The Patent Review.

A MONTHLY INTERNATIONAL PATENT JOURNAL.

Editor and Propr., A. HARVEY, C.E.
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Address, referring to number at head of each advertisement,

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45. Neck Yoke. Can. Patent No. 18576, dated 26 January, 1884, same as U. S. Patent 288,364. Circular.

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72. Feed Grinding Mill. Can. Pat. 10,747, dated 16th Dec., 1879. Extended. Mill received medal at show in Canada.

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112. Grooming Glove. English Pat. No. 3,643, dated 20th February, 1884. Will be sold for a nominal figure or may be manufactured on royalty. Sample. For description see page 4.

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116. Thole and Rowlock. Can. Pat. 18,289, 18th Dec., 1883, and 18,309, 15th Dec. 1883. Circular.

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136. Sad Iron. Can. Pat. 20,708. 11th Dec., 1884. Same as U. S. Pat. 289,709. Model.

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150. Wringing and Mangling Machine Can. Pat. 18,579, 26th Jany., 1884. Sale or Royalty. A popular household machine in England. Circular. Sample machine.

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187. Towel Holder. Can. Pat 19793, 14th July, 1884. Model.

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209. Sash Balance. Can. Pat. 20075, 29th Aug., 1884. Same as U. S. Pat. 283,946.

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213. Sand Drier. Can. Pat. 17,105, 2d July, 1883.

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252. Screw Driver. Can. Patent 16,886, 14th June, 1883. Model.

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321. Machine for Bending Shanks of Sad Iron Handles. Can. Pat. 21,073, 11th Feby., 1885.

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562. Medical Compound. Can. Pat. No. 21,344, 30th March, 1885. A medicine manufactured and sold as a square pellet, acknowledged high curative qualities, successfully in use and well recommended. Circular.

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586. Self-Tying Telegraph Insulator. Can. Pat. 23,265, 25th Jany., 1886. Same as U. S. Pat. 332,061. Model. For description see page 5.

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647. Harvester. Can. Pat. 23,684, 29th March, 1886. Same as U. S. Patent 329,158. For description see page 5.

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675. Breech-loading Hammerless Gun. Can. Pat. No. 20,344, 9th Oct, 1884. Extended for Manufacture. Very valuable and will be sold at a low price for cash, or partly cash and partly stock. Full sized model. For description see page

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Replies to the following to be directed to the respective addresses given in each advertisement.

Folding Table. Can. Pat. No. 21,125, 23rd Feby., 1885. Extended for manufacture. Edgar R. Hinman, Ilion, N. Y.

Composition Mastic. Can. Pat. No. 22,081, 5th January, 1881. Extended for importation. Col. Andrew Derrom Paterson, N. J.

For Terms see Advertising Rates, page 11.

Prospectus.

THE PATENT REVIEW.

THE object of THE PATENT REVIEW is to represent the large and important interest vested in patents of inventions, trade-marks, timber marks, designs and copyrights, in the same, and if possible better, manner, as the leading trades callings and interests are represented by their respective trade or class papers, such as the railroads, doctors, lawyers, and the leather, paper, milling, hardware and other trades are represented by their respective journals.

This interest, composed, as it is, of cash investments consisting of the small but hard-earned savings of the workingman or individual of limited means the larger surplus of the capitalist, and of the labor, time and anxiety —not infrequently that of a lifetime, or large portion of it—of the inventor; an interest, now acknowledged by competent authorities to be the true foundation of a countries material prosperity, more extensive and of greater importance than is yet represented by any professional, trade or class journal.

THE PATENT REVIEW will endeavor to instruct and interest the mechanic, the trader, the merchant, the manufacturer, the capitalist, the professional man, and all others whose turn of mind is either in the direction of inventing, manufacturing inventions, distributing manufactured inventions commercially, or of helping in any way with, and benefiting by, his ingenuity, commercial skill or financial assistance. THE PATENT REVIEW will endeavor to champion their rights and promote their mutual advantage.

The benefits to be derived, individually and collectively, and the immense advantages the community at large will receive, are certainly inducements worthy of the best efforts. The successful practice and good reputation of the editor and proprietor, who, ever since the completion of his politechnic education as a civil engineer abroad, 23 years ago, has been actively and uninterruptedly connected with the interests which THE PATENT REVIEW undertakes to espouse, and is not inexperienced in journalism, justifies confidence in his qualification to accomplish the object in view.

THE PATENT REVIEW will draw attention to and describe useful new inventions. It will discuss abuses and needed reforms in the laws and practice of patents, trade-marks, &c. In its columns will be reported legal decisions, and it will collect and present in a compact form facts and matters of special interest to its readers. It is not proposed to reprint dry and bare lists of patents from the official journals of the U. S., Canada, England, Germany, &c., but the statistics and information which must form a necessary part of a publication like this, and drawn from the above sources, will not be wanting; and, as long as the Canadian Patent Office Record is published only, as it has been for some time past, two and three months after the date of the patents, a full list of Canadian patents will appear in these pages. This list alone will be very valuable to many, and be a great advantage, as it will appear considerably in advance of the official publication. Its advertising columns also, THE PATENT REVIEW will strive to make both interesting and useful to its readers by keeping them strictly select.

That THE PATENT REVIEW is not a philanthropic venture needs no mention. Its existence, though far from being intended as a money making machine, must depend upon its commercial success, a laborer being worthy his hire, and the printer and other expenses must be paid. If it were necessary for THE PATENT REVIEW to appologize for its existence, there would be grave reasons to doubt its success. Show therefore your approval, support and sympathy in a practical way by your subscription—it is fixed low enough to be within the reach of all, even of the inventor, who is proverbially poor,—by a share of your advertising patronage, your recommendation to your friends, and by your contribution of items of interest.

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The Patent Review.

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Die Spalten dieses Journals enthalten illustrirte Beschreibungen von neuen nützlichen und wichtigen Erfindungen, Hindeutung auf Missbräuche in der Ausführung der Patent und Registration-Gesetze, sowie Besprechungen von wünschens-werten Verbesserungen an denselben, Berichte über gerichtliche Entscheidungen in Fachsachen, statistische Angaben aus den Ver. S., Canada, England, Deutschland, &c., nach offiziellen Quellen, einschliesslich einer Liste der in Canada erteilten Patente (wahrend der Dauer der jetzigen verspäteten offiziellen Veröffentlichung), sowie in übersichtlichem Format gesammelten anderen wissenwerten und für die Leser interesanten Thatsachen und Notizen. Auch wird sich die Redaction bemühen die Inserate interessant, leserlich und so nützlich wie möglich für den Leser zu halten.

