(24) I. H. R. asks: Can you tell me how to make an electro-magnet that will work very slowly? A. We cannot.

(25) W. R. B. says: Is there any method in use of blowing a church organ by the use of a heavy weight acting through a system of clockwork? A. Yes. A weight of 7,000 lbs. with a fall of 30 feet, and proper gears, will drive the bellows of an ordinary church organ for half an hour.

(26) C. E. J. says: 1. I have made an induction coil, 12 inches long and 6 inches in diameter, in the following manner: I took a piece of hard rubber tubing, 1¼ inches in diameter and 13 inches long; I put in 7 inch heads, ⅛ inch thick, of dry varnished walnut. I wound 4 layers of No. 16 cotton-covered copper wire for the primary coil, I then wrapped around the primary coil two thicknesses of manilla paper, thoroughly saturated in white paraffin, to insulate it from the secondary coil; my secondary coil was composed of between 7 or 8 miles of fine insulated green silk-covered copper wire, part being No. 30 and part No. 35 relay wire; and between each layer of wire, I wrap a sheet of paraffined paper. My core consisted of a number of small iron wires soldered together and slipped inside of the rubber tubing; my condenser consisted of 24 sheets of 12 inches square tin foil, each sheet separated by a sheet of paraffined paper, the alternate sheets of foil being connected together. I have connected the condenser with the coil in three different ways, with about equal results; the longest spark that I ever got out of it was ⅛ of a inch. Please tell me the defects of this machine. A. For full particulars regarding the construction of induction coils, see page 115, vol. 33. The principal faults in your machine consist in the soldering of the wires forming the core, and in the construction of your condensers. The bundle of wires forming the core should neither be soldered together, nor surrounded with a metallic substance. One side of the condenser should be connected to each side of the break piece in the primary circuit,-the object being to furnish a reservoir for the extra currents to flow into when the primary circuit is interrupted, and thus prevent the spark. You should use a Bunsen battery instead of a Smee. 2. If made properly, how long a spark ought it to give? A. The length of your spark will depend upon the size of your battery.

(27) G. E. G. says: 1. Is it practicable to allow for the expansion of shafting of 2⅜ inches diameter and 220 feet long, running at 82 revolutions, when the temperature is from 65° to 70°, there being on the line two sets of bevel gears containing 30 and 36 teeth of 3¼ inches pitch, running shafting at right angles? A. Yes. 2. What should be the angle of gears containing 30 and 36 teeth, of 3¼ inches pitch? A. About 40°.

(28) C. H. says: A friend claims that four persons, holding their breath, may lift, with one finger each, a fifth person from the floor, he also holding his breath. I have tried it without success, but my friend says that he has seen it done at various times. What do you know about this experiment? A. We have told all we know about this matter (and it is very little) several times before. We have never seen the feat performed, but we have heard about it so often that we are inclined to think it may be true. As we have remarked before, however, it is certain that the person who is lifted does not lose any weight by holding his breath, neither do the lifters gain any strength by the process.

(29) W. J. B. asks: In heating a room, would it require more fuel to do it by ordinary steam, or to take ordinary steam and superheat it? In other words, would it be more expensive to continue to generate ordinary steam for a given number of hours, and use this for heating a room, or to convert ordinary steam into superheated steam, estimating the cost of the superheated steam from the time you began to superheat it, and not counting the cost of generating it in the first place? A. The second plan would be the most economical.

COMMUNICATIONS RECEIVED.

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

On Paris Green, and on the Keely Motor. By G. W. P.
On Repairing Bells. By C. S.
On Bee Culture. By E. C.
On Draft of Vehicles. By M. W. W.
On Large and Small Axles. By F. W. D.

Also inquiries and answers from the following:

A. J. K.—N. B.—E. T. H.—B. W.—W. R. P.—N. K.—R. H. B.—F. J. W.—J. C. T.—H. T.—J. K.—T. W.—J. D.—B. L.—W. P.—N. K.—O. P. R.

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 patentability of inventions, assignments, etc., 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 inquiries analogous to the following are sent: "Who sells telescope lenses? Who makes machinery for grinding lenses? Whose is the best vertical boiler? Who makes a good flocking machine? Who sells the best plow for use on heavy lands?" All such personal inquiries 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.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week ending

August 3, 1875,

AND EACH BEARING THAT DATE.

