

wire may be woven or coiled about fence wires to form a stay for them, the wire being drawn directly from the coil as it is applied to the fence wires in position. The frame of the device forms practically a double crank, thus obviating the necessity of the operator passing his hand through parallel fence wires to grasp and turn it, and the stay wire freely leaves the post on which it is coiled without liability to become tangled up with the frame.

**POST DRIVER.**—Robbert G. Work, Marion Center, Pa. This is a portable post driver adapted to be mounted on a wagon bed, at the rear end of which the falling weight, or "monkey," is guided between vertical standards. The cable for raising the weight passes over a pulley depending from a cross beam and is attached to a winding drum on a splined shaft, the drum engaging the spline on the shaft to be wound up and lift the weight, and being withdrawn from the spline to permit the fall of the weight. Between the vertical standards are transverse guides or supports adapted to steady large or small posts in position for driving.

**HORSE FLY NET AND COVER.**—Henry C. Carter, Belmont, N. Y. This is a net which is made in sections, there being a head piece or bridle section located at each side of the neck, a breast piece or collar section, and a back piece having two side members, the frame of each section being made of spring wire bent to proper contour and having hooks or loops to facilitate attaching the netting in position. The netting consists of pendent strips or a fringe attached to a hem through which a portion of the wire of each frame section is passed. This net is designed to permit a free circulation of air around the body of the animal, and is readily attached to the harness.

**REIN GUARD.**—Thomas Thompson, New London, Wis. To prevent the reins from catching beneath the ends of the thills of a vehicle, this inventor provides a guard of flexible material, such as a leather strap, to pass across the breast and connect the ends of the thills, the guard being attached to sleeves which fit on the ends of the shafts. This arrangement also prevents the horse from catching a shaft around a post, and prevents the ends of either shaft from being run into another horse in case of collision.

**THILL COUPLING.**—Charles W. Goble, Canyon, Col. This is a coupling designed to facilitate changing from a thill to a pole, or vice versa, as desired, and one requiring no bire, the head of the coupling pin also being concealed, and no portion of the device being liable to produce rattling. The base plate is clipped to the axle and has forwardly extending jaws, one with a recess in which fits the head of the pin, held in position by a slide, while a spring is formed with opposing shoes which engage the lower portion of the slide ways and lock the pin in position.

**SASH FASTENER.**—Joseph L. Bossler, Alton, Ill. According to this improvement a latch is attached to the upper rail of the lower sash and a keeper is secured on the upper face of the lower rail of the upper sash, the latch having an angular post with a pendulum finger adapted to engage a slot in the keeper through which is passed a spring latch bar. The device is simple and inexpensive, automatically locking the window in closed position, while the unlocking is readily effected from within the room.

**LOCK.**—John Alfors, Hanna, Wyoming. This lock is adapted for use in doors, drawers, etc., where the knobs are fixed to the casing, a key being introduced into either of the knobs instead of into the body of the lock for returning or unlocking the bolt, the construction of the lock being such that when the key is withdrawn the bolt automatically assumes a locked position. The lock bolt is withdrawn by the pressing of a tubular key inward in a tube of the knob, the pressing of the key fully inward holding the bolt permanently back, so that the door may be closed without locking.

**DOOR CATCH.**—Peter Mickelson, Cedar Valley, Iowa. This is a cheap and simple device especially adapted for use in connection with barn doors, preventing the wind blowing the door closed or against a team. It has a base plate for attachment to the building at the proper distance behind the door, and supporting spring wire holding arms which rock on the plate, and are adapted to close upon the edge of a door when it is opened wide and hold it in open position until the locking arm of the catch is purposely moved outward.

**FLOUR AND MEAL BIN AND SIFTER.**—Charles P. Alexander, Cleburne, Texas. This is a combination piece of kitchen furniture in which are two bins and a chamber below in which is a sieve adapted to be reciprocated, means being provided whereby any desired quantity of flour or meal may be delivered to the sifter, the latter being readily removed for cleaning. The sieve is given an intermittent reciprocating movement by a cam operated by a crank and a chute delivers the sifted material to a suitable receptacle.

