



## ILLUSTRATIONS.

**A**

Amalgamator (Barker) 97  
Anchor-tr pper (Higgins) 209  
Andiron (Logan) 273  
Auger (Blake) 373

**B**

Bed bottom (Hatch) 40  
Beehive (Underhill) 66  
Bear-cooling apparatus (Baudelot) 49  
Bell-fastener (Blake) 373  
Blind-wl ing machine (Davis) 104  
Bolt, catch (Salisbury) 24  
Brake for street railcars (Jeaks & Steers) 404  
Brake, self-acting (Dutch) 200  
Brake, wagon (Brown) 163  
Boat-lowering apparatus (Davidson) 521  
Boiler, s am (Armen) 362  
Box, journal (Bryant) 64  
Boyer, machine for making packing (Palmer) 190  
Brush, soaping and scrubbing (Tusch) 490  
Buckie, saw (Crosby) 192  
Burner, gas (Thompson) 225

**C**

Calipers (Sutton) 192  
Car, freight (Billing) 208  
Car, gravel (Heuday) 152  
Carriage seat (Harris) 33  
Churn (Fitch) 233  
Churn (Rohrer) 149  
Condenser and heat-reclaimer, surface (Mether) 289  
Cooker, steam (Devendorf) 80  
Corkscraper (Byrn) 889  
Cotton-pecker (Chichester) 145  
Coupling, hose (Singer) 106  
Coupling, hose (Smith) 176  
Cracker machine (Fox) 329

**D**

Detector and alarm (Grimshaw) 353  
Dovetailing machine (Uhr) 193  
Dredging machine (Barcroft) 326  
Drill stock, quick action (Press) 69

**E**

Ele-skimming machine (Emelgh) 329  
Elevator (Bower) 133  
Engine, oscillating (Mackintosh) 312  
engine, steam fire (Ettinger & Edmond) 401  
Engine, steam fire (Lee & Larned) 236  
Engine, steam fire (Slilly, Mynders & Co.) 133  
Engine, oscillating piston (Runkel) 1, 273  
Engines, stationary and portable (Blandy) 268, 276  
Envelope-opener (Phelps) 128  
Excavator, steam (Goodale & Marsh) 33

**F**

Fire-escape, book and ladder (Franklin) 226  
Fire-escape, the London (—) 244  
Former, tin plate (Olmitz) 336  
Fresh-water apparatus (Normandy) 257  
Furnace (Duhme) 244

**G**

Gas apparatus (Wilson) 264  
Grain-blinder (Durkee) 285  
Gridiron (Treadwell) 112

**H**

Harrow and seed-sower (Newitt) 308  
Harrow, vibrating (Patterson) 58  
Harvester (Brown & Bartlett) 384  
Harvester (Fauth) 48  
Harvester (Stetson) 168  
Handle for store covers (Gould & Hartshorn) 176  
Hay-maker (Goff) 216  
Hay-maker (Standard) 248  
Head-cutter, barrel (Manning) 81  
Hemmer (Clark) 229  
Hoist, cant (Hinde) 192  
Hoist, cotton bales, iron (Butler) 88  
Hoist, collars, apparatus for stuffing (Hubbert) 73  
Horse-power (Orton) 376  
Horse-shoe (Jory) 284  
Hygrometer (Ullman) 24

**I**

Inkstand, self-closing (Ender) 123

**K**

Keel for ships, slide (Mashell) 4  
Knife-cleaner (McNamee) 72  
Knife-cleaner (Protz) 321

**L**

Lamp and match-box (Shanks) 52  
Lamp, gas (Greene) 234  
Lamp, hand (Van Bonhert) 208  
Lathe, turning (Sellers) 829  
Lathe, artificial (Douglas) 240  
Locomotive, marine (Hopkins) 112  
Looms, warp regulator for (Conant) 406

**M**

Machinery department of the Fair of the American Institute (—) 8  
Melodeon (Lane & Manning) 196, 236  
Mill, grit (Buckingham) 346  
Mill, grinding (Munson) 360  
Millesimes, dressing (Tartoruch) 197  
Motion, method of changing (Hathaway) 366

**N**

Nozzle for hose pipes (Roberts) 176

**O**

Oven, baking (MacKenzie) 289

**P**

Palace Home, the New York (—) 88  
Pendulum, compensating (Beams) 80  
Pipe-nippers (Smith) 48  
Plaster (Gray & Woods) 88  
Planing machine (Stover & Coffin) 296  
Planter, corn (Klein) 83  
Planter, corn (Worth) 144  
Plow, drain (Lane) 216  
Plow, mold (Hammond) 186  
Plow, shovel (Lee) 164  
Plow, steam (Hawkins) 65  
Plow, universal (Groch) 496  
Pot, coffee (Devendorf) 89  
Pras, cotton (Hand) 8  
Press, bay (Miller) 228