Der Redacteur, ein Civil Ingenieur mit 23 jähriger fachmännischen Erfahrung und gut renomirten Praxis im Patentfache, dem Journalwesen nicht fremd, wird es sich ernstlich angelegen sein lassen das vorgesteckte Ziel zu erreichen und wo möglich zu übertreffen. Dazu lieber Leser thue aber auch das Deinige, lasse es an der nötigen Unterstützung mit Abbonnement und Gebrauch der Inseratenspalten, zwei zum Erfolge unentbehrliche Sachen, nicht fehlen. Vor allen zeige dein a Beifall durch die richtige Verwendung des beiliegenden Abbonnementsscheins.

The Patent Review.

A. HARVEY, C.E., Editor and Proprietor,

OTTAWA, CANADA.

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New books on subjects directly or indirectly relating to the interests represented in these pages will be reviewed, and manufacturer's catalogues noticed on receipt of a copy.

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THE PATENT REVIEW,

OTTAWA, CANADA.

INTRODUCTION.

Having been for years pregnant with the idea of representing the patent interests by a special organ, it somewhat suddenly developed a practical shape, and we have given birth to this—first number. Throwing ourselves upon the kind indulgence of our constituents, we trust to being judged leniently, and rather by our hearty good will and the tendency of our effort, than by what we have actually accomplished. In reference to the title, we owe an explanation. In the prospectus we had referred to the embryo as "The Patentee," but upon mature reflection, christened the new comer THE PATENT REVIEW—its present name. We trust this change will meet the approbation of our readers. First numbers are always surrounded with exceptional difficulties, and hence it is that this appears later than we could have wished, but we trust that we shall, by gradual reduction of the intervals, bring the time of publication as near as may be to the middle of that month which the number bears, or at least between the middle and the end of the same. Our columns, too, we know have room for improvement, and we rely on our readers and friends for assistance and suggestions tending to increase the usefulness of the paper, an object which we shall at all times be anxious to attain.

THE PATENT REVIEW is but small, our own opinion being that a large paper is neither necessary nor desirable. In fact we had only intended to print 8 pp., but when making up our material, we were compelled to increase it 50 p. c. Our efforts will be directed to the improvement of the quality of its contents rather than the augmentation of quantity. Nevertheless, as we may be wrong in this, we shall not hesitate to be taught by experience.

After all we have undertaken the task with considerable reluctance, hesitating to increase the pressure on our time already taken up by professional duties; and we also shrank before the serious responsibility to be incurred in espousing a public cause, in the advocacy of which it will often, no doubt, be necessary to criticise actions of public bodies and officials, and to attack abuses. Now that the task is undertaken with a due sense of its responsibility we shall endeavor to do our duty without fear or favor, and trust to a generous support to enable us to carry it out successfully. We cannot close these remarks without a special appeal to the press for assisting us with comment and exchanges.

SYSTEMATIC INVENTION.

Prof. Hele Shaw, some time ago, read a paper before The Liverpool Politechnic Society, entitled, "The Invention of Machines." From a careful perusal of this paper we have risen disappointed, having failed to discover, what its title led us to expect, any new information likely to be of service to the practical inventor. The conclusion to which the author comes is, that a science of machines has not yet been founded, and that, realizing the difficulties in the way of such a science, it may be doubted whether its ultimate establishment is possible; or in other words, that it is doubtful whether invention can be performed scientifically, not to say by rule. The author however does not seem to abandon all hope of such a science being ultimately established, in view of the progress that has been made in chemistry, which only a few years ago was merely analytical, while at present laws have been established by which the building up of compounds can be scientifically performed. It would certainly not be true scientific spirit which held as impossible that which had not yet been accomplished, and the accomplishment of which is frought with apparent difficulties. Mechanism, Machine Design and Prime Movers, it is true, ought to be understood by those who wish to engage successfully in inventing machines in order that due regard may be had to the three essentials of motions in machines, the nature and strength of materials, and the forces which actuate machines. That a large proportion of failures are due to a want of knowledge of these branches is proved by the experience of mechanical experts whose business brings before them examples of this kind almost daily. Professor Shaw points to the Records of the English Patent Office, referring to the large proportion of applications that are not proceeded with, and the large number of patents that expire at the subsequent tax paying stages, as proof that the inventor has discovered want of novelty or impracticability of successful execution and working of the machine. These failures, he thinks, result from ignorance either (1) of previous achievements, or (2) of scientific principles, or from (3) the want of suitable materials or of properties of matter which are not forthcoming. He admits that want of funds to carry on the work may account for a small portion of abandoned inventions. This cause, we think, he undervalues. We know it from experience to be a positive fact that this, coupled with want of pluck and energy, operates with deadly effect on a very large number of useful inventions, both patented and unpatented. Nevertheless, what is said remains true of those not affected financially, not to forget, however, those inventions which are superceded by subsequent progress. The employment of the expert would cure a goodly proportion of the now experienced disappointments.

FRUSTRATED ATTACKS UPON PATENT LAW.

For some years past annual attacks have been made upon the U. S. patent law, which we are pleased to say have in every instance proved unsuccessful. These attacks have been, it is true, of a more or less petty nature, but nevertheless of considerable importance in some instances. The last case has been the re-appearance, in the House of Representatives, of a bill, having for its object to legalize infringements of patent rights to the extent of $200, and to remove the liability for royalty or damages from infringers who could prove ignorance of the existence of patent rights on the articles in question. This enactment, it will be seen, would have opened the doors to wholesale infringement, and would have seriously damaged and undermined property in patent rights, and the industrial interests of the country. On the 17th of January this bill, H. R. 4,458, was deservedly thrown out by a large majority. In the debate on the bill, in the course of his remarks, the Hon. Benjamin Butterworth, of Ohio, late Commissioner of Patents, said: " .... This bill, if it should become law, wipes out at one stroke of the pen property rights of more than one hundred millions of dollars in value. It is, in fact, impossible to calculate the mischief it will do. Ninety per cent. of the present thriving industries of the country are built upon inventions covered by patents." "But then," says some friend, "we are being robbed by the system." I can show you, can demonstrate, that instead of that being true, this system has cheapened every product that is used in the house, in the barn, in the field, in the mill, in the shop, the forest, the factory and on the ocean. It has cheapened all articles we use. Instead of imposing burdens, it has scattered blessings, and this covert attempt to steal the blessings while destroying the source from whence they proceed is utterly indefensible.

In Canada similar attacks have been made. A couple of years ago a bill, very similar to the above, was before the House of Commons, and also deservedly defeated. THE PATENT REVIEW, though it cannot of course either prevent wrong or force correct legislation, will at least act the part of a watchman, and draw public attention to impending false steps, which are often far easier made than rectified.

THE BELL TELEPHONE SUITS.