**LOCK FOR STOP COCKS.**—Albert T. Patrick, New York City. To temporarily or permanently lock the turn key of an ordinary stop cock this inventor has devised a simple and easily applied and removed device, consisting of a slotted hasp adapted to be passed around the stop cock and engage with its slot the turn key, the free ends of the hasp being then locked by a padlock. The device is designed for use on supply pipes at meters and elsewhere, where it is desired to cut off the supply without removing the meters or disturbing the fixtures.

**NON-REFILLABLE BOTTLE.**—Enos C. Pollard, Holt, Montana. To prevent the refilling of bottles and their re-use as original packages, this inventor has devised a bottle of which a portion must be broken off before the contents can be discharged. The neck is made with an integral sealing extension on which a trade mark may be placed, a groove being formed at the junction of the neck and extension to facilitate breaking off the latter. After the liquor has been placed in the bottle a cork is forced into position in the neck below the extension, and a suitable cement placed on the cork, there being embedded in the cement a glass stopper with flared lower end and flanged top, fitting in the top of the extension.

**BADGE BUTTONS.**—James H. Patterson, Martinsville, Ind. This is a button to be worn in the lapel of the coat to furnish amusement in answer to threadbare and tiresome comments about the weather. It has a front plate, with a cut-out quarter section, beneath which is a revolute plate divided into quarter sections, the front plate bearing the words "Yes; it is," and the revolute plate having on each of the quarter sections one of the following: "hot," "cold," "wet," "O. K.," so that by turning the under plate a definite answer is given by the button to ordinary remarks about the weather.

**WAIST BELT.**—John F. Schotz, New York City. This is a ladies' belt, designed to be worn with comfort while it is also adapted to contract the figure at the junction of the hips with the waist, to lengthen the waist. At each side of the belt is a pocket in which is a spring, reinforced on its inner face by an added strip of spring material of lozenge or diamond shape, the two springs being so connected that they will adapt themselves to the curvature of the body. The belt is adapted to be worn over the corset, and is designed to accomplish what cannot be obtained by the use of a corset, no matter how tightly the latter may be laced.

**TRAY ATTACHMENT FOR BEDSTEADS.**—Ella F. Fry, Richmond Dale, Ohio. To hold articles for the convenient use of invalids while confined to their beds, this inventor provides a novel device that is readily attachable to the inner face of the side rail of the bedstead, being foldable adjacent to the mattress. A post is pivotally attached to the rail, and adjustable thereto is a standard carrying a hinged bracket plate to which a tray may be secured and held in level position, partly over the bed, the occupant of which is thus enabled to eat with comfort and have the necessary articles within easy reach.

**COAL RECEPTACLE AND ASH SIFTER.**—Adolph J. Smith, New York City. In a suitable casting, according to this improvement, is a top compartment adapted to receive an ordinary coal pail or scuttle, containing the coal supply, and in the upper front portion of the casing is a downwardly swinging door, allowing coal to be sifted in upon a downwardly and rearwardly inclined screen through which the ashes pass to a pan beneath, while the cinders are directed to an inclined chute leading to a lower drawer in the bottom of the casing.

**SPITTOON.**—Richard J. Smith, Lovejoy, Ky. This is a spittoon to be secured in the floor, and especially adapted for use on railroad and street cars, boats, etc. It has a cylindrical body, with top flange resting on the floor around the opening in which the spittoon is set, and has a hinged cover connected by a chain with a bottom swinging cover. When the top cover is raised and thrown back, which may be readily done by the foot, the bottom opening is closed, and when the top cover is closed the bottom cover swings downward and the contents are discharged.

**NOTE.**—Copies of any of the above patents will be furnished by Munn & Co., for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

#### NEW BOOKS AND PUBLICATIONS.

**UNCLE SAM'S LETTERS ON PHRENOLOGY.**—New York: Fowler & Wells Company. Pp. 154. Price 50 cents.

This is a little work originally published in 1842, and, being thought too good to be lost, is now presented in revised form. The letters were written by a Presbyterian minister, and treat with considerable discrimination of the advantages of phrenology.

**PRACTICAL GUIDE FOR FIREFMEN.**—By W. H. Wakeman. Bridgeport, Conn.: American Industrial Publishing Company. Pp. 74.

This is a little handbook of instructions and suggestions for the care and management of steam boilers, pumps, injectors, etc.