(Those marked (r) are reissued patents.)

Air brake, W. D. Jones ... 166,386
Air brakes, H. L. Perrine ... 166,404, 166,405, 166,406
Amalgamator, E. J. Fraser ... 166,356
Annunciators, E. A. Hill (r) ... 6,575, 6,576, 6,577
Annunciator, electric, G. W. Shawk (r) ... 6,581
Auger, S. W. Higgins ... 166,378
Auger, T. D. Parsons ... 166,221
Auger, earth, O. Rust ... 166,303
Axle skein, J. D. Smith ... 166,420
Bale tie, H. J. Wright ... 166,326
Barrels, bung for, F. W. Kuenne ... 166,280
Basin faucet, W. C. Bussey ... 166,339
Basket, J. Meyer ... 166,215
Bath, shower, A. Macqueen, Jr ... 166,212
Bearings, material for, S. Cohné ... 166,188
Bed lounge, A. Morris ... 166,288
Bellows, J. Bayliss ... 166,244
Blinds, making, W. H. Tappae ... 166,319
Blower, rotary pressure, Palmer & Knox ... 166,295
Boiler, water tube, J. Warner ... 166,235
Boilers, fire tube for steam, H. Bailey ... 166,180
Book-backing machine, J. Armstrong ... 166,328
Book-sewing machine, J. Armstrong ... 166,329
Boot holder, A. N. Breneman ... 166,182
Bottle necks, finishing, W. Langwell ... 166,390
Bottle stopper, G. E. Reed ... 166,298
Box fastening, E. W. Bridge ... 166,183
Bridge splice plate, W. Katté ... 166,387
Brush, dust, H. B. Conant ... 166,261
Bugs upon plants, destroying, R. M. Clark ... 166,260
Buffer for mule carriages, J. W. Whitehead ... 166,435
Butter package, C. B. Sheldon ... 166,310
Button, W. Hornich ... 166,277
Button hole cutter, D. A. Lehman ... 166,208
Can holder, preserve, C. D. How ... 166,380
Candlestick, J. B. Gribble ... 166,274
Candlestick, Z. I. Pratt ... 166,228
Cap, M. Marks ... 166,395
Car axle box bearing, T. D. Rulon ... 166,414
Car brake, S. Doubleday ... 166,351
Car brake, hydraulic, T. McBride ... 166,397
Car coupling, J. Q. A. & J. D. Young ... 166,327
Car, dumping, B. Slusser ... 166,312
Car, refrigerator, J. H. Canfield ... 166,341
Car starter, T. McDonough ... 166,213
Cars, folding seat for horse, C. B. Sheldon ... 166,309
Cars, heating and ventilating railroad, W. Sage ... 166,415
Cars, safety runner for railroad, L. O. Root ... 166,301
Carbureter, automatic rotary, T. A. Stombs ... 166,427
Carding machines, cylinder for, C. N. Plantron ... 166,407
Carpet sweeper, J. Kauper ... 166,388
Carpet sweeper, A. H. Spencer, ... 166,422
Carpet sweeper, A. W. Stewart ... 166,232
Carpets, show rack for, J. Crawshaw, Jr ... 166,345
Carriage, child's, F. W. Whitney ... 166,237
Carriage wheel, D. Cushman ... 166,191
Castanet, J. A. Crandall ... 166,344
Catch for boxes, spring, L. Messer ... 166,400
Chain, J. W. Bonta ... 166,334
Chain links, bending, B. Hershey, 166,369, 70, 71, 72, 73, 74, 75, 76, 77
Chains, making, G. Trinks ... 166,432
Chair and swing, S. Feust ... 166,269
Chair backs, shaping, H. Buchter ... 166,184
Chill, W. J. Welling ... 166,324
Churn dasher, H. A. Stearns ... 166,231
Churn dasher, I. J. Whitlatch ... 166,436
Churn, rotary, Barden & Crudden ... 166,181
Clock dial, S. E. Root (r) ... 6,580
Cloth testing machine, W. Hebden ... 166,366
Clothes pounder, D. W. Rawson ... 166,224
Clothes pounder, O. F. Stedman ... 166,424
Coal from slate, etc., separating, H. Bradford ... 166,252
Cock, gage, Mullowny & Shaw ... 166,216
Colors on fabrics, etc., fixing, C. T. Mieg ... 166,287
Confectionery, etc., E. Hawker ... 166,365
Cord, rubber-coated, H. Schlarbaum ... 166,306
Cotton cleaner, seed, M. C. Cheek ... 166,258
Cultivator, E. Nauman ... 166,290
Cultivator, J. C. Jenkins ... 166,278
Cultivator, wheel, G. W. Schenck ... 166,417
Cup for effervescing drinks, W. C. Dodge ... 166,350
Curry comb, R. P. Van Horne ... 166,284
Cuttingants, destroying, Fenner & Power ... 166,267
Dental mallet, automatic, I. A. Salmon ... 166,228
Derrick, M. Gray ... 166,202
Dish stand, wire, W. F. Collier ... 166,346
Distillation of hydrocarbon oils, T. McGowan ... 166,485
Doffer combs, operating, J. K. Proctor ... 166,408