The Supreme Court of the United States, all the judges except two being on the bench, began the hearing of five appeals against decisions in the circuit courts, rendered in favor of the Bell Co., on the 24th of January last, and its decision is now anxiously looked for. The records before the courts are said to be of immense size, embracing 15,000 pages contained in 20 volumes, besides the numerous briefs of the different council. The records, the magnitude of the interests involved, the number of cases to be jointly tried, and the eminent council engaged, will render this undoubtedly a memorable patent law case, and it might be supposed that all the points would be thoroughly investigated and settled, and that the true scope of the Bell patent would be clearly defined. Considering, however, that in this trial no new evidence can be taken, but that the deliberations and arguments will be confined to the evidence produced and points raised in the cases before the lower courts, this expectation for thoroughness is not unlikely to be doomed to disappointment.

SIR JOSEPH WHITEWORTH, BART.

The demise of Sir Joseph Whitworth, of Manchester, England, on the 22d of January, at the ripe age of 83 years, closed the career of a successful and eminent patentee. He was born at Stockport, near Manchester, on December 21, 1803, and enjoyed very limited educational facilities. When 14 years of age he entered his uncle's cotton mill, and, after working a time in the operative department, spent four years in the machine shop, where he found congenial employment. Subsequently he entered the service of Maudesley & Clements, in London, and in 1833 he opened a tool shop in Manchester. What mechanic does not know the Whitworth pitch of screws, the Whitworth gauges, plane proofs and micrometer measuring engine that could detect a difference of one millionth of an inch? In 1854 he was invited by the English government to construct machinery for making guns, and he subsequently made a series of famous experiments on rifles and projectiles, which resulted in the production of a rifle of much merit. Afterwards he also commenced the construction of large ordnance which, however, never gained favor in England, though greatly appreciated in the U. S. and other countries. Compressed steel was his last great venture. To overcome the porosity of Bessemer steel he constructed hydraulic presses of enormous power, and used them to compress the fluid steel at a pressure of six tons per square inch, thereby increasing its strength enormously. This product was used for screw shafts, armor plates, &c. The Whitworth scholarships were founded by him in 1868, for aiding young men, who had proved their aptitude by a successful competitive examination, with £100 a year for three years to complete their technical education. These scholarships have been and are being eagerly sought after, and are highly appreciated. He was created a baronet in 1869, the title expiring with him. In his immediate surroundings, Sir Joseph was not regarded as an original inventor, but rather as one who knew a good invention when he saw it, and hence, with most of the many patents to which his name is attached other names are associated in the minds of those who professed to have the opportunity of knowing. This circumstance, though it may appear somewhat odious to the minds of American inventors, educated to see the inventor's name foremost in the patent, was, until late years, a practice which in England was approved by common consent. We certainly regard it as a merit in a man if he can appreciate a good invention when he sees it, and makes honest use of it in putting it into practice. Sir Joseph could not be regarded as a broad minded man, very different in this respect to his contemporary, Sir William Fairbairn, with whom, as well as the subject of this notice, the writer had the advantage and pleasure of personal acquaintance.

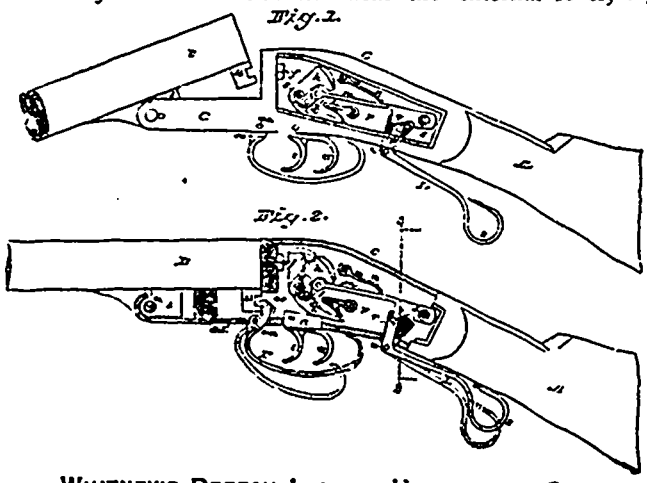
FLEXIBLE GROOMING BRUSH.

A very important thing about a stable is the grooming brush. A good grooming brush adds greatly to the appearance of the horse. That the ordinary stiff grooming brush is a very clumsy and inconvenient implement must have become evident to every horseman more than once. This defect has been remedied by an inventor in the United States who has patented a flexible grooming brush which will prove a great boon to those who handle horses, and to those who wish to see their animals well groomed. In this

brush the bristles are set in a flexible foundation or plate, usually indiarubber, and when well made—as we always have seen them—makes an exceedingly handy, convenient and useful stable utensil It has the great advantage that it bends to every curve and hollow upon the animal. This brush is both made in the ordinary form, usually adapted more or less to the shape of the hand, or what is still better and more useful, in the shape of a glove. In the latter case the flexible plate or foundation is attached to a strong leather glove. This article has met with great success in the U. S., and the English Patent is now offered for sale.

BREECH-LOADING HAMMERLESS GUN.

Our illustrations show the breech and lock of a double-barreled gun, invented and patented by Mr. William H. Whitney, of E. Brookfield, Mass. Fig. 1 represents in elevation (but with lock in full lines) the breech open, ready for the insertion of the cartridges; in fig. 2, a section, the breech, is closed, and the hammers cocked ready for firing. The hammers, *h*, are enclosed or concealed, thereby entirely removing danger from accidental firing by the hammers coming in contact with any twigs or obstructions. They are cocked simultaneously automatically, or by the trigger, either preparatory to or in the act of firing the gun. The mainspring, *m*, is pivoted, and inseparably connected with a link joint in combination with the external lever, L,

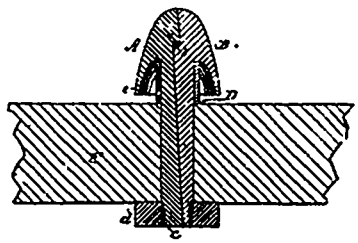


WHITNEY'S BREECH-LOADING HAMMERLESS GUN.

whereby the mainspring may be entirely relieved of strain, and power applied to the mainspring preparatory to firing. The hammers are held in a cocked position by means of a spring projected dog, *d*, which is tripped by means of the triggers, *t*, *tt*. The mainspring, *m*, is also provided with a small spring, *n*, for restoring the hammers to a cocked position. The breech is opened by pushing down the guard, *r*, as shown in dotted lines in fig. 2, this action releasing the barrels, B, by disengaging the catch, *cc*, from the notch, *bb*, when thus open the cartridge shells may be removed in the usual manner. This invention may be applied to single as well as double-barrelled guns, revolvers and pistols. This lock is simple and cannot get out of order, and for safety and rapidity of firing, is claimed to be unequalled. The Canadian patent is in the market and offers the opportunity of a safe and profitable investment. A full-sized working model may be inspected at this office.

SELF-TYING INSULATOR.

