RECENTLY PATENTED INVENTIONS.

Pertaining to Apparel.

SKIRT-HOLDER.—F. H. NEWTON, Greenville, S. C. The invention contemplates the employment of a cord or chain, the body of which is normally wound upon a reel within the case which is pinned upon the skirt at the upper portion thereof, and one of the objects is to provide means for clamping this cord or chain to limit the same against further extension.

BELT-BUCKLE.—J. D. TEMPLETON, Ada, Ohio. The object of the improvement is to provide details of construction for a buckle for waist belts, suspenders or the like, which afford a neat, simple, practical, and inexpensive device. The coaction of the bent and pivoted head portion of the hook piece with the buckle frame having the inclined teeth, are the dominant features.

HAT-FASTENER.—M. E. JENNINGS and A. J. WINEBRAKE, Scranton, Pa. By this invention it is intended to provide in connection with hat-pins, a holder therefor which will be self-retaining in the hat, will be adjustable to fit any size or shape of crown, and will be provided with a bushing or sleeve through which the pins slide to avoid wear of the hat material, and also to steady the pins in position.

Of Interest to Farmers.

PLANTER.—E. B. WINSHIP, Rushville, Ind. One of the objects of this invention is to provide a simple, strong, and efficient planter having a frame provided with drill teeth and supported upon a wheel, and having means for automatically elevating the frame at predetermined intervals in order to free the drill teeth from weeds and the like.

HAY RAKE AND TEDDER.—K. M. ELLIS and E. E. ELLIS, Greeley, Iowa. The purpose of the invention is to provide a construction by means of which the hay is raked to the right-hand side of the implement and left in a windrow, and the tedders automatically act upon the windrowed hay and move it over to the right, leaving the hay in a most convenient position for the loader, enabling a loader to take up the hay without looping back over a portion of the ground that the rake has already covered.

Of General Interest.

ANIMAL-TRAP.—H. TURNER, Richmond, Va. The object of the invention is to furnish a device adapted to be placed over the hole in the floor or ground through which the animal makes its entrance, and whereby the animal may be captured, or if not, prevented from entering the room. The device is likewise adapted to be placed against the wall and surround an opening therein in the same manner as when used in connection with a hole in the floor or ground.

SHAVING-BRUSH AND SOAP-HOLDER.—M. SCHMITZ, Schenectady, N. Y. This brush and holder is more especially designed for travelers' use, and is arranged to utilize the handle of the brush as a casing for the holder carrying the soap stick, and to allow of projecting the soap stick the desired distance beyond the handle for rubbing the stick over the face to be lathered.

Hardware.

WRENCH.—E. H. BOAZ, Benbrook, Texas. The object of the improvement is the provision of a wrench arranged to combine simplicity with strength to permit convenient gripping, turning, and releasing of different sized nuts or other articles, and to allow of screwing the nut any distance along a bolt without removing the wrench from the nut.

MAIL-BAG LOCK.—R. E. REDDING, Marion, Ala. The intention in this improvement is to provide a lock having novel features of construction, which adapt it for a locked engagement with a constricting strap passed closely around the closed neck of a mail bag or pouch, and thus prevent access to the contents of the receptacle until the lock is opened with a suitable key.

Household Utilities.

LARDING-NEEDLE FOR MEAT.—P. HUSS, Lakewood, N. J. This invention comprises a tapered tubular body to receive a larding strip, and a removable tapered tip constituting a plug for the forward end of the body, the butt end of the latter being open whereby the end of the strip may project and be withdrawn when the needle is forced through the meat.

CLOTHES-LINE HOLDER.—H. FALVEY, New York, N. Y. The aim of this improvement is to provide a line holder comprising a trough-shaped sheet-metal arm having a sheave journaled in a trough of the arm near each end thereof, and means for pivotally attaching to the arm intermediate sheaves whereby it is adapted to swing in a substantially vertical plane.

BED.—H. F. NEHR, New York, N. Y. One of the purposes of the invention is to provide a divisional bed or a bed the spring-sustaining portion whereof is in two sections removably mounted and capable of being brought together to form a double bed, or separated to constitute two single beds with a space between them, thus rendering the bed sanitary.

DUST-REMOVING APPARATUS.—H. BOGENSCHILD, Berlin, Germany. In this patent the invention relates to brushing and scrubbing, and its object is to provide a new and improved dust-removing apparatus for use in domestic and industrial purposes, such as cleaning carpets, upholstered furniture, tapestries, hangings, curtains, walls, wall papers, printing types and fonts, etc.

Machines and Mechanical Devices.

HOP-PRESS.—C. KUENSTING, Woodburn, Ore. This press is designed especially for the baling of hops, but applicable also to other uses. The invention provides a press which is easily portable, conveniently loaded, of simple construction, without large metal castings, and of a graduated power apportioned to the increased compression strain as the follower compresses the bale.

