

### RECENTLY PATENTED INVENTIONS. Pertaining to Apparel.

**SKIRT GAGE AND MARKER.**—EMMA A. HOWARD, Colorado Springs, Colo. The object of this invention is to provide a gage and marker arranged to permit accurate obtaining of the intended bottom line on the skirt without assistance, and to permit of marking the skirt for folds, tucks, and trimmings. An initial row of pencil marks is laid out by the use of a specially constructed marking device on the dress, a short distance down from the waist line and while the dress is worn by the woman for whom it is intended, and then a bottom line of marks and along which line the dress is finished as to its length.

**METHOD OF OBTAINING THE CORRECT LENGTH OF SKIRTS.**—EMMA A. HOWARD, Colorado Springs, Colo. In this case the method consists in first producing a row of marks on the skirt at about the hip line and at a uniform distance from the floor while the garment is supported on the wearer, and after the skirt is removed, producing a second row near the bottom a uniform distance from the first row. The invention relates to dress-making, and enables a woman without assistance, to obtain the correct length of a skirt for her own use, and also permit of marking the skirt for folds, tucks, and trimmings.

**SHOE.**—C. F. HELFLINGER, Taylor, Wash. The purpose of the inventor is to provide details of construction for a shoe, adapted to wear by persons of either sex, which enables the donning of the shoe in a speedy and convenient manner, and its removal readily when desired. It will fit snugly, will be waterproof at the closure joints thereof, and may be quickly secured by a shoe string without tying the latter.

### Electrical Devices.

**UNDER-GROOVED TROLLEY-WIRE.**—L. SREINBERGER, New York, N. Y. The contact face of the wire which is protected from weather, has a plurality of bearing surfaces insuring contact of considerable area. The wire can be readily substituted for other kinds. The wire is made up from a minimum of metal for the amount of contact surface. It is of a conformity which enables it to be readily suspended from clips; its shape is such that the trolley easily engages it, and the trolley wheel cannot be readily misplaced from the wire when once in contact therewith.

**THIRD-RAIL INSULATOR.**—L. STEINBERGER, New York, N. Y. The more particular object of this inventor is to provide an insulator suitable for use in connection with third rails and in analogous relations where heavy conductors are employed. Among many advantages, one is in the provision of an insulated rail support presenting a relatively small mechanical contact surface to the rail, thereby allowing the rail free movement and avoiding the possibility of the rail binding on its support by rusting, freezing or otherwise, and thereby bending or breaking it.

**SHEAVE.**—F. JONES, C. M. BROWN, J. S. FLEMING, and W. L. McDONALD, Plymouth, Ohio. In view in this case is a sheave provided with a grooved rim substantially centrally divided on a plane at right-angles to the axis, forming the entire rim into two separable half sections, each rim section having an internally-projecting flange, a hub portion, and means carried by the hub portion, separable therefrom and from the rim, and having marginal openings engaging flat against the outer surface of the flange of each rim section, forcing the inner faces of these flanges together.

**TROLLEY.**—A. S. JANIN, New York, N. Y. This trolley has a collapsible diamond-shaped frame, spring and pneumatically operated, and so designed that it will readily operate at all times, especially when used in high speed work and with heavy traffic. The trolley is under complete control of the motorman, and will not leave the wire without being purposely withdrawn.

**DRY-BATTERY CELL.**—W. S. DOE, Jersey City, N. J. The object here is to provide certain improvements in dry battery cells, whereby the exciting fluid usually discharged from the battery filling when the battery is in use is stored and reused when in an effective manner, to increase the life of the battery and to render the same very effective at all times.

### Of Interest to Farmers.

**COTTON-CLEANER.**—S. WILLIAMS, Texola, Okla. There is provision here for a device in which seed cotton in various states of cleanliness can be treated and then passed directly into the gins. It is a well known fact that the less the cotton is handled to put it into condition for the spinner, the better, since in the various cleaning operations, the fiber is apt to get broken, thereby impairing its usefulness.

**CORN-HUSKER.**—H. S. BLAIR, Bucyrus, Ohio. The aim of the improvement is to so connect the hook with the palm plate, that it may be moved from side to side and turned to varying angular positions within certain limits and secured to the plate in any position of its adjustment within these limits, whereby it may be relatively disposed on the palm plate to suit the motion of the user.

### Of General Interest.

**AUTOMATIC PIANO.**—F. R. GOOLMAN, Binghamton, N. Y. The purpose of the invention is to provide a piano, and means electrically operated or operated by a coin, whereby to set the instrument in action, the piano acting automatically to complete any tune commenced. Further, to provide a device attachable to any piano of any type, which will render the action of the piano automatic.

**DRY MEASURE.**—G. W. LYONS, Grand Rapids, Wis. This measure is for use for measuring vegetables, cereals, and like goods, and permits convenient filling of the measure from the top with goods, and at the same time the measure is hung from a barrel or like vessel, containing the goods, or to allow filling the dry measure from the bottom when measuring cereals contained in a bin, barrel, etc., and convenient discharge of contents of the measure by way of the bottom.

