P. T. R. says: In your article on chameleons (April 11) you are certainly in error when you say that these curious little lizards are never seen on this continent. I have often seen, in several of the Southern States, small lizards that answer your description of the chameleon in every respect. The people residing in these locsilities have no other name for them but chameleon, and I believe that they are right in so calling them. A. Sir Richard Owen, F.R.S., says: "This family, which includes only the single genus chameleo, contains about 18 known species, all inhabitants of the old world," etc. And again: "It occurs in all the northern parts of Africa and alse in India; it has be come naturalized in some parts of Europe." There are innumerable varieties of lizard closely allied to the chameleon indigenous to this country; especially iguanas and geckos, which have doubtless led to your impression.

G. C. T. asks: Are you acquainted with any paint, pigment, substance, or solution which can be applied to the weatherboarding of a frame building with the effect of rendering it wholly or partially incombustible, or at least capable of resisting the heat and fiames of a burning building 25 feet distant from it without igniting? A. We do not think it is possible to render a wooden house perfectly fireproof. In regard to your other questions, it must be evident to you that it would be improper for us to recommend particular manufacturers in these columns.

C. C. asks: What is the best way to take the scale out of tubular or locomotive boliers? There are several about here that have been running in limestone or some other mineral water; they are thickly scaled inside, and therefore will not make steam well. A. There are numerous compounds in the market, which are said to be efficacious in such cases. By inserting a notice in our Business and Personal columns, you can doubtless open communication with the manufacturers.

E. M. B. says: I have a horizontal tubular bollerin which fire goes under the shell and then through the tubes. Would it save coal to put a brick floor within 9 inches of the shell'sfront end, and 6 inches from back end to keep the heat in the shell of boller. A. We would not recommend the change if the boller works well at present.

J. K. asks: How are artesian wells made, and what is the best way of fixing them, in order to water stock? A. The mere fact of inserting a pipe will not cause the water to flow. It is necessary to bore until water is reached that comes from a source higher than the place where the well is made.

H. J. I. asks: What is the rule to calculate the pressure on a hydraulic ram? A. The pressure on the ram is equal to the pressure persquare inch produced by the pump, multiplied by the number of square inches in the cross section of the ram.

J. A. Says: 1. We have a fire engine that will throw about 140 feet. The machine has no vacuum chamber. Willith help her to put one on? Willith be any advantage, and how much? The pumpsare 6 inches bore by 7 inches stroke; suction is 8½ inches by 18 feet long. A. We would not recommendit, it the pump works satisfactorily at present. 2. What is the pressure to the square foot of gas that will raise water 5½ inches in a bent tube ½ inch in diameter? A. About 28 pounds.

O. J.P. says: We generally use here lift and force piston pumps for tanks in houses, bathing purposes, etc., but instead I would like to use two plunger pumps of 235 inches bore and 24 inches stroke, with air vessels, and connected together, with the same action. In this case, the pump will be about 200 feet from the tankbeing 30 feet above the level of the water, the tankbeing 30 feet above the pumps. I fear that two plunger pumps could not be used as advantageously as a piston pump for lifting the water, but I understand that the plunger pumps would force up the water more advantageously than a piston one. Am I right ? A. We think that the piston pumps will give better satisfaction in this case. Tour other question is a professional one and should be referred to an engineer.

J. H. W. asks: 1. Is it possible to transmit a moderate degree of pressure through a balf inch gas pipe, 15,000 to 20,000 feet long, by forcing compressed air into one end? Could the loss of power and the time required for transmission be calculated? A. Yes. You will find some facts in regard to the matterin reports of operations in the Mont Cenis Tunnel, published in *Engineering* a few years ago. 2. Is the process of lighting street lamps by electricity attended with such a degree of expense (in first cost and subsequent operation) as to preclude its employment on the score of economy? A. We think so. 3 What would be the probable approximate cost of erecting the apparatus necessary to light the 5,000 lamps of Boston. Mass., and what would probably be the annual working expense? A. We believe the attempt was made some time ago; and probably by writing to the authorities, you can obtain the information you desire.

W. P. S. asks: Can you give me the di mensions, focal distances, etc., of the lenses for a won der camera, as described in your paper of June 6? A. The larger your objectives, the clearer will be your picture. The convexity of the glasses depends much upon the size of plcure desired. 2. What light is best where gas cannot be obtained? A. A coal oil lamp has been used to advantage. 3. Would an extra lens between the light and the photograph be an advantage, and what should be its dimensions? A.Yes,a condenser, the larger the better. 4. What is the next step in the education of a mechanical engineer after a college course, and on what terms are learners taken into machine shops and other engineering establishments? A. The next step is to lay aside the idea that college education will giv anything but a theoretical knowledge, and to learn to do any menial labor that a mechanic has to do with all the strength and ability he possesses. On these terms if he is fortunate, he will be admitted into a machine shop. J. C. K. asks: Is it injurious to the water in leadservice pipes, orto the pipes, to lie in the same trench as gas pipes, the gas pipe and water pipe lying within three or four inches of each other, and passing through the same opening in a stone wall? If so, what is the effect? A. No; there is no reason why it should be injurious.

A. No. 3. If a tube, open at one end, were placed with the open end in a cistern of water, could the air be taken out of it so as to create a perfect vacuum? Would air enter by the water at the lower end? A. Vapor of water and air transpiring through the water wouldprevent obtaining a perfect vacuum. 4. Please name some good work on air pumps. A. Consult a work on natural philosophy, Ganot's "Physics," for example.

T. J. K. asks: What is the best material to put on a carpet when sweeping it? A. Try spent tea leaves.

H. W. asks: 1. Will scrap zinc do to use in a Hill or blue vitriol battery? A. If melted and cast, yes. 2. What sized cylinder do I want to make a 1-6 horse power engine at 30 lbs. pressure? A. A cylinder 2 inches diameter by 6 inches stroke, making 60 revolutions per minute, will give just over 1-6 of a nominal horse power.