The accompanying cut illustrates an ingenious devise for dispensing with tie-wires for securing telegraph and other wires, and makes a simple and practical tie-less or self-tying insulator. The cut represents the new insulator in section. It is made in two halves, one the male half, A, and the female half, B, and is intended to be secured upon the cross arm, F, by a nut, *d*, the split shank of the insulator passing through the arm, and one half, A, being provided with a screw thread, *c*. The dividing line in the middle of the head is inclined in the shank portion so that the end of the shank, A, is made larger, to give a firmer hold for the nut, *d*. The end of the shank, B, is not provided with a thread, in consequence of which, when the nut is tightened, the male part, A, is drawn down and holds the wire firmly in place in the two shoulders, *a* and *b*, and also holds the insulator firmly in its place on the cross arm.



A ring or collar, D, is provided to hold the two parts firmly together in the event of the shrinkage of the cross arm, and keeps the rain-shed, *e*, out of contact with the cross arm.

The advantages of this insulator over the old forms are great. It entirely saves the tie-wire, and admits of the line wires being tightened or slackened—without the necessity of cutting tie-wires,—by simply loosening the nut. It is cheap and simple, and will enable about half the number of linemen now employed to do the work, on account of the easy and quick manner in which it can be fixed and the wires adjusted, thereby keeping down the expense. This patent is in the market, and a model can be seen at the office of this paper.

ALLEN'S AGRICULTURAL MONTHLY.

Mr. J. T. Allen, of Washington, has rendered a great service to those interested in agricultural inventions by the publication of a series of Digests of U. S. patents, relating to a number of agricultural subjects. This he has followed up by the publication of Allen's Agricultural Monthly, of which twelve monthly numbers for 1886 have been issued, forming a continuation of the Digests, and bringing in classified order the claims and drawings of patents for plows, seeders, harvesters, &c. For making searches and preliminary examinations, this is a most valuable and almost indispensable work. The publishers, Messrs. Hart & Von Arx, have now considerably reduced the subscription, but we much regret that the value of the work is about to be considerably impaired by the announcement that, in future, it will be issued in one annual volume, instead of as heretofore in monthly numbers.

An extensive manufacturer of agricultural implements assured us recently that there would be a hugh fortune for the inventor of a good potato digger, and that he himself would be prepared to purchase at a very large figure—$8,000 or $10,000, we forget.

ENGLISH PATENT ETC. CASES.

It is, perhaps, not generally known in the United States and Canada that the English Patent Office has been issuing, for some time past, a separate paper containing the decisions of English Law Courts, relating to Patents, Designs and Trade-marks. These "Reports" are edited by John Cutler, Esq., Barrister-at-Law. Last year, being Vol. III., 27 of these papers were issued, containing a large number of decisions and a large fund of information. We shall, from time to time, publish extracts from these reports in cases which are of general interest. These reports form a complement to the decisions published in the Official Gazette of the U. S. Patent Office.

CEASED TO BE A STRUGGLING INVENTOR.

In a New York interview, Mr. Geo. W. Stockland, President of the Brush Electric Company, of Cleveland, says: "We have never been so busy as at present. The West and South are great fields for new plants, but the notion that the growth is entirely in that direction is erroneous. In the last three months we have placed over $100,000 worth of apparatus in the East. We are reaching out to Europe, South America, Australia, China and Japan. The original capital of our company was $100,000. It has been raised at different times until it is now $2,000,000; the last increase was made for the purchase of Mr. Brush's patents. He is now under contract to furnish us all his new inventions as long as the company is in existence and while he is alive. That means a good deal, for he is only a young man, much under forty years of age, and as ambitious to produce new results as when he was a struggling inventor. The latest new field of operation has been in the direction of motors, the power for which may be located at long distances away from the place of action. They require such motors in mines and the same system can be operated upon street railroads. We have just shipped a number of motors to Denver to be used upon a street railroad. In mining, the engines which supply the power may be located a mile or two away from the place where the power is used."—*Electrical Review.*

PATENT AND TRADE-MARKS STATISTICS FOR DECEMBER.

UNITED STATES.

No. of Patents for Inventions	1,637
" Reissues	6
" Design Patents	34
" Trade-marks registered	87
" Labels registered	26
Total	1,790

CANADA.

No. of Patents for Inventions	228
" Certificates of Payment of Further Fees issued	25
" Assignments recorded	103

ENGLAND.

No. of Applications for Patents	1,438
" Provisional Applications accepted	1,242
" Complete Specifications accepted	800
" Patents sealed	648
" Applications for Trade-marks Registration advertised	575
" Trade-marks registered	624
" Designs " "	1,565

GERMANY.

No. of Applications for Patents	327
" Patents issued	251
" Patents expired	264
" Applications refused	30
" " withdrawn	1
" Patents transferred	20

STATISTICAL.

CANADIAN RAILWAYS.

The financial value of an invention always depends for one of its principal factors upon the extent of its applicability. This is especially the case when inventions are concerned which are only applicable to existing objects, or objects likely to be brought into existence during the life of a patent. This condition applies more particularly to inventions relating to Railway appliances of all descriptions, and we therefore take an early opportunity to supplement the information published in the spring of 1885 in *Harvey's Guide to Patents* (p. 34) by the following table, partly reproduced from "Railway Statistics," a parliamentary report by the Chief Engineer of Railways for the year ending June, 1885, and partly compiled from earlier reports. The increase of railroad construction in Canada, it will be observed, is evidence of rapid progress, and amounting to over 15 p. c. in three years.

The items and column marked* are not given in the table contained in the official report, but are either compiled or taken from older reports for convenience of comparison.

	1884-5.	1881-2.*
Total miles of Railway completed	10,773	8,069
* do do do under construction	812	3,189
do Amount of Capital paid up	$454,082,609†	$308,099,777
do do Gov't Bonuses paid up	$119,603,255	$116,151,119
do do do Loans	$ 39,596,489	$ 21,259,589
do do Municipal Aid	$ 12,472,450	$ 8,809,044
* do do Capital	$625,754,703	$415,611,810
do Miles of Railway in operation	10,150	7,530
do Amount of Earnings	$ 32,227,489	$ 29,027,789
do do Working Expenses	$ 24,015,351	$ 22,390,708
do do Net Earnings	$ 8,212,118	$ 6,637,081
do Number of Passengers carried	9,672,599	9,852,385
do Tons of Freight carried	14,659,271	13,575,787
do Number of Miles run by Trains	30,623,689	27,846,411
do Casualties—Killed	157	147
do do Injured	684	397
do Mileage of Iron Rails	1,228	1,988
do do Steel do	9,545	6,085
do do Sidings	1,197	952
do Number of Elevators	17	25
do do Guarded Level Crossings	112	89
do do Unguarded do	6,729	8,477
do do Overhead Bridges	312	349
do do Crossings of other Rys.	142	140
do do Junctions with do	204	220
do do do Branch Lines	109	79
do do Engines owned	1,490	1,328
do do do hired	34	8
do do 1st Class Cars owned	676	682
do do do hired	28	38
do do 2d C. & Emigr't Cars ow.	487	362
do do do do hired	14	1
do do Bag., Mail & Ex. Cars ow.	382	357
do do do do hired	21	31
do do Cattle & Box Cars owned	20,667	18,910
do do do do hired	1,299	1,392
do do Platform Cars owned	18,580	9,595
do do do hired	201	25
do do Coal and Dump Cars ow.	2,391	2,050
do do do do hired	Nil.	