**IOWA GEOLOGICAL SURVEY.**—Volume V. Annual Report, 1895, with accompanying papers. Samuel Calvin State Geologist, H. Foster Bain Assistant State Geologist. Des Moines: Published for the Iowa Geological Survey. 1896. Pp. 452.

This very excellently reproduced geological report is devoted to the geology of six counties of Iowa. It is published by the Geological Board of the State, which consists of the governor and auditor and three other members, Samuel Calvin being the State geologist. It is very finely printed, and will find naturally a place in colleges and geological libraries.

**TWENTIETH YEAR BOOK OF THE NEW YORK STATE REFORMATORY FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1895.**—With illustrations and anthropometric tables. Elmira, N. Y. 1896.

This report is, it appears to us, too short for the ground it covers. Its topics are of the deepest interest and are most excellently treated, except for their brevity. The study of criminal statistics, the accumulation of data, the influence of heredity and of association upon character, the physical traits of the class of humanity who have an enforced seclusion in Elmira reformatory, are the topics which the report covers. The institution was, by some recent investigations, brought somewhat prominently before the public. It seems to have survived the criticisms then excited. Two papers, one on the School of Letters, by the late Prof. James R. Monks, the other, "Observations and Notes," by Dr. H. D. Wey, are particularly to be commended, as are also the excellently selected illustrations.

We have received from F. A. Bradley, of New Haven, Conn., a handsome binder or temporary cover adapted to conveniently hold the numbers of the SCIENTIFIC AMERICAN as they are successively published. It has a Russia leather back and is carefully made by hand, promising to do excellent service in everyday use.

#### Business and Personal.

The charge for insertion under this head is One Dollar a time for each insertion: about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Marine Iron Works, Chicago. Catalogue free.

"U. S." metal polish. Indianapolis. Samples free.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Gaith and Canal Sts., New York.

More profitable than your business. Investigate Ransom's concrete system. 758 Monadnock Block, Chicago.

The celebrated "Hornby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4, Munn & Co., publishers, 361 Broadway, N. Y.

Stay with your job, and with your wages pay installments for a profitable olive orchard. Booklet free. Wbiting's Olive Colony, Byrne Building, Los Angeles, Cal.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

#### TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broadway, New York.

#### INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

September 1, 1896,

#### AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Advertising device, S. B. Hosmer.....	567,761
Air brake, D. Dunn.....	567,724
Air compressors, inlet valve for, R. F. Grigsby.....	567,692
Air valves, automatically opening or closing, F. J. Gubelman.....	567,033
Alarm, See Boiler pressure indicating alarm.	
Animal trap, J. W. Jones.....	566,912
Ant trap, P. H. Brown.....	567,076
Bar holder, G. Strong.....	566,809
Baling press, hand, M. Forder.....	567,076
Battery plate, secondary voltaic, J. G. A. Robdin.....	567,044
Bearing ball, P. F. Turner.....	567,013
Bed and couch, combined folding, F. D. Swaney.....	566,813
Bed spring, G. Mafera.....	566,781
Bedstead clamp, screw eye, R. F. Clark.....	567,742
Beehive, N. C. Keiso.....	566,913
Bear fountain, steam, W. H. Smyth.....	566,942
Bicycle, H. L. Boyle.....	566,838
Bicycle, J. C. Raymond.....	567,042
Bicycle crank axle, F. J. Grodavent.....	566,906
Bicycle frame, C. L. Houghton.....	566,861
Bicycle handle bar, B. Porter.....	566,794
Bicycle support, A. Lucas.....	567,035
Bicycle support, R. G. Wells.....	567,015
Bin, See Flour and meal bin.	
Bit, See Drill.	
Block, See Tumbler block.	
Boat, See Life boat.	
Boiler, See Water tube boiler.	
Boiler fuel cleaner, W. H. Howe.....	566,763
Boiler furnace, P. H. Bailey.....	566,837
Boiler furnace, steam, O. F. Jones.....	566,876
Boiler pressure indicating alarm, D. C. McAulay.....	566,991
Bookcase, W. M. Poindexter.....	567,003
Books, forms or the like, indicator for, J. Speyer.....	566,943
Booth, degree, N. H. Reynolds.....	566,199
Boring and mortising machine, gang bit, E. B. Hayes.....	567,057
Bottle, Axford & Lamberton.....	567,733
Bottle, K. A. Klöse.....	567,103
Bottle, W. H. B. Schmidt.....	566,873
Bottle, non-refillable, Depro & Baker.....	567,081
Box cover machine, B. M. Gunston.....	567,094
Bux machine, Van Vleet & Osborne.....	566,823
Bracket, See Hose bracket.	
Brake, See Air brake. Car brake.	
Bridge guard, T. H. Andrew.....	566,960
Bridle, J. A. Reils.....	566,988
Bridle bit, H. G. Leisering.....	567,063
Broom or muck holder, J. W. McIlhenny.....	566,787
Buckle, D. Wright.....	567,061
Buckle on making machine, F. J. Kaspar.....	567,102
Calculator, yardstick, E. Praeker.....	566,867
Car, See Sheet metal can.	
Car brake, W. H. Tallman.....	566,814
Car brake, electric, A. B. Roney.....	566,939
Car coupling, J. Farlow.....	566,749
Car coupling, J. F. Hay.....	566,907
Car coupling, J. D. Majors.....	566,991
Car coupling, T. J. Orr.....	567,109
Car coupling, W. G. Smith.....	566,876
Car coupling, W. T. Van Dorn.....	566,822
Car, dumping, M. F. Blake.....	567,019
Car fender, J. R. Thomas.....	566,879
Car heating apparatus, E. E. Gold.....	566,904
Car wheel in place, apparatus for grinding, N. Casey.....	566,891
Cars, magnetic traction apparatus for motor, W. Robinson.....	566,800
Carriage, J. A. McLean.....	566,790
Cartridge primer, N. G. Whitmore.....	567,114
Case, See Bookcase. Extension case, Toilet case.	
Cash register and indicator, G. L. Barnes.....	567,066
Cash register and indicator, E. T. Taylor.....	566,878
Centrifugal separator, W. E. Simonds.....	566,807
Chain, adjustable drap, J. H. Mitchell.....	566,935
Chair, See Shoulder and back bracing chair.	
Chair leg strengthening device, H. Geise.....	566,979
Chuck, drill, A. D. Goodell.....	566,905
Chuck for hollow ware, A. R. Pritchard.....	567,004
Churn, J. F. Baugh.....	567,018
Cigarette packing machine, Van Vleet & Hurd.....	567,014
Climb, See Bedstead clamp.	
Cleaner, See Boiler flue cleaner. Dust collector cleaner, Shell cleaner.	
Clock musical, W. H. Wright.....	566,956
Cloth b sponging and refreshing apparatus, D. J. Stein.....	567,111
Coal lifting implement, Fitzgerald & Thomas.....	567,687
Coat hook and hat hook, J. F. Bearinger, Jr.....	566,962
Coat lock, G. K. Florer.....	566,852
Coating apparatus, metal, Thomas & Davies.....	566,880
Cock lock, stop, A. T. Patrick.....	566,932
Composition of matter for building purposes, Woltersdorf & Anus.....	566,828
Concentrator, Woodward & Brown.....	566,884
Cooker, steam, A. M. Amos.....	566,88