Press, paper and job printing (Degener) 885

Pump (Lloyd) 368

Quartz-crusher (Brown) 320

Rag-picker (Storm) 177

Railroad joint and spike (Bayley) 21

Rake, horse (Stoddard) 248

Refrigerator (Baker) 400

Register, hot-a-r moistening (McNeil) 304

Regulator, gas (Wheeler & Wilson) 376

Retort, mouth-piece for clay (Kennedy) 296

**S**

Sawing (Brooks) 108

Seeding machine (Markham) 184

Separator, gold (Burke) 113

Shade-separator (Shaw) 196

Shipping-making machine (Skinner) 244

Shingle machine (Hall & Stewart) 17

Shingle machine (Morrison) 40

Shoe, ventilating (McEwen & Patterson) 222

Skate, automatic (Joseph) 162

Skate, magic (Whitman) 16

Soda-water apparatus (Warker) 264

Stave-cutter (Little) 290

Stave-jointer (Holmes) 233

Steamship (Herbert) 368

Stove, ship's (Slater) 288

**T**

Trap, air (Sault) 324

Trap, moth (Hear) 261

Trap, s am (Douglas) 120

Trap, steam (Lapham) 224

Tenoning machine (Dole) 184

**V**

Valve, anti-friction (Bristol) 280

Valve, variable cut-off (Buckingham) 337

Valve, water-escape (Douglas) 344

Vase, awast (Allen) 148

Villa, front elevation of a country (Seitzer & Valk) 116

**W**

Washing machine (Saker) 161

Watch regulator (Gordon) 64

Watch regulator (Mershon) 246

Windmill, power-accumulating (Lum) 341

Wheel, water (Rose) 188

Wheel, water (Smith) 188

Wrench (Bell) 104

## MISCELLANY.

**A**

Adhesive, singular 185°

Advertisement 14, 30, 47, 62, 78, 85, 110, 126, 142, 158, 175, 190, 206, 228, 238, 254, 270, 287, 303, 318, 324, 351, 367, 382, 398

Aluminum 346

American Institute Fair, machinery department of the late 9

American Institute, Polytechnic Association of the 82, 82, 98, 114, 134, 166, 189, 195, 218, 231, 247, 268, 274, 285, 310, 327, 345, 359, 375, 381, 405

American Institute, the 188

Ammonia, a new method of manufacturing 22

Announcement, an extraordinary 358

Annual of Scientific Discovery (for 1860), Wells' 118

Appetite, the instinct of 294

Architecture, American naval 131, 182, 214, 250, 274, 308, 322, 358, 374, 403

Architecture, England on our naval 153

Architecture in the Holy Land 357

Architects of Great Britain, naval 238, 354

Arometer for determining the real density of liquids, a new 215°

"Are you insured?" 56

Astronomer, France on American 150

Astronomy, a chance to make an original observation in 180

Aurora borealis and aurora australis, complete description of the 184

Axes without eyes 378

**B**

Banks of the United States, the 117

Beams, strength of wrought iron 74

Bee, the hexagonal cell of the honey 810, 326, 342\*

Bell for San Francisco, large steel 102

Belts for driving machinery 84

Bishop, Ex-commissioner 122, 163

Boiler explosion—rotten iron 37

Boiler inspection, city 4, 208, 229

Boiler, management of 193

Books and periodicals receive , new 318, 546, 568

Bonnets 223

Boracic acid in the Pacific 179

British Empire, area and population of the 258

Bridges, the obstruction to the navigation of rivers caused by the picos of 178, 194, 210, 224, 242, 269

Building scheme, magnificent 26\*

Burnings—fire-escaped 121

Bus nets, an imminent year's 25

**C**

Calamity, another awful 240

Calamity, the Lawrence 73, 136

Calculator, the lightning 277

Camera, Melville's metal 288

Canons, manufacture of mammoth 98

Carding machine, the 305

Carriages for common roads, steam 4

Cattle disease in Massachusetts 277

Cemetery in winter, Greenwood 188

Clock, and watches, American 85

Clouds, dark 1

Coal for locomotives, economy of anthracite 197

\* Figures followed by stars refer to illustrations and tables.