C. L. F. asks: How can I determine the azimuth angle, or the variation of the magnetic from the true meridian? A. By the declination compass.

E. B. W. asks: What is the rule for finding the hight to which a stream of water will be thrown through a nozzlę 3 inches diameter at varying pressures in the water main? A. We must refer you to some good treatise on hydraulics for an answer to your question, as its consideration would occupy...too much space for these columns. We have discussed some of the points in our article on "Friction of Water on Pipes," p. 48, vol. 29.

H. I. W. asks: What is the best equilibrium slide valve? A. We do not recommend special articles of manufacture in these columns.

M. C. S. asks: What are the chief objections to an iron orsteel rail whose under side is wrought into a series of arches or curves, designed to span the spaces between the ties? The top or tread of the rail is to be horizontal as now, but the underside curved, ercept where it rests upon the ties. A. We scareely think that the change is very desirable.

C. R. asks: Will a spring made of the best spring steel be affected if placed in the steam cheet of an engine? If so, is there any metal or alloy that will resist the most intense heat of steam and retain its original form? A. Springs exposed to high pressures and temperatures are apt to become weakened. We do not know of any better material than steel.

G. M. R. asks. Who compose the American Society of Civil Engineers, what is the object of the society, and what formalities are necessary to become a member of this society? What are the time and place of their meetings and are the meetings public or not? A. It numbers the principal engineers of the country among its members. By addressing the secretary (Mr. G. Leverich, 68 William street, New York City), you can obtain full information in regard to your other questions.

F. W. B. asks: 1. Would there be a demand for a double engine, having oscillating cylinders, and provided with a reversing attachment? A. There are such engines in the market. 2. Is an oscillating engine, with a given head of steam, inferior to an engine whose cylinders do not oscillate? A. Not necessarily.

A.asks: 1.How can guitta percha be fastened to ordinary sole leather? A. By using guita percha dissolved in naphtha as a cement. 2. Will it wear as long as sole leather? A. No. 3. Will it melt with ordicary sun heat on the sidewalk? A. It will soften in summer weather.

P. P. W. asks: If the pressure is greatest on the bottom of a boiler, how does an injector work? A. We do not see the connection between the two. As to your other question: According to general usage, a corner building is on the street on which the main en. trance opens.

G. W. M.-Your questions are too comprehensive to be answered in these columns. You will find the flight of birds fully explained in Pettigrew's "Animal Locomotion."

E. B. K. says: I have a small telescope constructed on the principle of the compound microscope, with acbromatic object glass 1% inches in diameter and 18 inches focus. Eye-piece consists of 4 lenses. Can I obtain a higher power by using an acbromatic ob. ject glass of 30 inches focus and 2% inches diameter? A. Yes.

J. S. asks: How can I cut moss agates and cornelians? A. By means of a blade of softiron and diamond dust. Copperis sometimes used in place of the iron.

sometimes used in place of the from.
S. D. L. asks: 1. Is there any difference between a stereopticon and a magic lantern? A. No.
2. Can colored photographs be used in them? A. Yes.

3.Can photographic negatives be used? If so, how can they be colored? A. Read directions for coloring published on p. 397, vol 26.
D. G. asks: 1. What is the process of pol-

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined with the results stated :

R. R. R. - No. 1 is finely laminated micaceous schist, containing, as farascan be determined from such small pieces, vodules of impure steatite. No. 2, heavy spar or barite. The specific gravity of the specimen enclosed is 4.4. No.3, ilmonite, containing on an average from 80 to 85 per cent oxide of iron. No.4, magnetite.-R.L. W.-No.1, on analysis, was found to contain a little silica and insoluble matter, the remainder being carbonate of lime. It is not a hydraulic limestone. Properly burned it would be converted into quicklime. No. 2 is fibrous gypsum.-J. W. T. -We compared the powder, for polishing purposes, with rouge, the finest French emerypaper, and Bath brick. It is a medium between rouge and French emery paper, being inferior to rouge, and much superior to the emery. It is just equal to Bath brick, which it closely resembles in color. An eminent optician observes that 1t might be used by nickel platers.-A. M. B.-No.1 is fron pyrites. No.21s hepatic pyrites, fin which the sulphuret has been converted into oxide of iron.

F. E. T. says: Piles driven in salt water on the southern coast are very soon destroyed by worms They might be protected by metal sheathing, but that is too expensive. Is there any method known, both cheap and effective, of securing wood against the attacks of these worms?—J. C. G. asks : How can I burnish brass? -J. S. N. asks: How can Istraighten a rifle barrel?-E. H. B. asks: How israw wool prepared for dyeing with indigo blue ?- T. H. R. asks : How can I wash a chamois shirt without shrinking or injuring it?-H.L. How are white rubber hand stamps made? What kind of molds are used, and what kind of rubber? How is the rubber melted?—E. K. M. asks: How are the rubber bands of different sizes sold by stationersjoined to gether? The joint or seam is quite level, and as strong as any other part .- H. B. S. asks: What materials are used in the manufacture of firebricks, and what is the usual method of their manufacture?-H. E. K. asks : What is the best way to make putty of the colors of different woods (walnut,ash,etc.) ?—L. H. asks: What will prevent pastel colors from being rubbed ?-G.H.M. asks: What part of a horse power is an eight day clock spring? What is the weight of a four horse power engine ?-W. C. L. says: The front wheels of a wagon are S feet 10 inches high, and the hind wheels 4 feet 4 inches high, or the front wheels are 4 feet and the hind wheels 4 feet 6 inches. What is the rule for setting the axle and should the hind axle be any longer than the fore?—W. F. W. asks: 1. What is the rule for computing the horse power of an overshot water wheel, of 18 feet diameter, width of buckets 4 feet, depth 18 inches by average of 3% inches, with a 10 inch run, making 64 buckets to the wheel? 2. What is the meaning of the word "rages," used by machinists? 3. Will crawfish work in soft slate? Do they go any deeper than to the gravel? 4. Will itin-jure bolting cloth to wash it?