**SHEET-METAL VESSEL.**—J. HÖLAND and K. J. HALLELAND, Stavanger, Norway. This invention is an improvement in sheet metal vessels more especially constructed for containing preserved foods, and has in view the provision of a seam between the can body and can head such that the can will be hermetically sealed without the use of solder and along which seam the can head and body are readily separable.

**METHOD OF EXTRACTING TREES AND STUMPS FROM THE SOIL BY MEANS OF EXPLOSIVES.**—G. HUNTER, Victoria, British Columbia, Canada. The object of the invention is to so bind a tree or stump that when an explosive is used for its removal in the ordinary way, by putting it into a hole under the tree or stump, it will direct the expanding gases downwardly to expend their energy on and about the roots, thereby extracting them in their entirety without unnecessarily tearing the tree apart.

**PIPETTE ATTACHMENT.**—A. E. HUTCHINSON, Victor, Colo. This invention is directed to improvements in pipette attachments, embodying a construction easily operable to draw into the pipette when applied thereto, any required quantity of liquid and eject the same when desired. The operation is such that the admission of the liquid to the pipette can be gaged with minuteness, making the invention particularly desirable where precision is required.

**SELF-PROPELLED TORPEDO.**—A. E. JONES, Plume, Austria-Hungary. The object in this instance is improvements in torpedoes, and relates more particularly to the automatic expulsion of the leakage water, by utilizing the sinking valve itself, and also the protection of the gyroscope and its accessory parts from the harmful action of the said leakage water.

**CONTROLLING-VALVE.**—E. ENGREBRETSON, Devil's Lake, N. D. The valve is adapted for operation in a substantially automatic manner for controlling the supply of tensional fluids; and the object of the inventor is to provide a valve having adjusting means whereby its position may be varied relatively to the ports controlled by it, independently of the parts in connection with which the valve is used.

### Hardware.

**SHUTTER-HINGE.**—J. B. WRIGHT, Greensboro, N. C. In this hinge the leaves are reversible with respect to each other, thus permitting the hinge to be applied at either side of the blind or shutter. In opening a shutter provided with this hinge, it is not necessary to lift the former, and the shutter is securely locked in its open position. To close the shutter the yoke connected with the hinge is lifted, thus freeing the shutter and permitting it to swing in closed position.

**SAFETY-RAZOR.**—C. GRABHORN, Hoboken, N. J. The intention of the improvement is to provide a razor, arranged for use in quickly folding the parts into an exceedingly small space when the razor is not in use, and when folded the razor can be conveniently and safely carried in a vest or other pocket, and when extended is ready for use for its legitimate purposes.

**LOCK.**—A. M. H. DE BRUYCKER, New York, N. Y. The object of the invention is to provide a lock having a bolt formed of hook members, capable of being moved in the direction of their length and adapted to be spread apart to engage the keeper with the hook ends, thus holding the bolt pivotally against retraction unless actuated by the proper key.

### Heating and Lighting.

**OIL AND GAS FURNACE.**—J. W. RUSSELL and T. E. NEYLON, Renovo, Pa. The furnace is adapted for using oil or gas as a fuel for heating bars, frames, or other parts of iron construction, and particularly for welding engine frames. The chief object in view is the production of a furnace distinguished by strength and economy of construction, and in which refuse oil may be burned with efficient result.

**GAS-FIXTURE.**—A. JARMOLOWSKY, New York, N. Y. The invention contemplates a tubular gas lighter in communication with the valve casing and revoluble and vertically movable around the several lights fed from the casing, the lighter having a valve within the

casing adapted to seat on the gas inlet and thus operate to simultaneously extinguish all lights. It has reference to improvements for which Letters Patent were formerly granted to Mr. Jarmolowsky.

### Household Utillities.

**INDICATOR.**—W. SCHNITZSPAN, New York, N. Y. In this patent the object primarily is to improve and simplify the construction of the present form of indicator, especially the hands or pointers employed, which are made of springy sheet metal and bent into a novel shape insuring against any accidental displacement from looseness when assembled.

### Machines and Mechanical Devices.

**TANNING-MACHINE.**—F. H. YOCUM, London, Ontario, Canada. The tanning is attained by alternately dipping the hides into and removing them from a vat of liquor, and in so arranging the hides that they will pass through and emerge from the liquor in a separated condition, but while out will be in a packed condition, which assists in expressing the liquor from the hides, thus subjecting them to an alternate injection and expression, to cause the liquor to more easily enter their pores, and to change the liquor at frequent intervals.

**CONTROLLING DEVICE FOR ELEVATOR-BRAKES.**—W. H. C. BRENNER, Poughkeepsie, N. Y. The purpose of this improvement is to provide details of construction for a brake rope controller, whereby the rope will be pulled upon by the upward travel of the elevator platform, and automatically stop the platform at a desired point, that will render the platform level with the floor of the building in which the elevator is installed.