Compasses to prevent attraction, arranging 163

Confidence, children's 250

Consumption and its causes 237

Controversy, the dictionary 244

Copper, Lake Superior 338

Copper, New Jersey 244

Correspondence, interesting:

Beams for buildings, iron combination; by B. S. 230 and 248

Beams for drill rooms, iron; by Inquirer and B. S. 181\*

Bells, repairing cracked; by W. T. & J. G. 278

Belts for driving machinery; by P. and W. E. 189, T. McG., Jr., and D. E. C. 197, Inquirer and D. L. 237

Boulders falling through the air; by J. W. 328

Boller explosion, preventing; by T. A. 196 and A. G. S. 278

Boller illustrations; by J. W. H., 55, M. N. W., 101, and J. L. L., 180

Boys, science among the; by F. G., 242

Bridge, the great Washington aqueduct; by C. M. C. 86

Burning field and tenement houses; by M. P. 150

Carding and combing machines; by L. R. 382

Cave, a wonderful; by J. W. H., 211

Charlotte drawn by eagles, aerial; S. H. N., 293

Chimneys, curling smoky; by L. L. C., 179

Coal tar for trees; by A. H., 51, J. W. M., 84 and F. W. E. and C. F. R., 119

Combination in a flour mill, spontaneous; by C. D. G., 133\*

Correspondence, editorial; by —, 365, 368 and 373

Correspondence, our special; by E. M. R., 50, 83, 98, 115, and B. S. 286, 403

Correspondence, our western; by —, 326

Correspondence, Washington; by Churn 408

Cotton, cause of banded; by E. J. C., 5

Circulio, the; by G. W. C., 167\*

Clothing, the profits of; by C. D. G., 133\*

Combustion, the art of; by E. R. 271

Combustion, the theory of; by W. S. B., 21

Combustion, the profits of; by C. D. G., 133\*

Combustion, the theory of; by W. S. B., 21

Combustion, the profits of; by C. D. G., 133\*

Combustion, the theory of; by W. S. B., 21

Combustion, the profits of; by C. D. G., 133\*

Combustion, the theory of; by W. S. B., 21

Combustion, the profits of; by C. D. G., 133\*

Combustion, the theory of; by W. S. B., 21

Combustion, the profits of; by C. D. G., 133\*

Notes and queries 14, 30, 46, 63, 78, 94, 110, 126, 142, 158, 174, 190, 206, 222, 238, 254, 270, 288, 303, 318, 334, 350, 386, 382, 411  
Notices, literary 14, 80, 46, 83, 78, 94, 100, 126, 142, 154, 190, 222, 254, 288, 294, 300, 334, 346  
Nuisances, city 100

**O**

Oil manufacture, coal 3, 183  
Oils, linseed 201  
Orchards, laying out 164

**P**

Paper manufacture, an improvement in 246  
Park, the New York Central 194, 377  
Patent bill, the 267  
Patent case, an important 362  
Patent claims, lists of 11, 27, 43, 60, 76, 92, 108, 124, 138, 156, 172, 187, 203, 219, 235, 261, 267, 284, 299, 315, 331, 347, 368, 379, 385, 409  
Patent extension case, More's telegraph (argument) 390  
Patent extensions before Congress, 277  
Patent extensions, curious paragraph 233  
Patent law case, Cincinnati 104  
Patent law, journal of 198, 259, 306, 342  
Patent law, the new Canadian 89  
Patent law, the proposed changes in the 146  
Patent liable to levy and sale on execution? 213  
Patent licenses and suits, 2  
Patent Office report for 1859, the 137  
Patent Office-report, 105  
Patent suit at Baltimore, important trial of a 170  
Patentees, prosperity and gratitude of 149  
Patents, applications for the extension of 3, 50, 69, 106, 114, 153, 169, 187, 224, 231, 336, 362, 372  
Patents on soap, 3  
Patents, on the price of manufactured goods, the effect of 144  
Patents, recent extensions of 25, 122, 220  
Patents, the Senate Committee on 6  
Perforation on a wagon brake, 218  
Personality, our 5  
Philosophy, egg 387  
Philosopher, and his steel billiard ball, the California 245  
Photographic process, new 41  
Photographic Society, American 199  
Photograph, the philosophy of the 185°  
Photography at the Patent Office, 73  
Photography, progress of 70  
Plantation, visit to a cotton 103  
Plow, Fawkes' steam 211  
Police, the English 314  
Postmaster of New York, defalcation of the 346  
Printing in colors, 97  
Proceedings in Congress, interesting 234  
Progress, our national 403  
Pump, self-acting ship's 218

**Q**

Quartz-crushing machinery, 169  
Quicksilver or mercury, 41

**R**

Railroad cars, fresh air in 27  
Railroad catastrophes, 80  
Railroad collisions, 132  
Railroad items, 117  
Railroads, common 1, 220  
Railroads, English 80  
Railroads for cities, suspended and subterranean 387  
Railroads in the United States, progress of 71  
Railroads, magnitude of southern 310  
Railroads, the value and usefulness of 245  
Report of the Commissioner of Patents, annual 130  
Report of the Postmaster-general, 20  
Report of the Secretary of the Interior, 19  
Report of the Secretary of the Treasury, 30  
Report of the Secretary of War, 19  
Respiration, effect of food upon 106  
Retorts, removal of carbon from 104, 320  
Rotten-stone, 9  
Ruins in the United States, ancient 307