We shall be glad to receive replies to the above for publication.

# COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On Feathered Arrow Heads. By S. C. G., by T. L. W., and by A. H. I.

On a Balloon Device. By L. A.

- On the Dress of Women. By F. M. S.
- On Bursting and Explosion of Boilers. By

J. M. On the Boiler Explosion at Geddes, N. Y. By D. T.

On the International Rifle Match. By E. H. P.

On the Chances of War. By W.W.H. On the Interior Angles of a Polygon. By

On a Small Steamer. By J. F. K.

C. E.

Also enquiries and answers from the following:

J. A.C.-C. M. C.-W. C.-H. L. M.-C. E. J.-J.E.Jr. -D. B. S.-T. M. C.

# HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the paentability of inventions, assignments, etc.

# [OFFICIAL.] Index of Inventions

FOR WHICH

Letters Patent of the United States were granted in the week ending

June 23, 1874,

AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

Acid, making carbon <sup>†</sup> C, H. Beins	152,26
Air and steam brake coupling, S. Rhinehart	152,41
Alarm, burglar, J. H. Whitelcgge	15?,81
Anvil, reversible, B. A. Ellison	152,85
Awl handle, S. Henry	152,22
Bag tie, A. Lodde	152.28
Bale tie, cotton, A. A. Goldemith	152,36
Bale tie, cotton, G. W. Scott	152.42
Bassinet, folding, S.M. Hogan	152.28
Bayonet fastening, R. P. Resis	152.32
Bedetead J B French	152 85
Redetend I I. Hawan	159.97
Deabine I O Omelaner	159.06
Deter alve, J. G. Gwaltney	154,50
Belting, leather, C. Munson	152,40
Boat, aerial, D. L. Knone	152,41
Boiler, steam, C. A. Clark	152,27
Boot soles, trimming, R. C. Lambart	152,88
Bottles, covering heads of, Boeklen et al	152,32
Box, butter-preserving, etc., Gillett & Hartshorn	152,22
Brewers, mashing machine for, A. Neubocker	152,40
Bricks, enameling, D. W. Clark	152,21
Buckle for clothing, E. B. Schnabel	152,42
Building, fireproof, E. F. Cook	152,84
Burner, gas. J. W. Graham	152.22
Burger, valor, F. A. Sawyer.	152.42
Burner electric lighting A T Smith	152 42
Can for cooling milk G W Fluke	152.28
Canister tes P. P. Lawrence	152 90
Car standard A Pannahacker	159.40
Car staluard, A. I chiebacker	150.07
Car brages handing C Dichy 04	159 414
Car brakes, behundig, S. Kiguy, 30	150 0
Car Urake, railway, G. A. Beach	102,81
Car, freight, D. F. Van Liew	152.43
Carspring, A. Middleton, Jr	152,89
Car, stock, H. Purdy	152.40
Cars, door for grain, H. Purdy	152,41
Carpets, screw for stair, M. Krickl	152,98
Carriage, child's, J. A. Crandall	152,278
Carriage, child's, G. Martienssen	152,299
Cartridge box, P. J. Quin sac	152,411
Cartridge, fire arm, W. S. Smoot	152.429
Cartridge-loading machine, C. H. Webb	152 263
Carts, and gate for dumning. J. Sweeney	152.489
Celluloids etc. molding, I.S. & J.W. Hystt.	152.28
('heir seat needle D. C. Mosher	159 400
Charles ato die for P. R. Carsley	159 990
Churn George & Stutzman	159 961
Clear hunch muching C Windrath	15-) 4 (4
Cigar build machine, C. Windrath	159.95
Olgar Case, J. H. IUwing	152,20
Clock lockwork, F. Kroeber	152,29
Cloth-measuring machine, W. M. Keyes	1(2,23
Clothes dryer, A. F. Stowe	152.48
Clothes wringer, W. A. Sharpe	152,42
Coffee, extracting, R. B. Underhill	152,309
Coffee for transportation, T. H. Berry (r)	5,933
Cooking apparatus, M. A. Scott	15\$,80
Copy holder, D. T. Hall	152,22
Cork cutting machines, E. O. Schartau152,421,	152.422
Corset, J. C. Cook	152,84
Cultivator, L. J. Davis	152 849
Cultivator and stalk cutter, R. P. Rogers	152,417
Cultivator, cotton, P. D. Robbins	152,304
Curry comb, T. J. Hutchins	152 290
Curtain fixture, L. Bradbury	152,27
Cutter.mcat. S. Gable	152.358
, , , , , , , , , , , , , , , , , , , ,	.,
Cutter straw J A Cornish	152 949
Cutter, straw, J. A. Cornish Dams, device for building, E. Boll	152,842 152,895
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick. portable, H. Donnelly	152,842 152,822 152,824
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk school W. P. Goolman	152,842 152,822 152,849 152,849
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing board C. Poor	152,842 152,822 152,849 152,224 152,224
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Dray, C. M. Murch	152,842 152,822 152,849 152,224 152,900
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Dray, C. M. Murch	152,842 152,822 152,849 152,224 152,903 152,244
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing board, C. Poor Dray, C.M. Murch Drill, seed, J. H. Arney Deuts active Lieve	152,842 152,842 152,849 152,224 152,900 152,900 152,244 152,810
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Dray, C.M. Murch Drill, seed, J. H. Arney Drill teeth, Linnell & Parker Drill teeth, Linnell & Parker.	152,842 152,822 152,849 152,224 152,900 152,244 152,810 152,294
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Draying boaid, C. Poor Dray, C. M. Murch Drill, seed, J. H. Arney Drill teeth, Linnell & Parker Dyeing with indigo, Oldroyd et al	152,842 152,822 152,849 152,224 152,903 152,244 152,311 152,294 152,294
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Derrick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Dray, C. M. Murch Drill, seed, J. H. Arney Drill teeth, Linnell & Parker Dyeing with indigo, Oldroyd et al Egg carrier, W. O. Strong.	152,342 152,322 152,349 152,224 152,200 152,244 152,310 152,294 152,404 152,404
Cutter, straw, J. A. Cornish	152,342 152,822 152,824 152,224 152,200 152,244 152,310 152,294 152,404 152,430
Cutter, straw, J. A. Cornish	152,342 152,324 152,224 152,224 152,224 152,234 152,234 152,294 152,494 152,494 152,430 152,430
Cutter, straw, J. A. Cornish Dams. device for building, E. Bell Dersick, portable, H. Donnelly Desk, school, W. P. Goolman Drawing boaid, C. Poor Draying boaid, C. Poor Dray, C. M. Murch Drill, seed, J. H. Arney Drill teeth, Linnell & Parker Dyeing with indigo, Oldroyd <i>et al.</i> Egg carrier, W. O. Strong Eige hatching apparatus, J. Stone Eievator, hog, W. E. Kelly Engine and pump valve, A. J. Loretz	152,842 152,824 152,824 152,224 152,200 152,244 152,310 152,294 152,494 152,482 152,480 152,480 152,880 152,880
Cutter, straw, J. A. Cornish	152,842 152,824 152,824 152,224 152,200 152,244 152,310 152,294 152,404 152,480 152,383 152,383 152,287 152,215
Cutter, straw, J. A. Cornish	152,842 152,822 152,849 152,22 152,900 152,24 152,810 152,290 152,494 152,494 152,495 152,496 152,490 152,490 152,880 152,880 152,890 152,890