Fender. See Car fender.	566,821
File, paper, C. H. Van Alstine.	566,502
Firecracker holder, L. Runage.	566,732
Fireplace heater, open, W. P. Anderson.	566,963
Fishing basket or creel, L. E. Gieschen.	567,084
Fishing rod support, J. A. Eicher.	567,082
Flour and meal bin and sifter, combined, C. P. Alexander.	567,091
Flue scraper, Fassett & Elder.	566,973
Fluid pressure regulator, V. O. Ludovic.	566,773
Flusher, automatic siphon tank closet, J. F. Goodwin.	567,091
Fork. See Potato fork.	
Furnace. See Boiler furnace. Steam generator furnace.	566,774
Furnace, G. W. Kraft.	566,756
Furnace door, W. H. Harris.	566,756
Furnace smoke consuming attachment, W. R. & J. Briez.	567,073
Game of chance apparatus, S. T. Nimm.	566,930
Garnet supporter, M. A. Voise.	566,947
Gas burner apparatus, acetylene, H. F. Fuller.	566,902
Gas burners, device for lighting, L. H. A. Drude.	566,746
Gas generator, acetylene, H. F. Fuller.	566,901
Gas regulator, A. Frolich.	566,977
Gate, Ferris & Thomas.	567,086
Gate, W. T. Foster.	566,899
Gate, J. H. Johnson.	567,101
Gear changing mechanism, I. N. Berezovsky.	566,963
Gear, reversing, Rinehart & Turner.	567,005
Generator. See Gas generator. Steam generator.	
Glass bottles, etc., machine for manufacturing, C. E. Blue.	567,071
Glass shaping machine, A. J. Sanford.	566,903
Glove fastener, G. E. Adams.	567,071
Gold and silver from ore, apparatus for extracting.	566,894
Grate, T. M. Edwards.	566,884
Hair holder, K. Liebreich.	566,779
Hanger. See Electric light hanger. Pipe hanger.	566,759
Hay sling pulley block, L. L. Holser.	566,824
Head and neck protector, A. Van Wormer.	566,874
Heater. See Electric heater. Fireplace heater.	
Hermetically sealed vessel, A. L. Weissenthaler.	566,952
Hitching post, H. Wire.	567,049
Hoist, catching and holding implement, J. L. Smith.	566,848
Hoist, cable, W. Dusseau.	566,849
Hoisting and conveying apparatus, cable, W. Dusseau.	566,849
Hook. See coat and bat hook.	
Hopper, stock, J. M. Davis.	567,020
Horse detacher, Domed & Woodworth.	566,672
Horse detacher, McKinney & French.	566,789
Horse detacher, G. Townsend.	566,946
Horse shade, H. A. Melville.	566,833
Hose bracket, swinging, L. T. Foreman.	566,783
Hot air engine, Muisbach & Groeschel.	566,894
Horn, wheel, O. Grotrothers.	566,904
Indicator. See Elevator indicator.	
Ink well, J. Desmond.	566,971
Ironing-table, Mauritz & Tinkle.	566,993
Key retainer and locket, Tuckey & Harris.	566,620
Knife. See Miner's knifefall.	
Knitting machine, F. J. Cartledge.	566,963
Knives, device for scouring and polishing, J. Stalker.	566,944
Labeling machine, H. Rawlinson.	567,041
Lamp, candle, C. E. & T. H. Green.	566,755
Lamp, miner's, C. H. Hobson.	567,093
Lamp pole, electric, M. B. Bailey.	567,116
Lamp wick adjusting device, J. M. Usher.	566,882
Lamps, regulating socket for electric, C. A. Chute.	566,892
Lasting machine, nipperjaw, G. A. Willard.	566,831
Lasting tool, L. D. Jundins.	566,941
Latch and lock, combined, A. L. Smith.	566,976
Life boat, W. F. James.	566,974
Line fastener, J. P. Fegan.	566,987
Liquids, automatic apparatus for elevating, B. Kerr.	567,063
Lock. See Coat lock. Cock lock. Sash lock.	
Lock, J. Afors.	
Locating and unlocking device, automatic, H. F. Cranwell.	566,844
Locomotive sanding apparatus, C. F. Gaze.	566,871
Loop, for weaving tufted fabrics, Wyman & Clark.	566,953
Lubricator, W. McIntosh.	566,878
Lubricator, W. A. Seibel.	567,082
Mail crane, E. A. Foster.	566,857
Mandolin, E. P. Hall.	567,028
Measuring machine, rope, G. F. Hofman.	566,906
Melobarpick, G. B. Shearer.	566,896
Merry go round, R. J. Talbot.	566,943