**S**

Salt, Michigan 374  
Salt, snow and dirt 167  
Schooling, results of practical 33  
Science, agricultural 383, 374  
Science aiding justice, 323  
Science in familiar things, 41  
Science, the achievements of 313  
Sculpture, 385  
Sea in Lower California, wonderful new inland 47  
Ship, the Buffalo big 153  
Ships and ship-building, American 26  
Ships, durability of American 25  
Ships, rule for measuring 238  
Ships, the sheathing of 236  
Shipping, life-saving agencies for 100  
Shipping of the British Empire, 258  
Shipping of the United States, 258  
Shipping, our 180  
Signs of the times, 183  
Silver from injured plated ware, removing 88  
Silver, saving nitrate of 239  
Skating, the science of 3  
Smoke, 281  
Sport, novel and exciting 249  
Stables at Paris, the imperial 102  
Starch, manufacture and uses of 151, 167, 181  
Steam expansively working 217  
Steam, ignorance of 131  
Steam, the age of 345  
Steamer "Adriatic," the 123  
Steamer, the Japanese 260  
Steamers in the Pacific, English 6  
Stearns, death of Hon. Charles 277  
Stereoscopes for amateurs, 361  
Substances, polishing 384  
Sugar, 404  
Sugar cane as cattle feed, Chinese 53  
Swindles, alleged Yankees 101

**T**

Tanning, the art of 33  
Tanning in some materials, amount of 33  
Tanning, the profits of 218  
Teeth, artificial 341  
Teeth, plastic fillings for 288  
Telegraph, American police and fire-alarm 298  
Telegraph line, the North Atlantic 18  
Telegraphic operations, New York 372  
Telegraphy, modern 356  
Timber for ship-building, American 53  
Tin plates, manufacture of 378

Traders and manufacturers, the dishonesty of English 244  
Trades' strikes, the evils of 64, 185  
Trial, Howe's sewing machine 224, 249  
Tunnel, the Hoosick 161

V  
Vacuum pan in the world, the largest 245  
Vane, a sparkling 311  
Varieties, a column of 7, 28, 49, 55, 71, 87, 103, 118, 135, 151, 187, 193, 199, 215, 231, 247, 268, 296, 311, 313, 350, 375, 391, 405  
Vegetables, early 148  
Violins, 113

W  
Washington, interesting from 281  
Water purified from lead, 18, 335  
Water, the power of 188, 194  
Water-works, new plan for tide-mill 374  
Wax—its uses and colors 116  
Welding at a single blow, 90  
Wheel experiments in Philadelphia, the result of the 397  
Wheels, feathering paddle 248  
Willow, American basket 152  
Wine trade, tricks of the 87

Y  
Yellow, a new chrome 10

**PATENT CLAIMS.****A**

Acoustic apparatus 141  
Adding machines 203, 300  
Air pump (see Pumps)  
Ash-sifters (see Coal-sifters)  
Alarm, burglar's 367, 400  
Alarm, fire 172  
Alarm for drivers 61  
Al amalgamators, gold 28, 124, 300, 318  
Anchor-tripper 60  
Andiron 236  
Apple-pie 11  
Apple-grinding machine 92  
Augers 29, 285, 365, 409  
Awls, shoemakers' 284  
Axes, manufacture of 157, 268  
Axle boxes (see Boxes)  
Axles, car or carriage 219, 299, 300  
Axles, lubricating 268

**B**

Bag-cutters, paper 299, 333, 381  
Bag-holder 154  
Bags, traveling 301  
Balance, compensating spring 333  
Balance, hydrostatic oil

Ballot-box 263  
Bands, fastenings for bale 237, 270, 315, 317, 322

Bands for machinery, 363  
Bank-notes, photographic 140  
Barometers, 374, 397  
Barrel, gun 220

Barrel heads (see Stave machines)  
Bars, mosquito (see Nets)

Basket 317  
Battery, voltaic 349

Bearing, pivot 45  
Bed bottoms, 28, 44, 92, 251, 252, 334

Bedcordtightener 269

Bedstead, ventilating 93

Bedsteads 29 (1), 172 (3), 173, 231, 317, 336, 337

Bedsheets, mending 44, 141, 348

Beehives 28, 109, 140, 180, 300, 347

Bellows, 152, 285

Belt-pull 173

Bells, hanging 284, 396

Belt-settles, 12, 301

Belling, caoutchouc 12, 18, 28 (2), 44, 108, 105, 135, 205, 283

Betting machine 104

Bets, attaching scabbards to 93

Bending machines, metal 173, 188, 284

Bending machines, wood 125, 231 (3), 287, 316

Bill-of-fare, 382

Blankets for printing, 11

Bleaching grain by sulphurous acid, 234

Blind operators, 140, 175, 220

Blocks, puzzle 233

Blowers, 77, 108, 189

Bobs, 44

Boats, surf life 188

Boats, suspending 379, 397

Boller, locomotive 891

Boller-pins riveting 77

Bolters, feed-water apparatus for 77, 172, 204, 223, 237, 253, 299, 300 (2), 349, 410