Cutter, straw, J. A. Cornish	152,842 152,822 152,849 152,224 152,200 152,244 152,810 152,294 152,404 152,432 152,430 152,382 152,382 152,383 152,297 152,212 152,899
Cutter, straw, J. A. Cornish	152,842 152,822 152,844 152,222 152,900 152,244 152,814 152,494 152,494 152,495 152,495 152,495 152,297 152,297 152,297 152,297 152,297 152,297
Cutter, straw, J. A. Cornish	152,842 152,822 152,844 152,222 152,900 152,244 152,294 152,494 152,495 152,495 152,495 152,495 152,495 152,895 152,895 152,895 152,895 152,885 152,885
Cutter, straw, J. A. Cornish	152,342 152,322 152,344 152,224 152,204 152,204 152,244 152,244 152,244 152,452 152,453 152,285 152,285 152,285 152,285 152,285 152,285 152,285
Cutter, straw, J. A. Cornish. Dams. device for building, E. Bell. Derrick, portable, H. Donnelly. Desk, school, W. P. Goolman. Dray, C. M. Murch Drill, seed, J. H. Arney. Drill, seed, J. H. Arney. Drill teeth, Linnell & Parker. Dyeing with indigo, Oldroyd <i>et al.</i> Egg carrier, W. O. Strong. Egg hatching apparatus, J. Stone. Elevator, hog, W. E. Kelly Eogine and pump valve, A. J. Loretz Eye and lung protector, G. A. Crofutt. Fauther renovator, W. H. Elliot. Fence, barbed wire, J. Haish. Fertilizer, H. A. P. Lissagary. Fiber-separating machine, W. M. Hughes. Fire arm, breech loading, L. Guineuf.	152,84: 152,82: 152,82: 152,84: 152,20: 152,20: 152,20: 152,24: 152,24: 152,40: 152,40: 152,40: 152,40: 152,85: 152,85: 152,29: 152,30
Cutter, straw, J. A. Cornish	152,84: 152,82: 152,82: 152,82: 152,24: 152,24: 152,24: 152,24: 152,49: 152,49: 152,49: 152,49: 152,89: 152
Cutter, straw, J. A. Cornish	152,84: 152,82: 152,82: 152,90: 152,22: 152,20: 152,20: 152,20: 152,20: 152,40: 152,40: 152,40: 152,20: 152,20: 152,20: 152,30
Cutter, straw, J. A. Cornish	152,843 152,822 152,344 152,352 152,301 152,202 152,301 152,430 152,430 152,430 152,430 152,430 152,430 152,430 152,430 152,360 152,400 152,50
Cutter, straw, J. A. Cornish. Dams. device for building, E. Bell. Derrick, portable, H. Donnelly. Desk, school, W. P. Goolman. Dray, C. M. Murch Drill, seed, J. H. Arney. Drill seed, J. H. Arney. Drill teeth, Linnell & Parker. Dyeing with indigo, Oldroyd <i>et al.</i> Egg carrier, W. O. Strong. Egg hatching apparatus, J. Stone. Eiger and pump valve, A. J. Loretz. Eye and lung protector, G. A. Crofutt. Faucet, F. Messmer. Fcather renovator, W. H. Elliot. Ferci, barbed wire, J. Haish. Fertilizer, H. A. P. Lissagary. Fiber-separating machine, W. M. Hughes. Fire arms, cartridge for, W. S. Smoot. Fuel from coal slack, I. McCormack. Farnace, hot air, E. H. Camp. Forniture fastening, Haven & Knight.	152,843 152,827 152,814 152,227 152,220 152,220 152,220 152,240 152,400 152,400 152,400 152,400 152,240 152,240 152,240 152,240 152,260 152,27
Cutter, straw, J. A. Cornish	152,843 152,827 152,914 152,227 152,224 152,227 152,200 152,249 152,249 152,490 152,490 152,490 152,490 152,490 152,287 152,399 152,267 152,386 152,385 152,386 152,385 152,385 152,385 152,385 152,385 152,385
Cutter, straw, J. A. Cornish	152,841 152,821 152,221 152,221 152,222 152,200 152,224 152,404 152,424 152,404 152,452 152,405 152,40
Cutter, straw, J. A. Cornish	152,843 152,843 152,843 152,844 152,844 152,844 152,844 152,844 152,844 152,484 152,484 152,854 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285 152,285
Cutter, straw, J. A. Cornish	152,844 152,844 152,844 152,844 152,844 152,844 152,840 152,240 152,240 152,404 152,400 152,405 152,405 152,405 152,405 152,405 152,405 152,405 152,966 152,265 152,265 152,265 152,275 152,275
Cutter, straw, J. A. Cornish	152,943 152,343 152,343 152,344 152,222 152,303 152,444 152,311 152,453 152,453 152,453 152,453 152,453 152,245 152,245 152,253 152,253 152,254 152,355 152,257 152,355 152,277 152,355 152,277
Cutter, straw, J. A. Cornish. Dams. device for building, E. Bell. Derrick, portable, H. Donnelly. Desk, school, W. P. Goolman. Drawing boaid, C. Poor. Dray, C. M. Murch Drill, seed, J. H. Arney. Drill teeth, Linnell & Parker. Dyeing with indigo, Oldroyd <i>et al.</i> Egg carrier, W. O. Strong. Egg hatching apparatus, J. Stone. Eigra and pump valve, A. J. Loretz. Eye and lung protector, G. A. Crofutt. Faucet, F. Messmer. Feather renovator, W. H. Elliot. Fere, barbed wire, J. Haish. Fertilizer, H. A. P. Lissagary. Fiber-separating machine, W. M. Hughes. Fire arms, cartridge for, W. S. Smoot. Fuer and slack, I. McCormack. Farnace, hot alr, E. H. Camp. Furniture fastening, Haven & Knight. Gase apparatus, H. L. Crist. Gas retort, portable, C. J. Eames. Gate, farm, G. Hoskins. Barton and Start. Gas manufacture, I. Marnetz.	152,341 152,341 152,341 152,341 152,242 152,301 152,431 152,431 152,431 152,431 152,431 152,431 152,431 152,432 152,241 152,342 152,345 152,35
Cutter, straw, J. A. Cornish	152,944 152,944 152,942 152,944 152,242 152,900 152,444 152,430 152,430 152,430 152,430 152,430 152,245 152,245 152,365 152,365 152,365 152,365 152,365 152,365 152,365 152,37
Cutter, straw, J. A. Cornish	152,341 152,341 152,342 152,342 152,242 152,311 152,243 152,243 152,430 152,430 152,430 152,430 152,430 152,430 152,430 152,2430 152,2430 152,2430 152,240 152,240 152,240 152,240 152,240
Cutter, straw, J. A. Cornish. Dams. device for building, E. Bell. Derrick, portable, H. Donnelly. Desk, school, W. P. Goolman. Drawing boaid, C. Poor. Dray, C. M. Murch Drill, seed, J. H. Arney. Drill teeth, Linnell & Parker. Dyeing with indigo, Oldroyd <i>et al.</i> Egg carrier, W. O. Strong. Egg hatching apparatus, J. Stone. Eige acarler, W. O. Strong. Egg hatching apparatus, J. Stone. Elevator, hog, W. E. Kelly. Elevator, hog, W. F. Kelly. Elevator, hog, W. F. Kelly. Facther renovator, W. H. Elliot. Facther renovator, W. H. Elliot. Ferce, barbed wire, J. Haish. Fertilizer, H. A. P. Lisasgary. Fiber-separating machine, W. M. Hughes. Fire arms, cartridge for, W. S. Smoot. Fuel from coal slack, I. McCormack. Farnace, hot air, E. H. Camp. Furniture fastening, Haven & Knight. Gage cock, H. A. Clinton Game apparatus, H. L. Crist. Gas retort, portable, C. J. Eames. Gate, farm, G. Hoskins. Gioves, die for cutting, J. Haag. Cran bider, I. Gward.	152,343 152,344 152,354 152,341 152,242 152,301 152,434 152,430 152,430 152,430 152,430 152,430 152,430 152,245 152,340 152,34