Metal separating apparatus, J. A. Mays.	566,921
Meter. See Steam meter.	
Mile cooling apparatus, M. Thoeni.	566,817
Mill. See Roller mill. Windmill.	
Miner's knife, G. M. Bergen.	567,068
Motor. See Electric motor. Velocipede spring motor.	
Mower, lawn, T. Johnston.	566,911
Musickrack, W. T. Bolger.	567,072
Musical instrument, F. P. Cericola.	567,079
Musical instruments, note projection for, F. Schaub.	567,007
Net and cover, horse fly, H. C. Carter.	567,078
Nipple, A. Kins.	566,978
Nipple receivers, false, J. H. Thurston.	566,881
Nozzle, hydraulic, F. M. Bookwalter.	566,736
Ore pulverizing and amalgamating machine, J. Manes.	566,992
Oyster bed, D. H. Hibbert.	566,757
Package or packing receptacle, F. P. McColl.	566,983
Paper feeding machine, A. Reisser.	567,043
Parer, vegetable, C. Sonnensohn.	566,812
Pen, fountain, W. J. Rogers.	566,938
Photographic print and negative washer, A. Sprauer.	567,052
Piano action, M. Steinert.	566,803
Piano action, grand, A. Nickel.	566,928
Piano action, upright, A. Nickel.	566,926
Pipe. See Tobacco pipe.	
Pipe coupling, combination soft and hard metal, S. M. Friede.	566,885
Pipe coupling for water closet bowls, etc., Atkinson & Plunkett.	567,115
Pipe hanger, J. P. Swan.	566,810
Pipe turner, S. McAdoo.	566,786
Pianine machine, G. A. Ensign.	567,085
Planter and cultivator, Hill & Holman.	567,083
Planter, check row corn, R. H. Fishbaugh.	566,945
Planter, corn, J. Combs.	566,842
Planter, corn, Sattely & Heineke.	566,804
Plate conveyor and boistering buggy, J. F. Pank-	
Plow, H. Johnston.	567,001
Pneumatic transit apparatus, carrier for, B. C. Batcheller.	566,783
Post. See Fence post. Hitching post.	567,067
Post driver, R. G. Work.	567,069
Potato fork or scoop, N. F. Reed.	566,968
Powder, machine for making spherical grain, J. E. Layng.	566,777
Power, machine for generating fluid pressure, I. T. Dyer.	566,897
Precious metals from their ores, cyanid process of extracting, R. Keck.	566,887
Press. See Balline press.	
Press, F. S. Wardwell.	566,827
Printing machine, web, W. Spalckbauer.	567,051
Propeller, oscillating, J. Huber.	566,911
Puller. See Stump puller.	
Pulley, roller bearing well wheel, J. C. Taylor.	567,055
Pump, air, West & Holgate.	566,875
Pump, rotary, J. B. Barber.	567,059
Pump, single acting crank, G. E. Dow.	566,895
Pumps, automatic circuit controller for electric, D. W. Dyer.	567,023
Puzzle, M. Miller.	566,748
Puzzle, P. G. Frank.	566,854
Rack. See Music rack.	
Racking apparatus for barreling beer, A. E. Ferre.	566,898
Railway, bicycle, J. & J. McKay.	566,926
Railway, electric, R. M. Hunt er.	566,944
Railway switch detector, W. H. Berrigan, Jr.	566,887
Railway system, electric, Murphy & Pierce.	566,786
Railway system, electric, W. Robinson.	566,801
Recorder, H. M. Williams.	567,017
Refrigerator, H. M. Castner.	566,740
Refrigerator, J. H. Hise.	566,981
Refuse hydraulic separator for town, P. Bonvillain.	566,888
Register. See Cash register.	
Regulator. See Fluid pressure regulator. Gas regulator.	
Rein guard, T. Thompson.	566,818
Roller mill for grinding ink, etc. P. Lindemeyer, Jr.	
Rotary engine, J. A. Abbe.	566,922
Robot engine, W. M. Lindford.	567,074
Sash fastener, J. L. Bossler.	567,073
Sash lock, F. T. Frost.	566,856
Sash lock and antirattling device, combined, E. F. Stearns.	566,877
Saw, J. Morris.	566,885
Scale beam, yarn numbering, A. Schaer.	566,872
Scale support, weighing, C. J. Lippold.	567,106
Scale, weighing, C. J. Lippold.	567,107
School seat and desk, A. D. Linn.	567,105
Scoring machines, adjustable cutter for, Hobbs & Johnson.	566,758
Screen. See Draught screen. Window screen.	