POWER TRANSMISSION. — D. M. LE BARON, Amos, Nevada. In this instance the invention refers to wind motors, and its object is to provide a power transmission, more especially designed for use on wind mills, and arranged to utilize the power of the wind mill for pumping water in both light and strong winds.

GEARING.—J. J. P. BOATMAN, Blaine, Wash. An improved cone is provided in this system of gearing. It is easy to adjust the cone on a shaft to compensate for wear. A collar is provided with a setscrew whereby it may be fixed with respect to the shaft, is connected to the smaller disk by means of screw threaded rods, secured to the disk, and traversing openings in the collar. Lock nuts are arranged upon a screw threaded rod upon each side of the collar, whereby to secure the cone in its adjusted position. When the cone becomes worn the nut locks are loosened and the cone is adjusted, after which the lock nuts are again tightened.

Pertaining to Vehicles.

SPROCKET-CHAIN.—R. S. MCINTYRE, Riverside, Cal. The present specification is a division of the original one claiming this invention, formerly filed by Mr. McIntyre. The object is to produce a chain constructed with a special view to preventing its becoming dislodged from the sprocket wheels over which it runs, without in any way detracting from the efficiency of the chain in operation.

Railways and Their Accessories.

RAIL-JOINT.—L. A. BUNDY, Atlanta, Kan. The direction of the present invention is to improvements in rail joints, preferably embodying features of construction of a rail joint for which Letters Patent were formerly granted to Mr. Bundy. Among the objects is the provision of a rail connection that will insure a smooth road with no low joints, and in which the joints will be held against any accidental lateral displacement.

MAIL-BAG CATCHER AND DELIVERER.—A. D. WALTON and C. H. ANTHONY, St. James, Mo. The device is such as used for passing the mail bags to and from express trains as they pass post-offices located on the railway line. Two bags can be hung upon the holder at once and can be as readily caught or delivered as one bag. The fact that both catchers are reversible, enables them to operate with trains passing in either direction.

AUTOMATIC SAFETY APPARATUS FOR RAILWAYS.—G. E. RYAN, New York, N. Y. The use of automatically-operated track devices which are set by trains as they pass, is sought by this inventor. In this way each train as it proceeds maintains a track device in a set position at a suitable distance in its rear. A following train cannot pass this track without having its power automatically cut off. In this way rear-end collisions are prevented.

Pertaining to Recreation.

GAME-BOARD.—O. FALKENBERG, Baltimore, Md. The object of the invention is to produce a game board for playing a parlor game which will afford amusement and instruction to the players. The game involves the use of a map upon which routes of travel are indicated and involves also the element of chance, brought in by the use of dice.

Designs.

DESIGN FOR AN ORNAMENT.—J. W. TALBOT, South Bend, Ind. This ornamental design is embodied in the figures of three owls, perched upon a branch and facing to the front, each bird bearing the letter O upon its breast.

DESIGN FOR A CLOCK-STAND.—W. T. HOPSON, New London, Conn. The design embodies a circle around the face of the clock, with the lower part spreading at the base and terminating in feet. The entire exquisite ornamental effect is produced by scroll patterns which surround the dial frame and inclose two cupids suspended under the frame.

DESIGN FOR A DOLL.—S. KAHN and W. REIZENSTEIN, New York, N. Y. The design in this case shows a doll dressed in fur or like material from the top of the head to the feet. A hood tied under the chin gives the doll a complete Esquimau garment or outfit.

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

HINTS TO CORRESPONDENTS.

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References to former articles or answers should give date of paper and page or number of question.

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(10625) A. C. asks: What size lens would be required to melt gold by focusing the sun's rays, if the focus would be ¼ inch in diameter? A. A mathematical answer to the question could not be made, unless all the conditions could be definitely assigned. The altitude of the sun above the horizon at the time is the most important of these, while the optical condition of the atmosphere is a close second. The amount of carbon dioxide in the air of the place, it has recently been determined, exercises a very powerful absorptive influence upon the heating value of the solar rays. On the other hand, the temperature to be reached by a metal depends upon the ratio of its absorbing and radiating power, and the time during which the heat is applied. In the open air a substance might be able to radiate heat so rapidly as not to melt at all, but would maintain a constant temperature, radiating as much heat as it received. If a mathematical calculation is to be made, it may be based upon the accepted assumption that the vertical sun is able to melt an inch of ice (more accurately, 24.7 millimeters) in an hour. The calculation may also be made from the statement that 3 horse-power is received on every square yard exposed to the vertical rays of the sun. We are not able to say what the diameter of the smallest lens is, which is capable of producing a temperature equal to that of the melting point of gold, or a temperature of 1,080 deg. C., equal to 1,976 deg. F., but Ganot's "Physics" contains the statement that a plano-convex echelon lens, 2 feet in diameter, has melted gold, platinum, and quartz. This would indicate a temperature nearly or quite equal to that of the electric arc, from 6,300 to 7,000 deg. F., if quartz was actually melted by it. If we wished to solve this question we should take a lens of this size and reduce its opening by diaphragms until the smallest opening was found at which gold would melt.