C. F. B. asks: What are the velocities of light and electricity? A. Wheatstone gives electricity (of high tension, such as atmospheric) a velocity of about 288,000 miles per second. Light has a speed of about 190,000 miles per second.

J. K. asks: Does the sun, by shining on one side of asaw every day for a length of time, injure it? A. Ordinarily, we should suppose not. We do not, however, know the circumstances of the case to which you refer.

D. G. asks: 1. What is the process of polishing paint, as it is done on carriage work, where no brushmarksare to be seen? A. Carriage painting and varnishing are processes much too complicated to be described in these columns. See M. Arlot's work, frequently advertised in our pages. 2. What causes paint to crack? Is it the use of too much or too little oil? A.Too little.

S. says: If spiritualism is a humbug, how can you account for such men as Crookes, Wallace and Edmonds believing in 1t? A. Spiritualism is no more a humbug than is hydrophobia. Both phenomena have certain points of resemblance. Both appear to be affections of the nervous system, resulting from some fort of action upon the nerve centers. How this action is induced is not positively known; but there is evidence to show that a mental impression, a whim, or the imagination of the individual, may be a sufficient exci-

ting cause. These diseases, and their multitudinous allies, nervous disorders of all kinds, are not respecters of persons. They attack all classes, the learned and the ignorant; but the earliest and easiest victims are generally found among individuals of weak or bad phy sical conditions.