†Embracing Ordinary and Preference Shares, Bonds and "Capital from other sources."

CASUALTIES.

	Killed.		Injured.	
	1884-85.	1883-84.	1884-85.	1883-84.
Fell from cars or engines	34	39	91	81
Getting on and off trains in motion	8	17	56	62
At work making up trains	2	2	18	29
Putting head or arms out of car windows	.....	.....	3	.....
Coupling cars	8	9	277	252
Collisions or trains thrown from track	14	41	83	182
Explosions	.....	.....	2	6
Striking bridges	1	4	9	4
Walking or being on track	83	100	70	87
Other causes	7	15	75	143
Total	157	227	684	796

In future issues we propose to give similar information relating to other countries, and also to other subjects.

THE TEXTILE INDUSTRIES OF GREAT BRITAIN.

One of the most important, and unquestionably the most extensive, industry in Great Britain, is the textile, embracing the cotton, woolen, silk, flax, hemp, jute, hair, elastic, hosiery, and lace trades. The magnitude of this industry is almost incredible until facts and figures are examined. To a patentee this is a very important consideration. Where spindles are counted by the million it is obvious that a very small royalty must yield immense returns; with looms it is the same.

We are happy to place this valuable information before our readers by the courtesy of Mr. Alexander Redgrave, chief inspector of factories and workshops, who has favored us with the latest (dated August, 1885,) parliamentary Return of the Number of Factories authorized to be Inspected under the Workshops and Factories Acts, with the Number of Persons Employed in each Industry, distinguishing Men, Women, Young Persons, Children, Half Timers; also, giving the Number of Spindles, Looms, and other Machiners used in each Trade and Industry Inspected.

Want of space forbids the complete reproduction of the return, but below we give a number of useful extracts and compilations therefrom. It should be noted, however, that the figures do, after all, not represent the full number of spindles and looms, as, according to the return, the enumeration of these was omitted in a stated number of factories.

	Number of factories	Spinning Spindles.	Doubling Spindles.	Power Looms.	Males and Females Employ'd.
Cotton	2,685	40,120,451	4,228,470	560,955	504,069
Woolen	1,918	8,054,144	280,941	57,990	189,316
Shoddy	103	93,766	2,222	1,981	4,709
Worsted	725	2,227,102	536,329	79,938	135,250
Flax	338	1,155,217	65,166	47,641	111,837
Hemp	107	38,586	7,909	779	9,946
Jute	120	253,179	11,024	12,083	41,674
Hair	48	1,216	270	378	2,289
Silk	691	888,104	174,644	11,966	42,995
Lace	481	.....	.....	.....	15,886
Hosiery	227	.....	.....	.....	19,536
Elastic	67	.....	.....	.....	3,824

GENERAL SUMMARY OF FACTORIES.

	Number of Factories.	Total Number of Spinning Spindles or Throwing Spindles in Silk Factories.	Total Number of Doubling Spindles.	Total Number of Power Looms.	Number of Males under 18 Years of Age Working Full Time.	Number of Females above 18 Years of Age Working Full Time.	Number of Males above 18 Years of Age.	Total Number of Persons Employed.		
								Males.	Females	Males and Females.
England and Wales	6,359	45,143,651	4,582,108	675,958	67,450	436,329	283,954	388,304	475,520	813,824
Scotland	776	1,725,173	648,981	72,279	9,427	101,016	31,723	45,440	106,839	152,279
Ireland	330	963,031	30,875	25,472	4,994	48,560	14,757	21,269	46,889	68,158
Total of the United Kingdom	7,465	47,831,855	5,256,969	773,704	81,871	580,905	379,334	405,013	629,248	1,034,261

N.B.—There were 259 factories entirely closed at the date of the collection of this Return, the particulars of which are not included. A few manufacturers have not forwarded Returns, but not a sufficient number to materially affect the General Return.

NEW INVENTIONS.

Horse Collar. Mr. H. Brooks, of Brooklyn, Ohio, has obtained a Canadian patent, No. 25,666, Dec. 31st, for improvements in horse collars. The outer covering is made of leather as usual; the main lining is made of felt. The filling is contained within a canvas or other wrapper. The soft, felt lining prevents the filling gathering into lumps and from making hollows, which produce sores on the neck and breast of the horse. It also adds to the durability of the collar.

Clock Movement Frame. Mr. S. P. Sandmark, of Ishpeming, Mich., has obtained a Canadian patent, No. 25,646, Dec. 29th, for improvements in clock movement frames. One of the plates, either the back or the front, is divided into five pieces, whereby the spring arbors with their springs may be removed without disturbing other portions of the movement. The side gearing may also be removed without touching the central portions. It is very simple and will save a great amount of labor in making and repairing clocks.

Button-Hole Attachments for Sewing Machines. Mr. F. C. Hall, of Philadelphia, Pa., has obtained a Canadian patent, No. 25,768, Dec. 31st, for improvements in button-hole attachments for sewing machines. This is a very ingenious devise for making button holes. At each revolution of the main wheel a button hole is stitched up one side, across the top, down the other side and across the bottom. The pattern wheel regulates the style of button hole to be made. The principal parts of the machine are covered with a shield.

Method of Making Composite Bars. Mr. R. H. Libby, of Boston, Mass., has obtained a Canadian patent, No. 25,609, Dec. 24th, for an improved method of making composite bars, which are constructed in the following manner: The plates of metal are built up in the form of a box, the portions of the bar required to be hollow are filled with sand or some suitable material, then heated to a welding heat and then submitted to a train of rolls, and rolled into a solid or tubular form. This invention is especially useful in the manufacture of car axles, shafting, posts, columns, &c. The sand in the hollow part takes the place of the filling ordinarily placed in columns and posts. A pile of this description is easily and cheaply made.

Music Leaf Turner. Messrs. L. E. Williams, M. Tucker and J. C. Steitz, all of Warehouse Point, Conn., have obtained a Canadian patent, No. 25,632, Dec. 28th, for improvements in music leaf turners. The music is held in position by two jaws, drawn together with a spiral spring. Spring fingers are provided for turning the leaves which are held on the right by a catch which liberates the leaves one at a time by a light touch of a key, and turns them over to the left. This is a neat, simple and inexpensive devise, and one likely to become a favorite with musicians.