Door check, H. B. Church ... 166,259
Drawing frame stop, D. W. Hayden ... 166,276
Drills, buffer for rock, J. C. Githens ... 166,273
Egg beater, J. F. Rote ... 166,412
Egg box, O. Sutphen ... 166,317
Electroplating, nickel, Hermann & Taylor ... 166,367
Engine, electro-magnetic, A. Tittman ... 166,431
Eyeglass, C. C. Parker ... 166,220
Fabric, imitation quilted, W. E. Corwin ... 166,262
Faucet, E. M. Fasoldt ... 166,197
Faucet, I. Lobree ... 166,211
Feed-cutting machine, L. Evans ... 166,196
Fence, H. & B. F. Bean ... 166,330
Fire arm, revolving, B. H. Williams (r) ... 6,569
Fire plug, C. E. Gray ... 166,357
Fire plug and automatic pump, W. W. Harding ... 166,203
Fish, preserving, Sellman, Reessing, & Wolff ... 166,308
Fish culture, apparatus for, J. Roth ... 166,413
Fishing rods, reel for, H. Winslow ... 166,241
Fork, grain, F. Gerfen ... 166,201
Forge for blacksmiths, A. Benac ... 166,247
Fruit dryer, J. Johnson ... 166,335
Fruit gatherer, M. Smith ... 166,418
Furnace, air-heating, J. M. Wilson ... 166,325
Furnace for blanks, J. W. Bonta ... 166,335, 166,335
Furnace for heating tubes, W. L. McNair ... 166,399
Furnace grate, Little & Heuber ... 166,391
Game board, H. Darneal ... 166,192
Game board, I. N. Forrester ... 166,198
Garbage vault, Shepard & Bedell ... 166,311
Gas generator, J. C. Mitchell ... 166,288
Gas lighting apparatus, electric, F. V. Sandford ... 166,304
Gas illuminating, Eichbaum & Hunter ... 166,352
Gas, making, A. C. Rand ... 166,409
Generator, steam, G. T. McLauthlin ... 166,398
Glove, J. Fouillon ... 166,270
Grain decorticator, W. Seck ... 166,416
Graintalley, W. D. Wiley ... 166,442
Harrow and sower, R. H. Hudgens ... 166,381
Harrows, adjustable handle for, S. D. Riegel ... 166,291
Heater, fire place, P. Rollhaus, Jr ... 166,300
Hoisting machine, N. P. Otis ... 166,219
Hop grubs, etc., destroying, O. M. Knox ... 166,207
Horse power, J. R. Gray ... 166,358
Horseshoe, J. Russell ... 166,226
Horseshoe blank bar, J. Wike ... 166,238
Horseshoe blank bars, pile for, J. Russell ... 166,227
Hydrant, J. E. Mooney ... 166,401
Hydrant, water, J. W. Douglas ... 166,195
Index, M. N. Lovell ... 166,284
Inkstand, S. Darling (r) ... 6,574
Knitting machine, I. & A. Tompkins ... 166,321
Last for rubberworking, I. F. Williams ... 166,443
Latch for cupboards, etc., C. E. Herrick ... 166,368
Latch, reversible, A. F. Whiting ... 166,434
Letter block apparatus, B. Irrgang ... 166,382
Lock, time, J. Burge ... 166,255
Measure, tailor's, J. S. Charch ... 166,257
Meat pounder, Black & Truax ... 166,332
Meat tenderer, G. R. Comstock ... 166,189
Meat tenderer, A. G. W. Foster ... 166,199
Medical composition, T. Biedenfield ... 166,249
Mill, cider, J. Bowen ... 166,251
Mill spindles, bush for, N. B. Lewis ... 166,210
Millstone dress, G. T. Smith ... 166,419
Molding concrete pipe, T. E. Daniels ... 166,264
Mop head, C. B. Clark ... 166,342
Motion, converting, D. C. Burson ... 166,338
Motor, J. H. Bean ... 166,331
Needle blanks, trimming, P. M. Beers ... 166,245
Needle eyes, polishing, P. M. Beers ... 166,246
Organ, reed, H. K. White ... 166,437
Organ stop action, McMahel and Tracy ... 166,214
Organ stop action, reed, L. B. Norton ... 166,292
Pavement, A. B. Bean (r) ... 6,570
Peg wood, pointing ribbon, B. F. Sturtevant ... 166,429
Photographic camera, J. and J. Stock ... 166,315
Pianos, etc., tuning pin for, J. M. Branig ... 166,253
Pipe, device for bending metal, M. L. Orum ... 166,293
Pipe, self-acting blow, J. M. Hancock ... 166,275
Plane, bench, D. F. Williams ... 166,239, 166,240
Planing machine, L. S. Woodbury ... 166,444
Planter, etc., cotton, Bristol and Searcy ... 166,254
Plating, anodes for nickel, E. Weston ... 166,433
Plow, H. Krog, Sr ... 166,281
Plow, corn, A. Binder ... 166,333
Plow, steam, T. C. Stark ... 166,230
Post hole borer, O. Love ... 166,392
Printing presses, feed guide for, J. Reed ... 166,410
