for regulating the supply of thread to the needle, opened by the rod, W, substantially as described.

Seventh, I also claim the particular arrangement and combination of the several parts of the machine by which their various motions are derived from a single crank and screw thread, substantially as described.

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