Bolters for preparing paper stuff 316

Bolters, sediment collector for 349

Bolters, steam 45, 81 (2), 157, 269 (2), 385 (2), 391, 348, 409, 410, 411

Bolt, door 12, 125, 363

Bolt for car seats, 333

Bolting chest, 409

Bolts, heading 235

Bone-black, apparatus for revivifying 204

Bonnets, 316

Bookbinding 381

Book-ruler 304

Boot-bringing machines, 231 (2)

Boots and shoe heels, 45, 188, 282, 306

Boots and shoes, cutting vamps for 141

Boots, dishes, edge-planes for 269

Boots and shoes, filling for the soles of 348

Boots and shoes, machines for attaching and finishing heels of 109

Boots and shoes, machine for furnishing the edges of the soles of 332

Boots and shoes, machine for skiving counters for 381

Boots and shoes, manufacturer of 61

Boots and shoes, overshoes and 283

Boots and shoes, sole-cutting machines for 140, 173, 204

Boots and shoes, tip for 384

Boring apparatus or implements, artisanal well (see Well-boring apparatus)

Boring machines, brush block 61, 109

Boring machines, feed machine for 140

Bosom-expander, 359

Box for ported bottles, 397

Boxes, anti-friction 12, 333

Boxes, axle, 44 (2), 173, 253, 363, 348

Boxes, crank 321

Boxes, drop-letter 304

Boxes for candle molds, 383

Boxes for printers, roller 381

Boxes, journal 80, 286, 317

Boxes, machine for making w. j. 301

Bracelet fastening 172

Brackets for car trucks, 236

Brackets securing scaffolding 264

Braiding machine, 144

Brake for horse cars, 29  
Brakes, hemp 330  
Brakes, railroad car 45, 124, 187, 205, 284, 316, 317, 409  
Brakes, wagon or carriage 11, 92, 124, 231, 236, 397

Bread-slicers 156, 173

Bread machines or molds, 46, 109, 204, 237

Bridge bits, 61, 396

Bridge, floating 24

Bridge for canals, automatic draw 331

Bridges, true 304, 299

Broom head, metal 263

Brush for finger nails, 29

Brush, hair 364

Brush or fan, by 268

Bruh, soaping and scrubbing 365

Buckets for removing coal, 300

Building, machine for moving 366

Buckets, well 252

Buckles, 252

Bung-cutter, 398

Bureau, 92

Burners, gas 317, 410

Burners, vapor lamp (see Vapor apparatus)

Button, machine for printing 364

Buttons, 61, 396

C  
Cabbage-cutter 45

Cable-stopper, chain 45

Cables, laying telegraph 44

Calendar, counting-house 172

Calipers 46

Cameras, photographic 157

Candle-making machine or apparatus 61 (2), 255, 300, 383

Candles, manufacture of 60, 61

Cane-coverer 187

Cane-crushing machines, sugar 284 (2)

Cane for physicians 45

Cane juice, clarifying or defecating 28, 124, 173, 333, 364, 379

Cannons, toy 316

Cane-riffler 332

Cannister, sawdust 204

Cannisters, filling metallic 285

Cans, paint 172

Cans, preserve 12, 62, 92, 364, 365 (2)

