

Internal Commerce of the Country.

[From the American Railroad Journal.]

One result of the rebellion, the object of which was to secure the commercial independence of the South, has been not only to annihilate its commerce, but to show that it constituted so inconsiderable a proportion of that of the whole country that its loss will soon hardly be missed. Nearly all the products of the South entered into the channels of commerce, so that their value can be readily estimated. For the whole, \$275,000,000 is a liberal estimate, of which cotton may be put down at \$200,000,000. This, by itself, is a vast sum, but relatively to the commerce of the whole country, a very small one, as will be seen by a statement of that of the Northern States.

The State of New York is the only one in which freight on its public works is so classified that accurate estimates can be formed of its value. The following is a statement of the number of tons and value of the same moved on the railroads and canals of the State:—

RAILROADS.			
Kind of Freight.	Tons Carried.	Value per Ton.	Total Value.
Products of the forest...	372,424	\$20	\$7,468,480
Products of animals....	895,519	200	179,103,800
Vegetable food.....	1,103,640	50	55,182,000
Other agricult'l products	143,219	15	2,148,285
Manufactures.....	511,916	250	127,979,000
Merchandise.....	783,311	500	391,905,500
Other articles.....	930,240	10	9,302,440
Totals.....	4,741,773	\$163	\$773,096,500
CANALS.			
Products of the forest...	1,509,977	\$7	\$10,654,710
Products of animals....	19,882	253	5,030,067
Vegetable food.....	1,659,158	30	49,710,838
Other agricult'l products	3,714	29	1,100,069
Manufactures.....	268,759	30	8,113,177
Merchandise.....	250,360	337	84,250,428
Other articles.....	938,364	13	11,989,909
Total.....	4,650,214	\$37	\$170,849,198
Add tonnage of railroads 4,741,773.	163		773,096,500
Total.....	9,391,987	\$100	\$943,945,698

The canal is almost exclusively used for the coarser kinds of freight; the railroad for the more valuable kinds. The value of the freight on railroads is made up from estimates of experienced forwarders; that on the canals from the manifests of shippers.

The number of tons carried on the railroads of Massachusetts for 1860 was 4,094,369, having an aggregate value of \$667,382,147, adopting the value per ton estimated for the railroads of New York. The tonnage of the public works of the two States for the year was 13,486,351, having a value of \$1,611,327,845; a sum eight times greater than the cotton crop, and six times greater than the products of all the cotton States. But the commerce of the public works of the two States by no means embraces the whole that is carried on in them. In New York there is a vast commerce on the Hudson river and the lakes, to say nothing of the immense trade carried on in both over ordinary roads.

The length of the railroads of Massachusetts and New York engaged in the transportation of freight, is 1,317 miles in the former, and 2,569 miles in the latter. The tons carried per mile in the former is 3,108, and in the latter 1,867; the average for the two States is 2,276 tons per mile. There are in the loyal States fully 23,000 miles of railroad in operation. If we estimate the tonnage for the whole to be one-half that of the railroads of Massachusetts and New York, the aggregate tons moved on them is 26,174,000. At a valuation of \$163 per ton the aggregate value of their tonnage is \$4,266,362,000. The tonnage of the canals probably exceeds \$12,000,000, having a value of say \$30 per ton, or \$360,000,000. The total tonnage of the public works of the North, consequently, is 38,174,000 tons, having a value of \$4,626,362,000. The amount of the tonnage is unquestionably largely underrated. We are confident its value is not overstated. In bulk, it is forty-five times greater than the whole cotton crop. In value, twenty-three times greater.

Formidable Expedition down the Mississippi.

Vast numbers of troops and munitions of war, gun boats and floating batteries, are assembled at Cairo, for the intended expedition down the Mississippi.

The gunboats, fifteen in number, are most formidable looking instruments of war. The seven that have been built under contract by Captain Eads look as if they could safely venture upon a tilt or a bat, with Hollins' famous steam ram. The bows and bow bulwarks consist of about three feet of oak timber,

bolted together and sheathed with the best quality of wrought iron plate $2\frac{1}{2}$ inches thick. The sides have the same sheathing, with less bulk of timber. Each boat is pierced for thirteen guns, four on each side, three in the stern, and two at the bows. The bow guns are 81-pounder rifled cannon; the others are 8-inch columbiads. The sides of the boats both above and below the knee, incline at an angle of 45° and nothing but a plunging shot from a high bluff could strike the surface at right angles. The boilers and machinery are so situated as to be perfectly protected, and may be considered quite out of danger. The iron plating has been severely tested by shots from rifled cannon at different distances, and has shown itself to be utterly impervious to any shots that have been sent against it, even at a range of 300 yards.