Pedal for Organs. Messrs. S. W. Herrick and P. J. Lawrence, of Washington, N. J., and Easton, Pa., respectively, have obtained a Canadian patent, No. 25,668, Dec. 31st, for improvements in organ pedals, which are made in two parts, one lever being placed inside the case, connected with the bellows-strap and projecting in the direction of the length of the organ, the other passing through the case in front and placed in an inclined position, which makes the operation of blowing at once easy and powerful, and giving to the organ a neatness of finish not to be obtained in the old method.

Spring Bed Bottom. Messrs. H. Quade, H. A. Burt, Sr., and H. A. Burt, Jr., all of Swanton, Vt., have obtained a Canadian patent, No. 25,559, Dec. 13th, for improvements in spring bed bottoms, in which the coils are connected diagonally as well as longitudinally and transversely, so forming connections that, when one portion of the bed bottom, composed of any number or series of coils, is depressed, the other portions or series will not be affected thereby, thus practically making each and every part adjustable one with the other, and also simplyfying, cheapening and otherwise perfecting the construction of spring beds.

Friction Clutch. Mr. O. Flohr, of Newark, N. J., has obtained a Canadian patent, No. 25,592, Dec. 20th, for improvements in friction clutches. This coupling affords a thoroughly reliable connection between the driving and the driven parts, and may be coupled or uncoupled without regard to the direction of rotation. One of these parts is provided with a flange, and the other is connected through interlocking projections and recesses with a divided ring, which is expanded within the flange by spreading its opening in such a manner that each half of the ring reacts against the other, by which the clutch is adapted to hold in either direction. The strength of its hold depends on the force the operator applies to spread the ring.

Horse Power. Mr. Chas. Sandford, of Fenelon Falls, Ont., and Ebenezer Sandford, of Milbank, Dak., have obtained a United States patent, No. 354,852, Dec. 21st, for improvements in horse powers. In the main frame are journalled friction rollers supporting the inwardly extended rim of the crown wheel, which is provided with a dome-shaped hub, journalled and supported on a dome-shaped trunnioned cap resting on the main frame. The animal motion is imparted to the crown wheel, which gears on each side into a pinion, each upon a radial shaft journalled in a line, and transmitting at their inner ends the motion to two other radial shafts by means of bevel gear. From these two shafts the power may be taken off. The ungearing of the crown wheel is prevented by means of guide rollers journalled into the frame. The centre gearing is provided with a friction clutch, enabling the horses to stop while the acquired momentum of the machinery may spend itself without causing a shock.

Railway Rail Joints. Mr. John Siegel, of Montreal, Que., has obtained Canadian patents, Nos. 25,688 and 25,825, dated Jan. 11th and 20th respectively, for improvements in railway rail joints. The rail, instead of being cut at a right angle, is cut at any angle between 30° and 60°, or may even exceed those angles, a medium of 45° being considered the best. This gives a continuous bearing surface to the wheel, and avoids the jar on the train when passing the joint. The rails will last considerably longer as they always give out at the joints first. The ordinary fish plates are used with the latter, but the former includes an innovation on them. The rail end is cut either square or obliquely through head and web, and the foot is cut short square a short distance back, leaving a gap in the foot when the two ends are brought together, and this gap is filled by a foot formed integrally on one of the fish plates, and the other fish plate is strengthened over the two joints where the foot of the fish plate joins the foot of the rails. This joint is also protected by a United States patent, No. 355,725, dated Jan. 11th.

Automatic Apparatus for Carbonizing Sawdust and Production of Gas. Mr. Ed. W. Rathbun, of Deseronto, Ont., has obtained a United States patent, No. 353,966, Dec. 7th, and Canadian patent No. 25,541, Dec. 11th, for improvements in the above The sawdust is fed automatically into the retort, and passed through the same, by means of a screw conveyor having a hollow shaft, through which is passed a stream of water or current of air, thereby keeping down the temperature and preventing the burning of the shaft, which always proved the chief difficulty in this apparatus. The gaseous products pass from the retort and are purified in the usual manner. The charcoal is discharged into a main provided with a hydraulic seal to prevent the escape of gas and the entrance of atmospheric air, and delivered by a conveyor into wagons or open conveyors. A modification is also shown in which the hydraulic seal is dispensed with, the discharging main being contracted so as to compress the charcoal and forming an air-tight outlet.

Dust-Collector. Mr. J. E. Wilson, of Galt, Ont., has obtained a British patent, No. 11,880, dated Sept. 18th, 1886, for improvements in dust collectors. It consists of two independent frames, each carrying a series of dust-collecting and air chambers, formed of cloth in the usual way. The blast is admitted to the chambers alternately by means of a valve, which is operated from the outside by means of a crank connected by a connecting rod to the main wheel. This crank is also connected, by means of two rods, to the lifting rods, which are, at each revolution of the driving wheel, brought alternately over two cam wheels, revolving at a high rate of speed, transmitted from the driving wheel. When one lifting rod is in position over a cam, the chamber above is being vibrated while the blast is cut off from it, at the same time the other lifting rod will not be over the other cam, and the chamber above will not be vibrated while the valve is open, but the blast passes through the same. Thus, while one chamber is acting as a separator, the other is being cleaned and made effective again for its next turn.

Trade-Mark Registration. The Phillip Best Brewing Co., of Milwaukee, Wis., have registered their trade-mark for lager beer in New South Wales. It is also registered in U. S. and Canada, and applications for registration are pending in other countries. The trade-mark consists of a hop leaf, bearing the letter B, and surrounded by a red band or ring, as represented in the illustration.

Price's Patent Candle Company, of London, England, have registered in Canada their three trade-marks, Belmont Sperm, Imperial Sperm and London Sperm.

A. J. CAMBIE.

It is with sincere regret that we have to announce the death, on the 19th of February, of A. J. Cambie, chief clerk of the Patent Office. Mr. Cambie has for a number of years been acting deputy commissioner of patents, and was personally known to a large number of persons who have had dealings with the office, and had many friends, being a painstaking official. In our next number we shall say a few words relating to his career.

IMPORTATION INTO CANADA OF PATENTED GOODS.

The Canadian Patent Law, section 28, enacts that the importation into Canada of goods protected by a Canadian patent, after the expiration of one year from its date, shall void the patent. The Commissioner of Patents, however, has power, under sub-section 3, to grant, upon petition filed before the expiration of the year, further time, not exceeding one year, within which to import the goods. It is the practice of the office to grant not more than six months at a time.