(10626) J. F. K. asks: Will you kindly give me the following information or tell me where I can get it? 1. Roughly speaking, what is the combined mileage of the different railroads in the United States, not counting the switches, side tracks, etc.? A. The combined main track mileage of the railroads of the United States is 218,018 miles. 2. What is the average distance the ties for same are supposed to be placed apart? A. The ties are placed at an average distance apart of 24 inches (between centers). 3. What is the approximate cost of the wooden ties now in use? A. Wooden ties have approximately doubled in cost in the last decade, and the cost varies greatly with the quality, which of course for railroad purposes means durability. A tie with a life of five years may be said to cost in round figures a dollar, and preservative treatment with the addition of tie-plates and the substitution of bolts for spikes may bring its cost up to $1.65, but the life of the tie so treated may be approximately tripled, thus effecting a saving of 7 or 8 cents per annum per tie. 4. What is the average cost of the metal ties that have been used up to the present time? A. The metal ties used in this country cost from $2.50 to $3.25, the principal railroads experimenting with them from 1889 to 1899 reported emphatically against them, and the general railroad practice in this country goes to show that better results can be obtained by the preservative treatment of wooden ties. In Europe, where less wide distribution of population gives greater proportionate funds for attention to permanent way, the use of steel ties is constantly increasing, and the best opinion and experience go to show that the use of well-made steel ties properly laid (not in marshy ground or badly drained roadbed) will effect a great saving in renewal and maintenance labor, the ties having a life of thirty years and upward. We have no figures as to the number of steel ties in use here; you might obtain the information by writing to the United States Forestry Division, which has made a study of the question with reference to forest depletion by the use of wooden ties.

(10627) C. A. E. writes: We would like to inquire if common black gas pipe could be coated with a babbitt metal in such a way as to withstand copper and sulphur water in a mine or other places where it would come in contact with same. We would like to prepare some pipe and dip in a preparation that would ahere to the pipe inside and out, so as to make same more serviceable in a mine. We have enameled same, but find it is too easily chipped off. Galvanizing does not protect much better than ordinary black pipe. A. There are various acid-proof paints of which you can obtain particulars by writing to any paint and enamel dealer, but we doubt if you will find any of them better than asphaltum. The latter should be of such quality as to be fairly elastic when cold, softening but little at 100 degrees Fahrenheit, and should be heated to about 550 degrees before the pipe is dipped into it. The pipe should be warm and *thoroughly dry.*

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending October 1, 1907.

AND EACH BEARING THAT DATE

[See note at end of list about copies of these patents.]