Caoctchouc composition 157

Caoctchouc, vulcanizing 252, 268, 365, 409

Cap machine, metal 263

Caps, making sheet metal 365

Card-cleaning machine 205

Card, reading 172

Car, city railroad 46, 381

Car, iron railroad 61

Car-starting apparatus, city railroad 253

Car seats and couches 98, 93, 172, 205, 237

Car trucks 12, 395

Cars, machinery for propelling no 232

Cars passenger railroad 156, 220, 301

Cars, running gear for city railroad 156

Carriage seat 284

Carriage, steam 98

Carriages, extension seat for 28

Carriages, top-prop for 28

Carpet-beater and cleaner 268, 365

Carpet-faster 29

- J**
- Jacka, 205, 247
  - Jacka, carriage or wagon 230
  - Jacka, railroad 248
  - Jail, iron plate 12
  - Jewelry 44
  - Journal-boxes (see Boxes)
  - Journals, lubricating 202
  - Jointa for drop-lights 395
  - Jointa for tubes 375
- K**
- Kettles, cars for 833
  - Kid and calendar, watch (combined) 62
  - Kez, piano forte 125
  - Kez 379 (2)
  - Keyholes, guards for 381
  - Key-seats, machine for cutting 397
  - Kiln, floor of malt 157
  - Knife-cleaners 205, 267
  - Knife, curving 396
  - Knife handles (see Cutlery)
  - Knife-sharpeners 189, 268, 316
  - Knitting machines 141, 204, 318, 348 (2)
- L**
- Labels for mail bags 301
  - Ladders, extension 268, 301
  - Lade for bullets 801
  - Lamp-lighting device 93
  - Lamps 60, 93 (3), 93, 140, 157, 205, 318, 338, 408, 410 (6)
  - Lamps, vapor (see Vapor apparatus)
  - Lantern-carrier 173
  - Lanterns 141, 178, 205, 237, 384, 265, 379
  - Lap-winding machinery 346
  - Lard-expresser 93
  - Last-holder 187
  - Lasting machines 317
  - Lathe, for gates and sliding doors 60, 61, 865
  - Lathe, back-rests for 109 (2)
  - Lathe, centering chuck for 223
  - Lathe, operating feed nuts in 140
  - Lathe, turning 141, 205, 263, 349
  - Leather goods, waterproof 173
  - Leather, machines for cutting or finishing 61, 93, 104, 124, 125, 173, 284, 317, 386, 393 (2), 398
  - Leather, machines for stretching 348
  - Leg, artificial 60
  - Lenses, fluid 300
  - Level and square (combined) spirit 94
  - Level-spirit 317
  - Level, surveyor's 60
  - Life-preserver 125
  - Lightning rods, insulating and supporting 300
  - Light, vault 11
  - Lining for boom-jaws 897
  - Linen, anti-rheumatic 189
  - Liquid for fluid gas-meters 397
  - Liquors, apparatus for preserving and dispensing malt 93
  - Lock, alarm 269
  - Lock-and-label sheath (combined) 253
  - Lock-cutting machine, hoop 158
  - Lock, door 817
  - Lock-for cars, sealing 236
  - Lock for umbrella-stands 124
  - Lock permutation 156
  - Lock, trunk 315
  - Locks 28, 44, 168, 172, 269, 382, 386, 410
  - Locust, carpet bag 94, 318
  - Locust, hook 48, 382, 384
  - Looking-glasses (see Mirrors)
  - Looms, power 77, 140, 173, 269, 284, 317, 318, 342, 379
  - Lozenge, machine 234, 364
  - Lubricating compounds 14, 220
- M**
- Magneto-electric machine 27
  - Manger 268
  - Mangle 264
  - Marble, artificial 110
  - Marble-carving machines (see Stone-sawing and dressing machines)
  - Match-scaper 18
  - Mat, table 33
  - Mattress, ventilating spring 237
  - Measur., beer 61
  - Measuring apparatus for liquids 396, 410
  - Metal-cutters or choppers 51, 173, 281, 364
  - Metal-bend ir (see Bending machines)
  - Metal-cutting machine 301
  - Metal plates, joining 157
  - Metal, machine for forming cornices of sheet 409
  - Metallic coloring 108
  - Metallic embossing design on 305
  - Metallic, rolling corrugated 29
  - Metallurgical operations 203
  - Meter, water 140
  - Meter, gas 221, 269
  - Mill, cider, 50, 357
  - Mill, coffee 134
  - Mill, collecting toll from grit 221
  - Mill, flour 60
  - M1, grain 157
  - Mill, gun powder, 93
  - Mill, smut 141
  - Miller, attaching grinding surfaces to quartz 263
  - Miller, bar 381, 395
  - Miller, grinding 46, 52, 189, 141, 157 (3), 211, 353, 365, 408, 410
  - Miller, honey 94, 316
  - Miller, plates for 364
  - Miller, sugar (see Cane-crushing machines)
  - Millstone ush 262
  - Millstone-picking machine 92, 398
  - Millstones, cementing 316
  - Millstones, dressing 23, 220, 363, 395