"White Skin and Red Cheeks," J. Ottmann Lithographing Company. 24

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished from this office for 10 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York. Special rates will be given where a large number of copies are desired at one time.

Canadian patents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.

## Advertisements.

### ORDINARY RATES.

Inside Page, each insertion - - 75 cents a line  
Back Page, each insertion - - \$1.00 a line  
For some classes of Advertisements, Special and Higher rates are required.

The above are charges per age to line—about eight words per line. This notice shows the width of the line, and is set in a large type. Engravings may head advertisements at the same rate per age line, or measurement, as the letter press. Advertisements must be received at Publication Office as early as Thursday morning to appear in the following week's issue.

**Star ★ Foot power Screw... cutting Automatic Cross feed 9 and 11-inch Swing.**  
New and Original Features  
Send for Catalogue B.  
Seneca Falls Mfg. Company,  
695 WaterSt., Seneca Falls, N.Y.

**AMERICAN PATENTS.—AN INTERESTING and valuable table showing the number of patents granted for the various subjects upon which petitions have been filed from the beginning down to December 31, 1894. Contained in the SCIENTIFIC AMERICAN SUPPLEMENT, No. 1,0002. Price 10 cents. To be had at this office and from all newsdealers**

**POWER & FOOT SHAPERS, PLANERS, DRILLS, MACHINERY, OUTFITTING TOOLS, AND SUPPLIES. CATALOGUE FREE.**  
SEBASTIAN LATHE CO., 120 CULVER ST., CINCINNATI, O.

**Measuring Tapes.**  
Chesterman's, Excelsior, Lufkin's, Eddy's, Roe's, etc., and supplies of all kinds for Architects, Engineers and Draughtsmen.

**Frost & Adams Co.**  
Established in 1848.  
39 Cornhill,  
BOSTON, MASS.

**DROP FORGINGS**  
**WYMAN & GORDON**  
WORCESTER, MASS.  
28 BRADLEY STREET.

**A Boiler Feeder For High Pressures**  
WORKS AT 150 TO 250 LBS. STEAM  
as easily as  
OUR STOCK INJECTOR AT 25 TO 150 LBS.  
May we tell you about it?  
PENBERTHY INJECTOR CO.,  
116 Seventh Street, DETROIT, MICH.

**IMPROVED ADJUSTABLE "S" WRENCH.**  
Fully operated.  
Strong, Durable. For Circular, address  
BEMIS & CALL HARDWARE & TOOL CO.,  
P. O. Box 1400, Springfield, Mass., U. S. A.

**Water Emery Tool Grinder**  
Has no pump, no valves. No piping required to supply it with water. Always ready for use. Simple in construction, most efficient in operation.  
Send for catalogue and prices.  
W. F. & JNO. BARNES CO.  
1999 Ruby St., Rockford, Ill.

**Patent Carrying Track OVERHEAD TRAMWAY**  
for Mills, Foundries, Machine Shops, or for Merchandise. Send for Book.  
The Coburn Trolley Track Mfg. Co.,  
... HOLYOKE, MASS.,

**SENSITIVE DRILL**  
A tool adapted for light drilling. Constructed specially for the use of Bicycle Manufacturers.

**C. N. CADY,**  
West Center Street, Canastota, N. Y.

**BOOK ON FILES" FREE ILLUSTRATED**  
LARGEST BITE WELL WEAR FILE  
NICHOLSON PRODUCERS  
BOX 884 PROVIDENCE, R. I., U. S. A.

**DO YOUR OWN PRINTING**  
PRESS for cards, circulars, &c. Write for catalogue, presses, type cards, etc., to factory.  
KELSEY & CO.  
Meriden, Conn.

**BUY TELEPHONES**  
That Are Good--Not Cheap Things

The Globe Telephone Co., Winchester, Ky., have ordered a full equipment to be put in place of the "Koko-mo," because the latter operated so poorly that patrons refused to pay rentals.

Hundreds of similar cases may be cited affecting the apparatus of nearly all so-called competitors.

**WESTERN TELEPHONE CONSTRUCTION CO.**  
260 South Clinton Street, Chicago  
The Largest Manufacturers of Telephones in the U. S.

Direct Coupled Engines and Dynamos for

**MARINE and LOCAL LIGHT PLANTS**

Equipment complete and unsurpassed. Electric Motors and Dynamos, Bipolar and Multipolar. 1/2 to 150 h. p.

For particulars, address BELKNAP MOTOR CO.

HOME OFFICE, Portland, Me., U. S. A.

Branch Office, 19 Pearl St., Boston, Thames Bldg., N.Y.

**BIG CHANCE for LIVE AGENTS. Easy sell.**