Account and shipping pad, C. B. Sperry.... 867,316
Accumulator plates, preliminary treatment for, H. Leitner.... 867,517
Advertising device, J. W. Fawkes.... 867,562
Air brake coupling device, C. B. Koehler.. 867,280
Air brake safety valve, T. Behan.... 867,234
Air brake system, H. N. Ransom.... 867,533
Amusement apparatus, A. Hermann.... 867,506
Animal trap, O. D. Wright.... 867,546
Ash receptacle and cigar holder, C. G. Davis 867,250
Automobile heating appliance, P. P. Hofmann.... 867,271
Automobile sleigh, W. C. Mielke.... 867,285
Automobile sleigh, F. Hartje.... 867,503
Automobile steering gear, W. W. Macfarren.... 867,282
Axle, vehicle, S. C. Wagner.... 867,454
Axletrees and naves, wedge connection between, C. von Bechtolsheim.... 867,468
Bag lock, Hiering & Fuller.... 867,260
Baking machines, means for supplying fluids to, T. O. Bates.... 867,229
Band and fastener combined, J. S. Mark... 867,518
Barrel or bag emptying device, W. Neef... 867,292
Bath tub and sprinkler attachment, O. C. Brant.... 867,343
Battery plate or grid, storage, J. Marx.... 867,391
Bearing for separator spindles, step, J. T. Shields.... 867,426
Bearing shaft, J. P. Karns.... 867,511
Beehive, C. D. Barnes.... 867,337
Bees from supers when taking surplus honey, means for clearing, J. H. Rupe 867,423
Beets, refuse separator for, Noble & Wietzer.... 867,293
Belt shifter, S. R. Bailey.... 867,466
Berth raising mechanism for railway cars, G. H. Poor.... 867,409
Berths, device for locking the drums of sleeping car, G. H. Poor.... 867,410
Binder, loose leaf, A. Opalla.... 867,526
Bleaching of cotton, electrolytic, A. A. Vogelsang.... 867,452
Blind slat fastener, W. W. Winslow.... 867,469
Block. See Building block
Block machine, J. R. Harbeck.... 867,361
Block signal apparatus, F. C. Williams.... 867,329
Block signaling system, automatic, D. J. McCarthy.... 867,563
Blotter pad, thumb carried, F. P. Childress 867,479
Boat, submarine, W. J. O'Haire.... 867,294
Bobbin holder, W. G. Ragsdale.... 867,532
Boiler incrustation, means for preventing and removing, A. J. Simmons.... 867,430
Booth, election, W. H. H. Hill, Sr.... 867,371
Bottle, J. C. Hizar.... 867,372
Bottle washing machine, D. E. Shaw.... 867,310
Brake mechanism, R. J. McIntyre.... 867,400
Brake mechanism, beamless, J. B. McKiel. 867,401
Bridge construction, J. M. Carroll.... 867,477
Buckle, rope, C. W. Baker.... 867,467
Buggy wrench, E. I. Allison.... 867,334
Building block, F. M. Sawyer, reissue.... 12,698
Building construction, L. K. Davis. 867,251, 867,252
Button attaching device, C. H. Dome.... 867,352
Button, cuff, J. Pejchar.... 867,529
Camera, panorama, Muller & Klein.... 867,396
Camera, photographic, L. Borsum.... 867,278
Can heading machine, J. Brenzinger.... 867,472
Car brake, Jett & Palmer.... 867,376
Car heating apparatus, fruit, E. E. Gold... 867,266
Cars, attachment for preventing telescoping of, F. Hedley.... 867,367
Cars, device for raising the boxes of railway, Bentley & Miller.... 867,549
Cars, means for raising the boxes of railway, W. F. Bentley.... 867,550
Cars, pipe connection for railway, H. F. Pope.... 867,530
Carbonating apparatus, J. H. Fox.... 867,356
Carriage and high chair, combination baby, J. L. Bacon.... 867,465
Carving machine, F. H. Richards.... 867,414
Casket handles, swelled bar for, N. L. Barmore.... 867,336
Casting patterns, production of, F. Walenta 867,541
Cement gate mold, Shively & Huber.... 867,427
Chandelier, F. A. Burton.... 867,555
Cigar clipper and match box, T. H. Davies 867,253
Clip or holder, J. W. L. Todd.... 867,449
Closures, fastener for edgewise moving, D. Schuyler.... 867,537
Clothes pin, W. E. Faulkingham.... 867,489
Clutch, friction, J. F. Harrison.... 867,502
Coats, label attachment for, C. S. Smith. 867,433
Coffee grains or beans, machine for separating and grading, J. Jenkins.... 867,276
Coiling machine, M. C. Lovejoy.... 867,390
Coin testing machine, M. D. Sadtler.... 867,304
Container top, J. R. Harbeck.... 867,500
Control system, E. R. Carichoff.... 867,476
Controller handles, locking mechanism for, A. S. Cubitt.... 867,482
Conveyer, gravity, A. S. Dehler.... 867,350
Copy holder, C. C. Price.... 867,301
Corset, J. G. Drennan.... 867,487
Cotton chopper, J. S. Murray.... 867,397
Cotton cleaner and condenser, E. Reagan.. 867,535
Cuff, shirt, T. D. MacGregor.... 867,524
Cultivator, W. E. Johnson.... 867,378
Curbing, S. W. Lerch.... 867,388
Current motor, water, C. H. Willard.... 867,459
Curtain draper, J. Kaufmann.... 867,379
Cut outs, filling for thermal, F. H. Weston 867,543
Cylinder press, single plate, H. F. Bechman 867,231
Dehydrating apparatus, E. W. Cooke.... 867,246
Delivery mechanism, W. & D. J. Scott.... 867,424
Dental implement, C. S. Evans.... 867,264
Die. See Tapping die.
Die press, A. J. Thomson.... 867,540
Digger or scraper, C. H. Gunn.... 867,499
Door, combination, H. Thomas.... 867,446
Door hanger, O. F. Mann.... 867,283
Door hanger, O. A. McFadden.... 867,523
Dredge, hydraulic, C. A. Frayer.... 867,492
Drying the interior of vats, etc., means for, J. H. Beckman.... 867,548
Duplicators, diaphragm for, M. J. D. Carter 867,345
Dyestuff, vat, Schirmacher & Deicke.... 867,305
Dyestuff, vat, Schirmacher & Leopold.... 867,306