Take them altogether, the boats are about as formidable looking instruments of destruction as ever navigated American waters, and if such a wise combination of oak, iron and saltpeter, will not bring the persimmons, we will call them sour, and let Commodore Hollins pull them down and eat them at his leisure. These fifteen gunboats, with their 200 columbiads and rifled cannon, are but a fraction of the warlike fleet destined to swarm down the Mississippi. There are thirty-eight floating batteries of a 64 columbiad each, and twenty-eight river steamboats.

The military part of the movement, it is supposed, will be under the command of Major-General Halleck, who is now organizing his forces in St. Louis, and he will be joined by General Grant's column at Cairo, and the column of General Smith from Paducah. The expedition will probably be from 80,000 to 100,000 strong, a force that ought to be able, properly followed up, to open the Mississippi to its mouth.

The Sentiments of our Cotemporaries.

To find room for all the flattering notices which this paper receives at the hand of its cotemporaries would occupy too much of the space of these columns, but we desire occasionally to insert a flattering notice, to show how kindly our editorial brethren treat us, and how highly they value our labors. The following is from the *Standard*, published at St. Andrews, New Brunswick:—

The *SCIENTIFIC AMERICAN*, which we have had occasion to notice at various times, is one of the cheapest, as well as most reliable, sources of information to the mechanic, millwright, and, we add, agriculturist, on this continent; it is conducted with marked ability and tact, its conductors are men of scientific attainments, and have the faculty of conveying information in an attractive form and in a concise and perspicuous manner; in addition to which they give notices of the most important inventions, which are frequently accompanied with engravings. The paper is printed in a convenient form for binding, contains 16 pages each week, with a number of beautifully executed illustrations—making a yearly volume of 832 pages, at the low price of \$2 per annum. Each number contains a complete list of the claims of all the patents issued each week at the U. S. Patent Office, and a column devoted to the metal and lumber markets. We trust our artisans will subscribe for this standard work, one number of which is of more value to them than all the trashy "story papers" published. Ten copies 12 months will be furnished for \$15.

The above being from a British journal the editor refrains from alluding to the war department of our paper lest, we suppose, he might not seem to be in that neutral vein in which all English subjects are so desirous to remain concerning our unhappy war. The *Andover (Mass.) Advertiser*, however, says the following in relation to the war feature of the *SCIENTIFIC AMERICAN*:—

Every one is naturally desirous of obtaining the earliest and most reliable information respecting the events of the war and the means used by the respective combatants for its prosecution. It is a civil war; both parties were lately one; and the implements of carnage are equally well known in both sections, particularly to the officers who were so lately in the government service. The inventive genius of the people is now stimulated to the highest pitch by the demand of patriotism, as well as the hope of reward. The mechanical talent of the North is constantly developing new implements and fresh improvements, which will naturally assist their cause. With all these improvements we shall need to keep up our acquaintance. For some time past the *SCIENTIFIC AMERICAN* has given a very clear, reliable and full account of the progress of events. It devotes special attention to new inventions, and furnishes engravings of most of them, with such descriptions as enables one to understand the machine illustrated almost as well as, and in some instance better than, if the machine were before you. This paper is devoted to the interests of mechanical inventions and industrial pursuits generally, and stands at the head of its class.

The salt works now in operation in Michigan, number nine, using six hundred kettles, and yielding a product of five hundred and fifty barrels daily.

RECENT AMERICAN INVENTIONS.

Reaping Machine.—This invention relates, first, to an improved raking device so constructed and arranged as to admit of being adjusted to suit the height or length of the grain and operate perfectly at all times. To insure this result it is necessary that the rake or shoe strike the cut grain about midway the length of the latter, and be properly guided and sustained at all points of its movement, and all retrograde movement avoided; and also that the cut grain be raked from the platform in gavels of uniform size. Second, it relates to a novel arrangement of the gearing or sickle and rake-driving mechanism, and the relation of the same with the draft pole, whereby side draft is principally counteracted, as well as the downward tendency of the sickle during its cutting operation. And third, this invention relates to an improved manner of connecting the reel with its supports, whereby the reel may be adjusted relatively with the sickle or cutting device as desired, and also to an improved arrangement of a divider at the grain end of the platform, whereby the divider is made to perform the double function of a divider and reel support. It was patented by John Tustin, of Petaluma, Cal.