A delay of six months has been granted in the case of the following patents:—

Pato't No.	Date.	Title and Grantee.
23,495	26-2-86	Injector, E. A. Denison.
22,502	21-9-85	Sewing Mach. Table, D. Porter.
23,684	29-3-86	Harvester, J. B. Gemmill.
23,736	31-3-86	Tongue and Neck Yoke Attachment, R. T. Cook.
22,070	14-7-85	Refrigerator, C. Cavanagh.
23,283	27-1-86	Button Fastening and Setting Machine, American Button Fastener Co.
23,380	3-2-86	do do do
23,096	7-1-86	Axe, W. C. Kelly.
23,583	9-3-86	Book Rest, D. McClure.
23,267	25-1-86	Vehicle Spring, Greff & Co.
23,081	5-1-86	Composition Mastic, A. Derrom
22,120	21-7-85	Metal Rolling Machine, G. F. Simonds.
23,339	4-2-86	Wire Bearing for Suspenders, Beeman Bros.
23,340	4-2-86	Suspender Buckle, Beeman Bros.

THE MANUFACTURE IN CANADA OF PATENTED INVENTIONS.

The Canadian Patent Law, section 28, requires Canadian patents put in operation within two years of their date on pain of voiding the grant. Sub-section 8 empowers the Commissioner of Patents to extend the time upon petition filed before the expiration of the two years. This privilege is used somewhat extensively, a year being generally granted upon one petition.

A delay of one year has been granted in the case of the following patents:—

Pato't No.	Date.	Title and Grantee.
21,157	25-2-85	Wind Engine, C. H. Cramer.
18,579	26-1-84	Wringing and Mangling Machines, J. P. Rothwell.
20,942	21-1-85	Bellows Attachment for Insect Powder, T. Woodason.
20,864	12-1-85	Water Cooler, J. O. Brookbank
21,125	28-2-85	Table, E. R. Hinman.
21,223	9-3-85	Bias Tape, C. H. Farmer.

Canadian Patents Issued in December, 1886.

No. of Patent.	Dec	Patentee and Title.
25,448.	1st.	E. J. Wessels, Adjustable railway lamps.
25,449		Geo. Saltsman, Spark arresters.
25,450		Count Rudolphe de Montgelas, Art of electrically depositing aluminum.
25,451		do Process for the manufacture of chloride of aluminum.
25,452		do Process of obtaining metallic aluminum from chlorides.
25,453		do do
25,454		do Apparatus for the manufacture of chlorine gas.
25,455		do do
25,456		do do
25,457		do do
25,458.	2d.	H. R. Allen, Syringes.
25,459		E. L. Messenger, Heating stoves.
25,460		J. B. White, Art of making horse shoes.
25,461		J. F. Stewart, Stoves.
25,462		A. A. Wilson, Cooking stoves.
25,463		J. F. Riethmayer, Signal for railway purposes.
25,464		R. W. Chamberlin, Heating stoves.
25,465.	3d.	C. A. Webb, Whip sockets.
25,466		National Tube Works Co., Vehicle axles.
25,467		Ed. Halsey, Calculating and adding machines.
25,468		A. A. Abbott, Side-bar vehicle.
25,469		E. S. Wilber, Heaters.
25,470		H. Porter, Tobogganer's shoe protector.
25,471		C. P. Crowe, Side bar springs.
25,472		C. F. Fogg, Heating and ventilating systems.
25,473.	4th.	S. W. Spooner, Self-lighting lamp burner.
25,474		J. J. Ghegan, Automatic electric liquid level.
25,475		S. Wheeler, Wrapping and toilet paper.
25,476		J. R. Whitney, Process and moulds for casting.
25,477		E. Grace, Lubricators.
25,478		A. O. Hubbard, Folding hammock chairs.
25,479		J. H. Westman, Nut locks.