T. A. C. says: Tell D. S. H., whom you answer at head of first column, p. 27, to cover the face of his pulley with leather to keep his belt from slipping. He can put it on with tacks or very small nails. Flesh sides together 1 think, work best.

will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of enquiries analogous to the following are sent: "Please to inform me where I can buy sheet lead, and the price? Where can I purchase a good brick machine? Whose steam engine and boiler would you recommend? Which churn is considered the best? Who makes the best mucilage? Where can I buy the best style of windmills?" All such personal enquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

Graining roller, J. Carr	152,212
Grate bar, gang, J. C. Kilgore	152,580
Grinding and polishing wheel, Walters et al	152,442
Grinding carpenters' squares, C. S. Bement	152,323
Hame, Smith & Burr (r)	5,929
Hammer, atmospheric, W. Manson	152,391
Hammer, atmospheric power, W. Manson	152 390
Harvester, E. L. Hutchinson	152,819
Harvester dropper, D. B. & J. J. Browning	152,211
Hatch, self-closing, G. C. Howard	152,876
Heater, feed water, R. Garstang	152,360
Heating apparatus, G. Stevens	152,429
Hinge, spring, A. Acker (r)	5,98
Hog ringing and marking, P. Listeman	152,295
Hogs, watering tank for, G. A. Carter	152,380
Hoist, hydraulic, M. L. Bassett	152 209
Horse blinder, J. W. Kennedy	152,384
Horse hay fork, W. R. Reed	152,412
Horsepower, L. R. Faught	152,222
Horses, releasing, K. Bragg	152,272
Horseshoeing harness, J Clarridge	152,276
Horseshoes, making, J. Russell	152.252
Hose, hydraulic, E. A. Street (r)	5,930
Ice machine, B. F. Teal	152,495
Indicator, station, J.F. Kettell	152,835
iron and steel, making, W.Bushnell	152,826
Ironing board, Loper & Dyss	152,296
Joist seat, W. H. Drake	152,289
Journal bearing, D, C. Clough	152,277

Lard, etc., rendering. A. Broadnax (r)..... Ore washer, A. Heatherington..... 15.,227 152.858 Planer, hand, J. P. Grosvenor..... 152, Planter, corn and cotton, C. Domschke..... 152,5 Propelier, steering, W. H. Mallory...... 152. Pulley block, self-binding, J. Bird ...... 152, Puan Darrels, lining for, L. B. Brown...... 152,5 Pump for windmills, I. H. Palmer...... 152. Pumps, drop valve box for, J. Tingley..... 152,255 Purfiers, bolt for middliftes, J. W. Wilson...... 152.312 Pyroxylin, molding, J. W. and I. S. Hyatt (7)..... 5,933 
 Radiator, steam, J. McCarthy
 152,394

 Railway crossings, gate for, E. Ridge
 152,415

 Railway switch, G. W. Paine
 152,405
 Sand papering machine, McBride & Brenizer..... 152,39 Saw, J. T. Tunis ..... 152,487 Saw, diamond, J. D Husbands, Jr..... 152,37 Saw gummer, J. W. Mixter ..... 152,302 
 Separator, grain, F. Johnson
 152,291

 Sewer and stench trap, H. H. Young
 152,449

 Sewer trap, H. H. Young
 152,450
 Spice box, Mefford & Curran..... 152,396 ..... 152.219 Stoves, base burning, Carter & Dwyer (r)..... 5,926. 5,927 Telegraph key, Foote & Randall..... 152,856 Telegraph relay, P. B. Delany ...... 152,281 
 Toy piscal, C. L. Wall.
 152,262

 Transplanter, T. Carroll.
 152,262

 Transplanter, C. Stone
 152,253

 Uterine supporter, J. T. Wright.
 152,448

 Valve, balanced silde, J. T. Hill
 152,246

 Vartephalone
 152,246

 Vartephalone
 152,246
 Vehicle spring brace, A. J. McRay...... 152,300 Vehicle wheel and axle, S. H. Dailey...... 152,280

EXTENSIONS GRANTED. 28,837.-FOG ALARM.-C. L. Daboll. 28.874.-Post Hole Digges.-J. Lee 28,923,-NAIL CUTTING MACHINE.-W. Wickersham. 28,941,-Skeleton Skirt.-S. S. Sherwood.

DISCLAIMER. 28,837.-Fog ALARM.-C. L. Daboll.

### DESIGNS PATENTED.

7,498.—CARPET.—J. Fisher, Philadelphia, Pa 7,499.-HONEYCOMB COVERLET.-P. J. Otto, Lancaster, Pa 7,560.-MEDAL.-T. R. Hartell *et al.*, Philadelphia, Pa. 7,501.-Toy BLOWPIPE.-F. H. Lane, Boston, Mass. 7,502 .- CARRIAGE CLIP .- G. F. Smith, Plantsville, Conn 7,503.-BRACKET.-J. B. Sargent, New Haven, Conn.

# TRADE MARKS REGISTERED.

1.840.-Eve Cups.-Dr. J. Ball & Co., New York city. 1,841. – WHIERY. – G. Clark, New York city. 1,842. – TALLOW COMPOUNDS. – J. HODDS, Boston, Mass. 1,843.—VOLTAIC SOLES, ETC.—E. J. Selbert, N. Y. city. 1,844.—WHITE LEAD IN OIL.—St. Louis Lead and Oil Co.