Steam Boiler.—Mr. Silas Stuart, of Sterling Center, Mass., has invented an improved boiler which he claims may be constructed in an economical manner for the purpose of generating steam or heating water with a very moderate consumption of fuel. To this end the boiler and fire chamber are constructed and arranged in such a way that the water will be exposed to a large heating surface, and with a fire chamber of very moderate dimensions, the latter being of annular form in its horizontal section, and interposed between two concentric water chambers, which comprise the boiler, the antechamber being encompassed by a flue from the fire chamber. The invention has also for its object an improvement in the grate of the fire chamber, whereby admission of air into the fire chamber may be graduated with great nicety and the ashes from the fire chamber readily discharged when necessary.

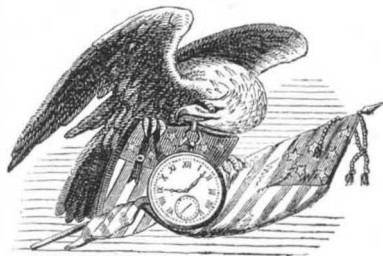
Car Truck.—This invention, patented by M. La Rue Harrison, of Burlington, Iowa, consists in a certain mode of suspending the bolster from the springs by means of swinging stirrups, whereby the weight of the car may be transmitted to the trucks at points near the bottom or below the springs instead of above them, and the car, in case of any lateral movement, is caused to swing like a natural pendulum, instead of rocking like an inverted pendulum. An illustration of this invention appeared in our last number.

Improved Locomotive.—This invention consists in the employment, in a locomotive, of wheels applied to bear against opposite sides of a rail, such wheels on one or both sides being the drivers, in combination with supporting wheels, rolling on the top of the same rail, making a light and cheap engine adapted to a cheaply-constructed permanent way, which makes it specially applicable to the purpose of canal towing. It also consists in the employment of a portion of the weight of the locomotive acting through the intervention of levers or their equivalents, to press such driving wheels toward the side or sides of the rail. The inventor is John L. Whetstone, of Cincinnati, Ohio.

Variable Cam.—This invention relates to cams for producing movements in a direction parallel, or nearly so, with their axes of rotation. It consists in a peculiar construction of such a cam whereby its throw can be varied at pleasure, and it may be made to operate in all conditions, without any percussive action, and consequently without noise. Patented by the inventor, W. H. Andrews, of New Haven, Conn.

Aerial Ship.—This invention consists in the use of oscillating wings of improved construction attached to the sides of a boat-like car, causing it to ascend, maintaining it at a given elevation, or regulating its descent through the air, as may be desired. Also in a certain arrangement, in combination with such wings, of a screw propeller, for giving the car a movement in a horizontal direction, and of spiral-bladed wheels, like screw propellers, for assisting the side wings in producing the ascent, maintaining the elevation or regulating the descent of the car. The inventor of this machine is W. F. Quimby, of Stanton, Delaware.

PATENTS FOR SEVENTEEN YEARS.



The new Patent Laws enacted by Congress on the 2d of March, 1861, are now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

The duration of patents granted under the new act is prolonged to SEVENTEEN years, and the government fee required on filing an application for a patent is reduced from \$30 down to \$15. Other changes in the fees are also made as follows:—

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 Re-issue.....	\$30
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing Disclaimer.....	\$10
On filing application for Design, three and a half years.....	\$10
On filing application for Design, seven years.....	\$15
On filing application for Design, fourteen years.....	\$30

The law abolishes discrimination in fees required of foreigners, except in reference to such countries as discriminate against citizens of the United States—thus allowing English, French, Belgian, Austrian, Russian, Spanish, and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms.

During the last sixteen years, the business of procuring Patents for new inventions in the United States and all foreign countries has been conducted by Messrs. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN; and as an evidence of the confidence reposed in our Agency by the Inventors throughout the country, we would state that we have acted as agents for more than FIFTEEN THOUSAND Inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of Inventors and Patentees at home and abroad. Thousands of Inventors for whom we have taken out Patents have addressed to us most flattering testimonials for the services we have rendered them, and the wealth which has inured to the Inventors whose Patents were secured through this Office, and afterward illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! We would state that we never had a more efficient corps of Draughtsmen and Specification Writers than are employed at present in our extensive Offices, and we are prepared to attend to Patent business of all kinds in the quickest time and on the most liberal terms.