25,480. 5th. H. P. Cope, Hose trucks.
25,481 C. E. Patrie, Seeding machines.
25,482 J. Speires, Means of closing apertures in hulls of vessels caused by collission or otherwise.
25,483 W. H. Knowlton, Dumping waggons.
25,484 M. G. Grosscup, Hay elevators or carriers.
25,485 J. B. Andrews, Packages for the transportation of liquids and by mail.
25,486 J. Milne, Wire rope couplers.
25,487 P. Emory, Journal brasses for car axles, &c.
25,488. 6th. W. S. Johnson, Systems of temperature regulators.
25,489 J. E. Fletcher, Automatic lubricators.
25,490 National Tube Works Co., Car axles.
25,491 J. S. Collins, Machines for sewing on buttons.
25,492 E. H. Brown, Stock cars.
25,493 G. M. Stanchfield, Inkolcum for softening printer's ink.
25,494 E. Pope, Telephone circuits and switches.
25,495 R. A. Townsend, Vehicle wheels.
25,496 J. R. Gibbons, Combined pulverizer and harrow.
25,497 C. A. Pfenning, Apparatus for the manufacture of cloth buttons.
25,498 J. Smith, Combined railway sleepers and chairs.
25,499 H. E. Cahen, Manufacture of steel
25,500 M. L. Falling, Veterinary operating tables.
25,501 V. D. Johnson, Sled and sleigh runners.
25,502 O. S. Raymonds, Bob sleds.
25,503 R. W. Tuttle, Flour bolts.
25,504 G. A. Gray, Nickel plating.
25,505 J. J. Bresman, Hose hoists.
25,506 J. McClurg, Machine for arranging crackers.
25,507 J. S. Smith, Automatic car couplings.
25,508 W. G. Brown, Automatic cut-off for water pipes.
25,509 W. H. Thurmond, Car couplings.
25,510 " "
25,511 National Lock Washer Co., Spring lock washer.
25,512 J. M. Allen, Paper and comp. of matter for same.
25,513. 7th. J. G. Bailey, Plow coulters.
25,514 T. J. O'Brien, Street receivers and stench traps.
25,515 P. Fitzgibbons, Tube expanders.
25,516 J. J. Abell, Pendulums for electric clocks.
25,517 H. I[illegible]se, Cutters.
25,518 J. Boulgate, Water elevators.
25,519 J. W. Bishop, Fire extinguishers.
25,520 C. Hershey, Automatic grain weighing machines.
25,521 Paraffine Paint Co., Water proof paint.
25,522 W. Hocking, Trousers.
25,523 L. Bickford, Changeable speed gearing.
25,524. 9th. J. T. Marean, Toy race courses.
25,525 J. E. White, Thermostats.
25,526 I. P. Mellis, Load binders.
25,527 C. H. Emerson, Metal shoes or runners for toboggans and coasting sleds.
25,528 J. A. Hendrie's, Octave couplers for reed organs.
25,529 D. H. Manning, Insect destroyers
25,530 L. Bickford, Changeable speed gearing.
25,531 P. Guillaume, Auto-pneumatic clock apparatus.
25,532. 9th. A. A. Hawley, Felt footware.
25,533 J. Michels, Hoop-cutters,
25,534. 10th. J. P. Roberge, Railway station indicators.
25,535 J. B. Armstrong, Neck yokes.
25,536 W. E. Forster, Cleaners for breech-loading fire-arms.
25,537 F. Siebert, Belt-pulleys.
25,538 J. A. Hurley, Cork-pullers.
25,539 do do
25,540. 11th. M. G. Farmer, Mechanical telegraph system.
25,541 E. W. Rathbun, Automac apparatus for carbonizing sawdust and production of gas.
25,542 G. H. Bartlett, Shoes for mowing machines.
25,543 G. Stapleton, Potato planting machines.
25,544 W. Modridge, Thrashing machines.
25,545 J. C. Yonker, Printing in typewriting machines.
25,546 F. Barnhart, Burners for natural gas.
25,547 R. Wood, Machines for planting seeds.
25,548 T. P. Junior, Plug Tobacco machines.
25,549. 13th D. Ormeston, Railway station indicator.
25,550 G. W. Kirkpatrick, Teeth for grain drills.
25,551 J. Woodward, Pumps.
25,552 B. F. Williams, Stock cars.
25,553 W. Farguharson, Measuring the distance and vertical height of objects.
25,554 L. Dtennisch, Boiler flue cleaners
25,555 S. M. Hubbell, Bedsteads.
25,556 M. Miles, Adjustable seats.
25,557 J. C. White, Tile laying machines
25,558 D. C. Tedford, Water heaters.
55,559 H. Quaid, Spring bed bottoms.
25,560 L. S. Flatan, Seed planters.
25,561 G. W. De Haven, Devices for supplying lath to stock.
25,562. 14th. H. B. Cox, Electric batteries.
25,563 G. W. Wheater, Vertical draft attachments for furnaces.
25,564 L. E. Clark, Faucets.
25,565 M. F. Brainard, Excavators,
25,566 M. Hammond, Patients' elevators and perambulators.
25,567 J. J. Adgate, Cam cylinders for knitting machines.
25,568 J. J. Adgate, Knitting machine needles.
25,569 E. Baltzley, Culinary beaters.
25,570. 15th. E. W. Plunkett, Art of constructing buildings and engineering work of masonry.
25,571 F. T. Browning, Bed bottoms.
25,572 M. F. Brainard, Universal swivel and pipe connections for excavations.
25,573 J. H. Holden, Machines for splitting quills and feathers.
25,574 B. S. Beed, Bustles.
25,575 J. R. Avery, Car couplers.
25,576 H. Baines, Vehicles and motors.
25,577 J. M. Dunn, Feed water heaters for boilers.
25,578 W. R. Arnold, Boots or shoes.
25,579 J. W. Black, Carriage fenders.
25,580 M. Randolph, Journal bearings for all kinds of machinery.
25,581 O. E. Hildebrand, Reading tools.
25,582 W. G. Anthony, Burnishing machines.
25,583. 18th. H. M. Myers, Machines for cutting blanks for shovels, spades or scoops.
25,584 J. M. Allen, Paper and composition of matter for same.
25,585. 18th. J. Cardon, Machinery for preparing filamentous material by which the woody matter is separated from the fibres.
25,586 B. F. Holmes, Stock cars.
25,587 W. B. Browman, Car coupling.
25,588 Westing House Machine Co., Steam engines.
26,589. 20th. G. S. White, Lamp burner supports.
25,590 W. T. Kellogg, Sash pulleys.
25,591 F. H. Wenham, Gas lamps.
25,592 Otto Flohr, Friction clutches.
25,593 Thomas Head, Machines for grinding mica.
25,594 R. W. Hardie, Journal bearings.
25,595 W. W. Hanscom, Automatic air brakes for railways.
25,596 S. E. Fish, Pokers, tongs and stove lid lifters.
25,597 A. H. Howard, Exercising the physical powers of a person.
25,598 J. B. Hamilton, Keyed musical instrument.
25,599 J. Kritch, Railway car journal boxes or bearings.
25,600. 22d. P. A. Spicer, Hay tedders.
25,601 R. Brammer, Shingle machines.
25,602 P. A. Coupal, Machines for connecting soles and uppers on turned shoes.
25,603 M. E. Taber, Boots.
25,604 T. G. Cook, Spring tooth harrows.
25,605 J. J. Deal, Two-wheeled vehicles.
25,606 H. J. Iles, Thill coupling.
25,607 J. M. Sulton, Cultivators.
25,608. 24th. J. W. Grover, Spring washers for screw bolts and nuts.
25,609 R. H. Libby, Method of making composite bars.
25,610 W. E. Douglas, Screw holder and driver combined.
25,611 W. Murchey, Contracting and expanding dies for hand or machine use.
25,612 W. Goodiers, Axes.
25,613 A. Frank, Improvements relating to the treatment of spent lyes used in the manufacture of cellulose by means of sulphites, for the recovery of sulphurous acid therefrom, and to the utilization of the said lyes after such treatment.
25,614. 27th. L. Whitefield, Making compound for transferring designs to surfaces from perforated patterns.
25,615 W. H. Likins, Middling's Purifiers.
25,616 J. H. Wagenhurst, Roof double-seaming machines.
25,617 J. A. Wang, Pantographs.
25,618 C. Peets, Potato diggers and bean harvesters.
25,619 J. Hazel, Reaping and mowing machines and cutters.
25,620 M. I. Rehfuss, Hermetically closing jars and other vessels.
25,621 F. S. Seagrave, Ladders.
25,622 J. Dow, Sleigh and cutter gears.
25,623 G. Gifford, Vehicle tops.
25,624 S. R. Evans, Machines for turning wooden bowls.
25,625 H. C. McFarlane, Construction of cultivator teeth.
25,626 R. S. Lawrence, Carburetors and gas generators.
25,627 C. P. Beckwith, Elevators.
25,628 J. H. Moyer, centre boards for boats.
25,629 C. H. Shaw, Door Checks.
25,630 A. Selkirk, Traction increasing couplers for locomotives and their tenders.

No. of Patent.	Dec.	Patentee and Title.
25,631.	28th.	J. C. Schrader, Process of manufacturing explosive compounds.
25,632		L. E. Williams, Devices for holding and turning sheet music.
25,633		J Guyette, Combined water and temperature indicator.
25,634		E. Shaw, Carbon for electrical purposes.
25,635		J. J. Taber, Snow plows for country roads.
25,636		J. M. Sweet, Wheel hubs.
25,637		E. H. Hall, Screw propelling apparatus for steam vessels.
25,638		B. A. Grasberger, Wheel hubs for vehicles.
25,639		G. A. Dunn, Wind mills.
25,640		A. E. Lockhart, Fastenings for covers of boxes and burial caskets.
25,641		J. F. Herard, Hay press.
25,642.	29th.	Rob. Rowell, Car couplings.
25,643		R. G. Wilcox, Toe-weights.
25,644		A. W. Koch, Brackets.
25,645		E. F. Pflueger, Fishing floats and line connections thereof.
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