St. Louis. Mo. 1,845.-STOVE POLISH.-Strow & Co., Philadelphia, Pa

1,846.—Tobacco.—H. K. Thurber & Co., New York city 1,847.—DENTAL RUBBER — 9. S. White, Philadelphia, Pa 1,848.—FLOUR.—Bain & Pegram, St. Louis, Mo. 1.849.-MIDDLINGS PURIFIERS.-Brennan et al., Paris, Ill 1,850.— MACHINE NEEDLE.—H. B. Goodrich, Chicago, Ill. 1,851.—INJECTORS.—Rue Manufacturing Co., Phila., Pa.

#### SCHEDVLE OF PATENT FEES.

240		
299	On each Caveat	.810
246	On each Trade Mark	.825
364	On filing each application for a Patent (17 years).	815
107	On issuing each original Patent	. 820
184	On appeal to Examiners-in-Chief	.810
282	On appeal to Commissioner of Patents	.820
145	On application for Reissue	.830
486	On application for Extension of Patent	850
240	Ongranting the Extension	.850
850	On filing a Disclaimer	.810
298	On an application for Design (3% years)	810
070	Onapplication for Design (7 years)	815
273	On application for Design (14 years)	830
107		

# CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA

JUNE 15 to 26, 1874.

,561.-H. L. Lowman, Birmingham, New Haven connty Conn., U. S. Improvements on the manufacture of scythes, called "Lowman's Scythe." June 15, 1874. 3,562.-T. Steers, Jr., Ottawa, Carleton county, Ont. Im-

provements on currycombs, called "Steer's Curry somb." June 15, 1874. 5553.-J. Woodhams, Dorr, Allegan county, Mich.,U. S., assignee of C. B. Turner, Grand Rapids, Kent county,

Mich., U. S. Improvements on steam valves, called "Turner's Improved Steam Valve." June 15, 1874. 3.564.-R. M. Wanzer, Hamilton, Ont., assignee of J. F

Chamberlain, same place. Improvements in portable furnaces, called "Chamberlain's Improved Portable Furnace." June 15, 1874.

565.-T. Miller, New York city, U.S. Improvement or what are termed oil cabinets, called "Miller's Oil Cabinet." June 15, 1874.

3,566.-W. J. Clokey, Belleville, Ont. Improvement on a machine for thrashing grain, called "Clokey's Thrash-ing Machine Safety Gear." June 15, 1874. 8,567.—D. P. Sharp, Ithaca, Tompkins county, N. C., U.S.

Improvement on horse rakes, called "Sharp's Improved Horse Rake." June 15, 1874.

3,568.-W. R. Macauley, Hamilton, Wentworth county, Ont. Useful invention for bending painters' brusher to be used in the ordinary pursuance of house and carriage painting, etc., called "The Painter's Friend. June 15, 1874.

3.569. J.M. Allen, Marion, Plymouth county, Mass., U.S. Improvement on the art or process of making paper pulp and paper, called "Allen's Process of Making Paper Pulp and Paper." June 15, 1874.

Improvements on car couplings, called "McNab's Im-proved Automatic Car Coupling." June 15, 1874.

8.571.-H. H. Warren, Bridgewater, Ont. Improvements on a machine for trapping animals, called "Warren's Steel and Animal Trap." June 15, 1874.

S5:2.-A. R. N(chols, Williamtort, Lycoming county, Pa., U. S. Improvements on machines for edginglumber, called "Nichols' Improved Edging Machine.' June 15, 1874. 8,573.-W. S. Wisner, Brantford, Brant county, Ont.

assignee of C. P. Brown, Manchester, Ontario county N.R., U. S. Improvement on seed.sowing machine, called "Brown's Improved Grain Drill Distributer and Tube Shifter." June 15, 1874. 8,574.—H. Carter and D. Stewart, Aylmer, Elgin county,

Ont. Improvements on odometer, called "Carter & Stewart's Odometer." June 15, 1874.

8,575.-J. Orth and W. Honsberger, Clinton, Lincoln county, Ont. Improvement on threshing machines. called "Orth & Honsberger's Chaffer." June 15,1874. 8,576.-R. Kline and R. M. Jack, borough of Pottstown Pa., U.S. Improvement in running gears for carriages, called "Kline & Jack's Improved Running Gears for Carriages." June 15, 1874.

5.577.-I. P. Magoon and H. Fairbanks, St. Johnsbury, Caledonia county, Vt., U. S. Improvement on feed

3,586.-J. Brokenshire, Kingston, Ont. Improvement on capstans for the use of vessels, called "Broken shire's Elevated Geared Purchase Capstan." June 18 1874.

8.587.—J. Hock, Vienna, Austria. Improvements in motor engines worked by the combustion of petroleum or other liquid hydrocarbons, called "Hock's

Petroleum Motor Engine." June 18, 1874. 8,588.—William Gowan, Wausau, Marathon county, Wis. U.S. Improvements on head blocks and set works for saw mills, called "Gowen's Improved Saw Mill Set Works." June18, 1874.

5,589.-T. D. James, Syracuse, N. Y., U. S. Improve-Wash Board." June 26, 1874.



when the invention is but a small one. Larg inventions are found to pay correspondingly well. The names of Blanchard, Morse, Bige-low, Colt, Ericsson, Howe, McCormick, Hoe, ۲ and others, who have amassed immense fortunes from their inventions, are well known. And there are thousands of others who have

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quiry in

nearly eve-



ry letter, describing some invention which comes to this office. A positive answer can only be had by presenting a complete application for a patent to the Commissioner of Patents. An application consists of a Model, Drawings, Petition, Oath, and full Specification. Various official rules and formalities must also be observed. The efforts of the inventor to do all this business himself are generally without success. After great perplexity and delay, he is usually glad to seek the aid of persons expeover again. The best plan is to solicit proper advice at the beginning. If the parties consulted are honorable men, the inventor may safely confide his ideas to them they will advise whether the improvement is probably patentable, and will give him all the directions needful to protect his rights.