The Examination of Inventions.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a reply written corresponding with the facts, free of charge. Address MUNN & CO., No. 37 Park-row, New York.

Preliminary Examinations at the Patent Office.

The advice we render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there, but is an opinion based upon what knowledge we may acquire of a similar invention from the records in our Home Office. But for a fee of \$5, accompanied with a model or drawing and description, we have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a Patent &c., made up and mailed to the Inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through our Branch Office, corner of F and Seventh-streets, Washington, by experienced and competent persons. More than 5,000 such examinations have been made through this office during the past three years. Address MUNN & CO., No. 37 Park-row, N. Y.

How to Make an Application for a Patent.

Every applicant for a Patent must furnish a model of his invention, if susceptible of one; or if the invention is a chemical production, he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them, and sent, with the government fees by express. The express charge should be prepaid. Small models from a distance can often be sent cheaper by mail. The safest way to remit money is by draft on New York, payable to the order of Munn & Co. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail, having the letter registered by the postmaster. Address MUNN & Co., No. 37 Park-row, New York.

Caveats.

Persons desiring to file a Caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The government fee for a Caveat, under the new law, is \$10. A pamphlet of advice regarding applications for Patents and Caveats, in English and German, furnished gratis on application by mail. Address MUNN & CO., No. 37 Park-row, New York.

Rejected Applications.

We are prepared to undertake the investigation and prosecution of rejected cases, on reasonable terms. The close proximity of our Washington Agency to the Patent Office affords us rare opportunities for the examination and comparison of references, models, drawings, documents, &c. Our success in the prosecution of rejected cases has been very great. The principal portion of our charge is generally left dependent upon the final result.

All persons having rejected cases which they desire to have prosecuted are invited to correspond with us on the subject, giving a brief history of the case, inclosing the official letters, &c.

Foreign Patents.

We are very extensively engaged in the preparation and securing of

Patents in the various European countries. For the transaction of this business, we have offices at Nos. 66 Chancery-lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of Patents to Inventors. Any one can take out a Patent there.

Circulars of information concerning the proper course to be pursued in obtaining Patents in foreign countries through our Agency, the requirements of different Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park-row, New York, or either of our Branch Offices.

Assignments of Patents.

The assignment of Patents, and agreements between Patentees and manufacturers, carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park-row, New York.

It would require many columns to detail all the ways in which the Inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with Patent property or inventions to call at our extensive offices, No. 37 Park-row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

Communications and remittances by mail, and models by express (prepaid), should be addressed to MUNN & CO., No. 37 Park-row, New York.



ISSUED FROM THE UNITED STATES PATENT OFFICE

FOR THE WEEK ENDING NOVEMBER 26, 1861.

Reported Officially for the Scientific American.

THE PRINTING OF PATENTS ABANDONED.

The plan adopted by Commissioner Holloway of printing the specification which forms part of the Letters Patent, he has been obliged to abandon owing to the reduced receipts of the Patent Office. Hereafter, for a time, the specifications will be engrossed on parchment as formerly. This change will obviate the great delay which has attended the issuing of patents after sealing, but the papers do not go out looking so neatly. We hope the receipts of the Office will soon justify the extra expense which attended the printing.

*** Pamphlets giving full particulars of the mode of applying for patents, under the new law which went into force March 2, 1861, 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.

2,766.—Charles H. Alsop, of Middletown, Conn., for Improvement in Revolving Firearms:

I claim, first, in combination with a breech pin applied as described, the shoulder, i, so formed in the chamber by counter boring that the force of the explosion acting upon it will tend to press forward the cylinder or chambered breech into contact with the barrel, while the force acting against the breech pin will tend to press it back against the recoil shield or its equivalent, substantially as described. Second, in a revolver or many-chambered firearm, I claim forming recesses, f, f, in the sides of the breech pins, to fit to the peripheries of the adjacent ones, substantially as and for the purpose specified.

2,767.—W. H. Andrews, of New Haven, Conn., for Improvement in Variable Cams:

I claim the variable cam, composed of a hub, A, ring, B, spring, D, and nut or adjustable collar, C, the whole combined and operating substantially as specified.