  - Millstones, hanging 381
  - Mirror, 299
  - Moldboard machine for plow 330
  - Molds for casting, blackwashing 204, 396
  - Molds for cement pipes 332
  - Molds for jars 397
  - Molds for metal dies used by dentists 368
  - Mold, glass 370
  - Molding pipes 18, 248
  - Molding shot and shells 348
  - Molding for large castings, 349
  - Molding for hanging pictures 332
  - Molding, machine for cutting 61, 158, 304, 386
  - Molding machines for enameling 301
  - Mop and scrubber (sobin d) 188
  - Mop-wringer 348
  - Mortising machines 109, 140, 189, 284
  - Mosaics, wooden 92, 380
  - Motion, machinery for changing 45, 125, 173, 262, 365
  - Motor, hydraulic 348
  - Movement, mechanical 249
  - Mowing machines 61, 141, 270, 316, 397
- N**
- Nail machines 139, 337
  - Nail-plate-feeders 12, 173
  - Needle case 261
  - Needle guard 268
  - Needle-threading mechanism 253
  - Net, muscled 388
  - Newspaper, addressing 18, 76 (3), 221, 318
- O**
- Notes, manufacture of bank 269
  - Nozzles, hose-pipe 109
  - Nut-crackers 92, 349
- P**
- Odometer 231
  - Oil, apparatus for distilling coal 173, 223, 267, 269, 347, 363, 379 (2)
  - Oil, cotton seed 77
  - Oil, process of distilling hydro-carbon 267, 409
  - Oil, siccative 23
  - Ordnance, breech-loading 380
  - Ore-washer 204
  - Orthography, apparatus for teaching 156
  - Oven, 316
  - Overshoes (see Boots and shoes)
  - Ox-shoe 333
  - Ox-yoke fastening 364
- R**
- Padlock 284
  - Pad, harness 300
  - Pad, medicated 45
  - Pain-mixing machines 249, 396
  - Paper-cutting machine 12
  - Paper-folding apparatus 60
  - Paper-folding and pasting machine 189
  - Paper for bookbinders, mode of folding 141
  - Paper pulp, preparation of 221, 237, 332
  - Paper, safety 364
  - Pantaloons 73
  - Pastery-board 109
  - Pavements, making 237
  - Peach-pavers 20, 348
  - Pegging machines 108, 125, 363
  - Pen and pencil cases, holders or stands for 126, 173, 263, 267, 409
  - Pessaries 93, 305, 380
  - Photographs, solution for toning 125
  - Piano-te actions 18, 92, 363, 364
  - Pianofortes, 12, 18, 187, 204, 318
  - Pictures, back-up glass 46
  - Pin, coated iron 77
  - Pins, scarf 290
  - Pipe, hawse 205
  - Pipe, hose 410
  - Pipe machine, clay 223
  - Pipe, making sheet metal 331
  - Pipe-sniper 13
  - Pine, organ 204
  - Pistols, repeating 18
  - Pitcher, bee 234
  - Pitching, ice 316
  - Plaiting (sewing) apparatus 124
  - Plane, bench 300
  - Planing machine 93
  - Plant-cutting machine, cotton
  - Planters, corn 43, 44, 45, 63, 188 (2), 263, 282, 315 (3), 317, 363, 364 (2), 365, 380
  - Planters, cotton-seed 28 (3), 189 (2), 203, 258, 315, 397
  - Planting seed 28, 141, 172, 187, 237, 285, 349, 350, 364, 366 (2)
  - Planting, treatment of fibrous 219
  - Plastic compound 187
  - Plate, glass 248
  - Plate, metal 410
  - Plow, cotton-spinning 300
  - Plow, gank 28
  - Plow, shovel 187, 380
  - Plow, steam 157
  - Plows, 29 (3), 44, 45, 76, 108, 189 (3), 141, 173, 205, 230 (2), 237, 251, 264 (2), 281, 304, 319, 324, 334 (2), 363, 364 (2), 365, 370
  - Plows, mold or dyne 60, 157, 172 (2), 222, 236 (3), 353, 364, 369
  - Plows, seeding 267, 300
  - Pocket-irons for billiard tables 317
  - Polishing machine, marble 230
  - Polishing machine, wood 226
  - Post, butt for 348
  - Pot, flower 77
  - Pot, glue 94
  - Pot, coffee or tea 92, 93, 188
  - Potato-diggers 328, 334, 349, 363
  - Powder, bear 348
  - Power, adaptation of substances as motive 231
  - Plug-finishing machine 188
  - Press, apron for printing 77
  - Press, brick 140
  - Press, cane 293
  - Press, cheese 269
  - Press for billiard cues 139
  - Press, laundry 140
  - Press, letter-copying 301
  - Presses 45, 77, 156
  - Presses, cotton or hay 29, 60 (3), 93, 188, 304 (2), 321, 317, 348, 365 (2), 396
  - Presses, hydraulic 23, 339
  - Presses, printing 18, 60, 76, 77, 109, 156, 300
  - Presses, tobacco 236, 284, 365
  - Projectiles for fire arms 92, 140, 157, 316
  - Propellers, marine 141, 236, 351, 410
  - Propellers, applying steam to 333
  - Pruess, curing 366
  - Pulley, grooved 46
  - Pulley-facing machine 61