Power, motive, P. B. Greene ... 166,271
Pulley cover, J. W. Sutton ... 166,233
Pump piston for artesian wells, T. Malcomson ... 166,394
Railway electric signals, F. L. Pope (r) ... 6,578, 6,579
Railway frog, J. Brahn (r) ... 6,573
Rail joint, H. Allen ... 166,243
Rail joint fastening, Hipkins and Rigsby ... 166,379
Rail joint fastening, A. Spencer ... 166,229
Railway switch, D. F. Cavanaugh ... 166,186
Railway ticket, complex coupon, T. Cook ... 166,343
Railway time signal, Dinkey *et al.* ... 166,194
Range, cooking, W. P. Abendroth ... 166,242
Refrigerator car, J. H. Canfield ... 166,341
Resawing machine, J. First ... 166,355
Roll, skelp-forming, J. C. Getz ... 166,359
Roofs, securing flexible roofing to, J. Perry ... 166,296
Rowlock, F. E. Davis ... 166,193
Rubber-coated fabric, W. Cable ... 166,256
Ruler, parallel, J. M. Taylor ... 166,320
Sad iron, reversible, T. T. Smothers ... 166,421
Sand paper roll, O. Gilmore ... 166,360
Sash balance, E. H. Hannum ... 166,363
Saw gummer, M. O. Smith ... 166,313
Sawmill head block, Perry and Mote ... 166,222
Screw tap, J. E. Sweet ... 166,318
Screw, wood, S. W. Young (r) ... 6,571
Screws, shaping heads of metal, C. M. Spencer ... 166,423
Separator, grain, A. B. Farquhar ... 166,354
Sewer juncture indicator, J. H. Stanley ... 166,314
Sewing machine, T. A. Weber ... 166,236
Sewing machine bobbin, G. W. H. Curtis ... 166,348
Sewing machine feeding device, I. M. Rose ... 166,302
Sewing machine looper, Byrom and Clewley ... 166,340
Shelving for stores, H. T. Bestor ... 166,248
Shirt, F. A. Richardson ... 166,411
Shirt bosom, F. L. Pickett ... 166,297
Shoe tips or protectors, C. T. Grilley ... 166,361, 166,362
Shovel blade die, P. B. Cunningham ... 166,347
Shutter, window, W. O. Connor ... 166,218
Sleigh bell, R. and H. Marbach ... 166,396
Soda water fountain, F. W. Wiesebrock ... 166,440
Sole-fastening webs, severing, B. F. Sturtevant ... 166,430
Spinning frames, building, J. M. Stone ... 166,316
Stalk cutter, Gaylord and Ayers ... 166,200
Still, oil, J. C. Dickey ... 166,349
Stone, compound for artificial, T. E. Daniels ... 166,265
Stool, R. W. Myers ... 166,402
Straw cutter, L. Schellinger ... 166,307
Stump puller, W. O. Johnson ... 166,384
Sugar, pressing, J. W. Jarboe ... 166,383
Sugar-sawing machine, G. P. Ockershausen ... 166,403
Sulphur, separating free, S. H. Johnson ... 166,279
Table, folding, P. S. Crawford ... 166,263
Table slide, extension, Holland and Parker ... 166,204
Telegraphic circuit, W. E. Sawyer ... 166,305
Toy hoop or trundle, W. W. Wilcox ... 166,441
Trace carrier, W. H. Townsend ... 166,322
Track circuit connector, W. Robinson ... 166,225
Trap, fly, H. L. Ferris ... 166,268
Tube-drawing mandrel, T. Whitehouse ... 166,438
Tube-smoothing die, P. Brown ... 166,337
Tubing mandrel, M. L. Orum ... 166,294
Turn buckles, making, M. Merrill ... 166,286
Type, A. M. Howard ... 166,205
Umbrella, J. G. Widmann ... 166,439
Umbrella tips, etc., casting, A. Ligibel ... 166,282
Under clothing for women, S. T. Converse ... 166,190
Valve, globe, F. Lunkenheimer ... 166,393
Vehicle hub, J. H. Lindsay ... 166,283
Vehicle spring, C. Nielson ... 166,291
Vehicle wheel, F. H. Green ... 166,272
Veneer cutting machine, C. T. Fairchild ... 166,353
Vessels, attaching handles to, G. W. Hartwell ... 166,364
Wagon rack, J. Bolt ... 166,250
Wagons, king bolt for, W. Truax ... 166,323
Wagon-weighing apparatus, J. J. D. Kingsbury ... 166,389
Washing machine, J. H. Carroll ... 166,185
Washing machine, S. L. Denney ... 166,266
Washing machine, J. M. Oakley ... 166,217
Water closets, pan for, E. A. Leland ... 166,209
Water wheel, current, W. W. Cleaveland ... 166,187
Water wheel, turbine, G. H. Jones ... 166,206
Well, petroleum, E. M. Stevenson ... 166,425
Well, petroleum, L. Stewart ... 166,426
Woodwork, carving, M. T. Boult (r) ... 6,572
Wrench, pipe, H. C. Stouffer ... 166,428