2,768.—Achille Berthoud, of New York City, for Improvement in Apparatus for Advertising:

I claim giving to the band an intermittent motion of alternate, advancing and resting, as described.

2,769.—Mills L. Callender, of New York City, for Improvement in Vapor Lamps:

I claim the relative arrangement of the two burning wicks, d d and c c, by which the wick, d d, is set to burn higher than the wick, c c, and two or more wicks can be simultaneously raised or depressed in by one ratchet wheel or one wick tube, in the manner and for the purpose specified.

2,770.—A. C. Chamberlain, of Newport, R. I., for Improved Method of Growing Plants and Fruits:

I claim the construction of a basket or vase for growing fruits and plants, with a perforated plate, C, to receive and hold the plant, and a receptacle below the plate for holding the substances from which the plant is to derive nutriment, substantially as shown and described.

I also claim the employment of a filling tube, D, with said plate and basket, as and for the purposes set forth.

[An engraving of this invention appeared on page 243 of the present volume.]

2,771.—A. S. Davis, of Boston, Mass., for Mode of Attaching Blocks to Belts of Printing Apparatus:

I claim the attaching of engraved or indented wooden blocks, a, x, to their endless belt, G, by means of straps or loops, b x, substantially as shown and described, when said blocks and belt are used in a machine for printing addresses on newspapers, as set forth.

2,772.—I. H. Dennis, of Louisville, Ky., for Improvement in Equalizing Beams and Levers in Railroad Cars:

I claim the equalizing beams, H, connecting the disturbing beams, F F, and operating in combination therewith, in the manner and for the purposes shown and explained.

2,773.—Bridge Frodsham, of New York City, for Improved Material for Mattresses, Cushions, &c.:

What I claim as a new article of manufacture, forming an elastic material for cushions, &c., is the fine polygonal strips of cork, formed as specified.

2,774.—W. O. Grover, of Boston, Mass., for Improvement in Sewing Machines:

I claim, first, The combination of a supporting table, and an eye-pointed piercing needle, with a lower needle, having motions in six directions, substantially as described, and for the purposes specified, the combination being substantially as set forth.

Second, I claim imparting motions in six directions to a lower needle, by means of an inclined crank pin, substantially in the manner specified.

And lastly, I claim in combination a tension apparatus, a check spring and hippers, when they are relatively arranged and combined, substantially as described, so as to operate substantially in the manner and to produce the effects set forth.

2,775.—S. C. Granger, of Chicago, Ill., for Improvement in Preparing Mash for Brewing:

I claim the combination of common malt, crushed raw Indian corn or Indian corn meal and pulverized or granulated carbonized mator and water in the mash for brewing ale, beer and porter, substantially and for the purposes, as described.

2,776.—Kendall Gibbs, of Berwick, Maine, for Improvement in Cattle Fastenings:

I claim the swivel shackle and attached ring, or their equivalents, in combination with the neck rope and button, substantially as described.

2,777.—R. K. Hawley and W. W. Maughlin, of Baltimore, Md., for Improvement in Portable Wooden Tents:

We claim the construction of a wooden tent, substantially in the manner and for the purpose described, the same consisting in the combination of the gables, constructed and united as shown, with the side pieces and ridge pole, to receive a roof, in the manner specified and represented.

2,778.—R. P. Henry and G. W. Fox, of Akron, Ohio, for Improvement in Tombstones:

We claim the shield, C, lock, M, and catch, J, in combination with the stone, A, when arranged and applied, to the purposes set forth.

2,779.—J. G. Holt, of Chicago, Ill., for Improvement in Casting Seamless Screw Nuts:

I claim, first, A seamless screw-threaded sand core, the seamless thread being on the outer circumference of the sand core, for the purpose set forth.

Second, The production of nuts and other tubular articles, with a seamless screw thread on their inner circumference, from seamless screw-threaded sand cores, substantially as set forth.

2,780.—R. W. Huston, of Providence, R. I., for Improvement in Stove Cover Lifters:

I claim the described article of manufacture, constructed and used in the manner and for the purpose specified.

2,781.—Anthoni Iske, of Lancaster, Pa., for Improvement in Fire-Escape Ladders:

I claim, first, The independent ladders, five or more in number, suspended by their upper ends, on pivots, between the elevating cross bars, one above the other, successively narrowed, with their stay catches, x x, in combination with the rope, v, attached in the manner and for the purpose specified.