  - Pulley for gates 351
  - Pulmonometer 30
  - Pulverizer, quartz 27, 222, 285, 332, 380, 409
  - Pump, cattle 11
  - Pump for steam engines, air 234
  - Pumps 45, 125, 140, 173, 221, 284, 285, 300 (2), 317, 331, 333, 365 (2), 366, 397 (2), 408, 410
  - Pumps, steam 203, 236
  - Punches 23, 268
- Q**
- Quartz-crushers (see Pulverizers)
- R**
- Rack for cigars, hat 801
  - Rack for milk-pans 45
  - Racks, pen 45, 172
  - Radiator, heat 235, 410
  - Rafts, life-preserving 76, 351
  - Rails and wheels, testing the wear of railroad 284
  - Rails for railroads 18, 190, 300, 316
  - Rakes, horse hair 28, 109, 188, 189, 267, 300, 393
  - Ranges, (see Stoves, cooking)
  - Ratans, machine 380
  - Reaping and mowing machines (combined) 109, 124, 230, 284, 349
  - Reed, musical 316
  - Reel, fishing 173
  - Reel, silk or thread 349
  - Reflectors, night-light 263, 284
  - Refrigerators 46, 157, 251
  - Register, hot-air 204
  - Register, legislative voting 263
  - Register, portable 29
  - Registers, stove 61
  - Registers, railroad car 28, 237
  - Regulator, boiler 317
  - Regulator, gas 327, 410
  - Regulator, steam and fire 198
  - Reins, bridle 205
- S**
- Reservoir for pens, ink 284
  - Resin, manufacture of 236, 237
  - Retorts, coal 46, 220
  - Retorts, gas 140, 204, 230, 365, 381
  - Road-scrapes 45
  - Roll for forming screw wrenches 233
  - Roller for sugar mills, crushing 270
  - Roller for window sashes 76
  - Roller for working caoutchouc and allied gums 141
  - Roofing, board 270
  - Roofs, laying slate 268
  - Rope-making machines 77, 93
  - Rubber articles 13, 13, 77
  - Rubber goods, finishing felt 45, 865
  - Rubber, restoring waste vulcanized 269
  - Rudders 108, 140
  - Ruffle 334
  - Rig for fore-and-aft sails 60, 77, 93, 173
  - Rice-hulling and finishing machine 156, 380
  - Rivet and bolt machine 157
  - Rule for pointers, perforating 316
  - Ruling machine 46
- T**
- Saddles 236, 259, 269
  - Safes 230, 304, 379
  - Safe, watch 44, 77
  - Sail bonnets 93
  - Sail cringles 157
  - Sail grommets 109
  - Sails of fore-and-aft vessels, main 364
  - Sails, securing reef points of 836
  - Salinometer and water gage (combined) 300
  - Salt, manufacture of common 380
  - Salt conductor 77
  - Salt-fasteners 349, 380
  - Salt, metallic 301
  - Sale, window 300, 348
  - Sausage-filler or stuffers 156, 203, 231, 252, 263 (2), 349, 365
  - Saw-filers (see Filing devices)
  - Saw-grinding and polishing machine 157
  - Saw blades, device for allowing for contraction or expansion of 157
  - Saw handles, fastening 173, 188
  - Saw logs, roofing 125
  - Saw-mill or sawing machines 29, 60, 109, 110, 125, 300
  - Saw-set 347
  - Saws, construction of 220, 236, 268, 380, 396
  - Saw, hatching reciprocating 76, 333
  - Sabards, bayonet 332, 348
  - Scaffolding 76, 263
  - Scales 351
  - Scales, grain 262, 269, 334, 348, 396
  - Scales, platform 12 (2)
  - Scoops 94, 253, 363
  - Scoops and nippers (combined) 205
  - Screw and nut, anti-friction (combined) 397
  - Screw-cutting machine 140
  - Screw, wood 18
  - Screws, tobacco (see Presses, tobacco)
  - Screws, coal (see Coal-sifters)
  - Screws, for cleaning cotton, wire 93
  - Screws, window 208
  - Seat and cane (combined) 43
  - Seed-sowers or seedling machines 27, 29 (2), 45, 60, 141, 172, 173, 188 (2), 236, 237 (2), 252, 253 (2), 267, 270, 299, 331, 333, 363 (2), 364, 380, 396
  - Sepulators, gold 61, 124
  - Sewer, construction of 220, 236, 268, 300 (2), 301, 316, 420
  - Sewing machines 12, 13, 27, 28, 29, 45, 62, 92, 125 (2), 140, 141, 156 (2), 157, 172, 189 (2), 220, 221 (2), 223, 253, 270, 285 (2), 317, 333 (2), 323, 347, 354, 364, 373, 381, 397 (2), 409
  - Sewing-stand, embroidery 315
  - Sextant 284
  - Shackles for wagon shafts 317
  - Shackles, second anchor 44
  - Shade fixture 76
  - Shanty, counter 363
  - Shaving, machine for cutting 61
  - Shear-holder, Unmann 109
  - Silears (see Scissors)
  - Shield, photographic plate 173
  - Stringing machines 13, 125, 143, 144, 145, 146, 147, 173, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392,