# To Make an Application for a Patent,

The applicant for a patent should furnish a model of his invention if susceptible of one, although sometimes it may be dispensed with; or, if the invention be a chem ical production, he must furnish samples of the ingredi ents of which his composition consists. These should be securely packed, the inventor's name marked on them and sent by express, prepaid. Small models, from a dis tance, can otten be sent cheaper by mail. The safest way to remit money, is by a draft or postal order, on New York, payable to the order of MUNN & Co. Persons who live in remote parts of the country can usually pur chasedrafts from their merchants on their New York correspondents.

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another, who has had some experience in obtaining pat-ents. His answer generally is as follows, and correct:

Construct a neat model, not over a foot in any dimen sion-smaller if possible-and send by express, prepaid, addressed to MUNN & Co., 37 Park Row, together with a description of its operation and merits. On receipt thereof, they will examine the invention carefully, and advise you as to its patentability, free of charge. Or, if you have not time, or the means at hand, to construct a model, make as good a pen and ink sketch of the improvement as possible and send by mail. An answer as to the prospect of a patent will be received, usually, by return of mail. It is sometimes best to have a search made at the Patent Office; such a measure often save the cost of an application for a patent.

# Preliminary Examination.

In order to have such search, make out a written description of the invention, in your own words, and a pencil, or pen and ink, sketch. Send these, with the fee of \$5, by mail, addressed to MUNN & Co., 37 Park Row and in due time you will receive an acknowledgment thereof, followed by a written report in regard to the patentability of your improvement. This special search is made with great care, among the models and patents at Washington, to ascertain whether the improvement

patents were granted, we think more would avail them selves of the extension privilege. Patents granted prior to 1861 maybe extended for seven, years, for the benefit of the inventor, or of his heirs in case of the decease of fomer, by due application to the Patent Office, ninety days before the termination of the patent. The extended time increase to the benefit of the inventor, the assignees under the first term having no rights under the extension except by special agreement. The Government fee for an extension is \$100, and it is necessary that good professional service le obtained to conduct the business before the Patent Office. Full information as to extensions may be had by addressing MUNN & Co. 37 Park Row, New

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PATENTS Bought, sold, and introduced. F. T. H. RAMSDEN, Mechanical Engineer, Bryan Block, Chicago, Ili.

Velocipede, A. Cooke 152,214
Vermin, exterminating, F. Heidelmann 152,372
Vessel, culinary, J. Repetti 152,251
Vessels, attaching rudders to, C. H. Crossman 152,217
Vessels, table for, E. P. S. Andrews 152,814
Washing machine, Vant & Cheney 152,261
Washing machine boiler, R. Wood 152,313
Weather strip, Bishop & French 152.824
Wheelwright machine, O. J. Doerty 152,348
Window reflector, Christensen & Olsen 152,894
Window shade hanger, A. F. Stowe 152,256
Wooden ware, W. H. Kelly 152,233
Worms, implement for destroying, J.W. Colburn 152,339
Wringer rolier, C. F. Mowll 152,243

# APPLICATIONS FOR EXTENSIONS.

Applications hav been duly filed and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned :

80,153.-ATTACHING SAW HANDLE.-I. Pelham. Sept. 9. 80.157.-BLOWER.-P. H. ROOTS. Sept. 9. 50,175.-POST HOLE BORER.-A. S. Ballard. Sept. 9 80,185.-CORN SHELLER, BTO.-J. C. Richards. Sept. 9. 30,215.—HARVESTER.—T. N. Foster. Sept. 16. 30,668.—CASTING TOOLS.—S. W. Collins. Nov. 4. 80,691.-STEE PLOWPLATE.-F. F. Smith. Nov. 4.

vater heaters for locomotives, called "Magoon's Locomotive Feed Water Heater." June 15, 1874 8,578.—H. Watkeys, Syracuse, N.Y., U.S. Improvement upon throttle valves for locomotive and other steam engines, called "Watkey's Throttle Valve." June 18, 1574.

3,579.-C. Mitchell, De Kalb townshin, St. Lawren county, N. Y., U. S. Improvements on animal pokes, called "Mitchell's Animal Poke." June 18, 1874. C. V. Hase, Belleville, Ont. Improvement on a machine for propelling vessels, called "Hase's Rim Propeller Wheel." June 18, 1874. 8,581.-B. C. Richardson, Syracuse, Onondaga county,

N. Y., U. S. Improvemets on a spool case, called "Richardson's Spool Case and Cushions." June 18, 1874.

,582.-F. Bramer, Little Falls, Herkimer county, N. Y. U. S. Reissue of No. 2600, called "The Warrier Mow ing Machine." June 18, 1874. 8,583.—J. Lydiatt and E. R. Kent, Hamilton, Ont. Im-

provements in glassmolds, called "Lydiatt's Improved Glass Mold." June 18, 1874.

3,534.—E. Volsin, Bourges, France. Improvements in cupola furnaces, called "Voisin's Improvements in Cupola Furnaces." Sune 18, 1874.

3,885.-T. Worswick, Guelph, Ont. Improvements on force pumps. called "Worswick's Adjustable Force ump." June 18, 1874.

presented is patentable

#### Foreign Patents.

The population of Great Britain is \$1,000,000; of France 37,000,000; Belgium, 5,000,000; Austria, 36,000,000; Prussia 40,000,000 and Russia, 70,000,000. Patenta may be secured by American citizens in all of these countries. Now is the time, when business is dull at home, to take advantage of these <sup>1</sup>mmense foreign fields. Mechanical improvements of all hads are always in demand in Europe. There will never be a better time than the present to take patents abroad. We have reliable business connections with the principal capitals of Europe. A large share of all the patents secured in foreign countries by Americans are obtained through our Agency. Address MUNN & Co., 37 Park Row, New York. Circulars with full information on foreign patents, furnished free. Trademarks.

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