Second, The truss or supporting frame, B, with its jointed side pieces, E F, when the same is held on pivots, o, between or inside of the frame, A, of the hose carriage, with the reel, Y, operated by means of the windlass, D, and by straps, d, or their equivalent, for the purpose of inclining the ladders, in the manner and for the purpose specified.

2,782.—Ira Leonard, of Lowell, Mass., for Improvement in Railroad Chairs:

I claim, first, A wrought-iron suspension chair, constructed of one piece, with an elastic or U-shaped sustaining rib under the rail, for the purpose, substantially as described.

Second, In combination with a wrought-iron suspension chair, having an elastic-sustaining rib, I claim the wooden cushion, E, or equivalent, for the purpose and substantially as described.

2,783.—H. F. Mann, of Laporte, Ind., for Improvement in Breech-Loading Ordnance:

I claim, first, The combination of the oscillating cannon, A, slotted bracket, E, and crank shaft, F, the whole arranged and operating in the manner described for the purpose specified.

Second, The combination of the longitudinally-sliding breech piece, C, with or without a sharp edge, stirrup, B, screw, D, or its equivalent and oscillating cannon, A, the whole arranged and operating, substantially in the manner and for the purpose described.

2,784.—S. L. Marsden, of Westville, Conn., and S. R. Burrell, of New York City, for Improvement in Candlesticks:

We claim a portable candlestick, formed of a metal socket, A, and a spike or screw, B, or a spike and screw combined, substantially as described.

[This invention consists in having a metal socket of sufficient dimensions to hold a candle, provided with a spike or screw, or both combined, so that the socket may be readily secured to any wood work, such, for instance, as the center pole of a tent, the frame of a window, or any frames arranged specially for them.]

2,785.—A. R. Miller, of Attica, N. Y., for Improvement in Carriage Springs:

I claim constructing elliptic springs with double bearings, b b, and leaving the centre thereof detached from the axle and spring bar, substantially in the manner and for the purposes shown and described.

2,786.—John M. Muller, of Richmondville, N. Y., for an Improved Process of Tanning:

I claim the employment or use, for the tanning of leather, of tansey, in combination with hemlock or oak bark, substantially as set forth.

[This invention relates to an improvement in tanning leather, whereby the work may be very expeditiously done, and leather of a very superior quality produced.]

2,787.—John Mulvaney, of New York City, for Improvement in Lamps:

I claim the employment or use of perforated or wire-cloth disks, a, b, in the tube, C, and air or draught chamber, B, of a camphene lamp, when said disks are used in combination with the glass chimney, I, provided with a lower globe portion, c, s, and without the ordinary draught cone, J, which encompasses the upper part of tube, O, substantially as and for the purpose set forth.

[This invention has for its object the converting of ordinary camphene lamps into coal-oil lamps by an extremely simple and economical modification.]

2,788.—O. H. P. Ordorff, of Bloomington, Ill., for Improvement in Portable Field Fences:

I claim making the panels of a portable fence in such a way that the end ports thereof shall set back from the end of the rails, leaving the ends of said rails projecting past the posts a short distance, thereby forming an angle into which the end of the adjoining panel may enter, then uniting the panels by inserting the end of one panel into the angle formed as described, and fastening the panels when thus united by hooks and staples attached to the same, the whole being constructed and arranged as and for the purpose described.

2,789.—C. E. Paxson, of Salem, Ohio, for Improvement in Corn Plows:

I claim the fenders, B B, hinged forked bars, C C, hinged handles, D D, with the guard, F, and draft beam, A, when combined, arranged and operating in the manner described.

[This invention is designed for cultivating in between rows of corn, and it consists in a peculiar construction and adjustment of parts whereby the implement is brought under the perfect control of the operator, and adapted to follow and cultivate with equal facility opposite sides of two straight or crooked rows at one operation.]

2,790.—B. D. Pease, of Madison, Pa., for Improved Butter Worker:

I claim the combination of a rotating bowl, B, with a rotary beater, E, formed of radiating wings or blades, G, the outer edges of which are parallel with the inclined or concave bottom, I, of the bowl as and for the purpose set forth.

I further claim attaching the guard or fender, G, to the device by means of eyes, m m, fitted on vertical rods, n n, at the upper part of the upright, c', in connection with the key, E', for securing the jour-