DESIGNS PATENTED.

8,554.—CHA . . Hooper *et al.*, Portland, Me.
8,555, 8,556.—INKSTANDS.—C. Kitschelt, New York city.
8,557.—CLOCK CASES.—W. F. Muller, New York city.
8,558.—STOVE KNOB.—J. F. Quimby, Troy, N. Y.
8,559.—TYPE.—J. K. Rogers, Brookline, Mass.

SCHEDULE OF PATENT FEES.

On each Caveat	$10
On each Trade mark	$25
On filing each application for a Patent (17 years)	$15
On issuing each original Patent	$20
On appeal to Examiners-in-Chief	$10
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On filing a Disclaimer	$10
On an application for Design (3½ years)	$10
On application for Design (7 years)	$15
On application for Design (14 years)	$30

CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA August 7, 1875.

5,039.—J. G. Eberhard, Akron, Ohio, U. S. Hame. August 7, 1875.
5,040.—M. McCall *et al.*, Buffalo, N. Y., U. S. Cutting attachment to lead pencils. August 7, 1875.
5,041.—A. B. Drake, Painesville, Ohio, U. S. Fence post base. August 7, 1875.
5,042.—W. H. Lotz, Chicago, Ill., U. S. Hot air furnace August 7, 1875.
5,043.—J. Kedey, New York city, U. S. Securing knob roses to doors. August 7, 1875.
5,044.—J. L. O'Connor *et al.*, Monroe Village, Wis., U. S. Pruning shears. August 7, 1875.
5,045.—A. Berry, Waterloo, P. Q. Churn. August 7, 1875.
5,046.—J. Buel, Chattanooga, Tenn., U. S. Safety stirrup. August 7, 1875.
5,047.—S. P. Littlefield, Lynn, Mass., U. S. Station indicator for railway carriages. August 7, 1875.
5,048.—H. A. Schandevyl, East Sangus, Mass., U. S. Corset. August 7, 1875.