**TRIMMER FOR LOOPERS.**—W. J. STEERE, Rockwood, Tenn. The object of the invention is to provide a trimmer forming a permanent attachment for a looper and arranged to accurately cut off the surplus material above the loops held on the looper points, to direct the surplus material from the machine, and to remove all lint or other extraneous matter from the seam of the knit fabric.

**MACHINE FOR CALKING HORSESHOES.**—G. H. SMITH, Great Falls, Mont. The invention in this case is to produce a machine which can be operated so as to effect the operation of inserting calks in horseshoes, threading the shoes, and also providing means for holding the shoes, while the machine is operating upon them. It can be also used to remove worn calks from shoes which are being repaired.

**TREADLE MECHANISM.**—H. W. LODER, New York, N. Y. The aim of this inventor is to provide a mechanism for use on sewing machines and the like, and arranged to permit convenient and quick adjustment of the treadle, to suit tall or short persons, with a view to enable the same to actuate the machine with the least physical exertion and with the greatest comfort.

**KNOTTER FOR COP-WINDING MACHINES.**—S. J. MARTIN, Saltillo, Mexico. In cloth factories where cop winding machines are employed, it is necessary to join the ends of the thread to be wound on the cops, which operation is usually performed by hand by tying the ends together. This is a slow and tedious operation, the knots frequently coming untied, or the ends of the thread beyond the knot are not of uniform length. The attachment ties the knots in a safe and rapid manner with a uniform length of ends.

**AUTOMATIC SCALE.**—A. H. AUSTIN, New Rochelle, N. Y. The device is so constructed that when set to the required weight, and a feed mechanism interposed between the hopper and the scale pan has been adjusted, the material will pass freely from the hopper to the pan until the required weight has been obtained, whereupon the supply of material from the feed mechanism is automatically reduced until when the weight has been obtained the feed mechanism is automatically completely cut off, the controlling factor being electricity.

### Railways and Their Accessories.

**SAFETY APPLIANCE FOR RAILWAY-CARS.**—R. BELDEN, Spanish Ranch, Cal. One purpose of this inventor is to provide an appliance for use for railway cars, or trains of cars, that will act to effectually prevent the cars leaving the track, particularly at abrupt curves, and will also serve to prevent the flanges of the car wheels from having undue frictional engagement with the rails.

### Pertaining to Recreation.

**ROLLER-SKATE.**—T. S. PACIE, Chicago, Ill. The present invention has for its purpose to provide for a movement between the foot plate and rollers with greater ease, and also for the convenient removal and renewal of the cushion, as well as produce a stronger construction. This is accomplished by placing the cushion between the foot plate and roller spindle and pivotally connect these parts in a way such that the opposite ends of the spindle are adapted to swing to and from the foot plate against the action of the cushion.

**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.



Kindly write queries on separate sheets when writing about other matters, such as patents, subscriptions, books, etc. This will facilitate answering your questions. Be sure and give full name and address on every sheet.

Full hints to correspondents were printed at the head of this column in the issue of March 13th or will be sent by mail on request.

(12067) H. D. R. asks: My friend claims that when ice is freezing in a river or pond, it first freezes in small particles "of ice" down in the water near the bottom, and then rises up to the surface and freezes solid, and I claim that it does not. Who is correct? A. Ice does not form below the surface of water and rise to the surface. Water at 39 deg. is heavier than at any other temperature. As water cools below 39 deg. it remains on the top, and the water at the surface is colder than anywhere under the surface after 39 deg. is reached. Hence water first reaches 32 deg. at the surface, and ice forms there.

(12068) J. A. B. asks: In carefully reading "The Forms of Water," by John Tyndall, I find the following startling statement (Sec. 56, page 153): "Hence to convert one pound of tropical ocean (water) into vapor the sun must expend 10,000 times as much heat as would raise one pound of iron one degree in temperature. This quantity of heat would raise the temperature of 5 pounds of iron 2,000 degrees, which is the fusing point of cast iron; at this temperature the metal would not only be white hot, but would pass into the molten condition." Can this be actually true? If so, would it not be safe to say the quantity of heat generated in the kitchen stove to thoroughly cook a 7-pound potroast, where more than a pound of water is converted into the form of vapor, would be sufficient to melt 5 pounds of cast iron? Would any rational person believe you? Why would not this enormous quantity of heat melt down the top of the stove? A. The statement you quote from Tyndall's book is undoubtedly true. It is explained by the well-known phenomenon of the latent heat of steam—the amount of heat required to turn a pound of water at 212 deg. into steam at the same temperature. The amount of heat required to boil your pot would undoubtedly burn up the top of the stove if it could be sufficiently condensed both as regards time and space, i. e., if it were not being constantly radiated away by the large surface of the stove, used up in boiling the water, etc. 2. Again, in a recent article on the Panama Canal in the SCIENTIFIC AMERICAN, one objection made to a sea-level canal was that the rush or flow of water caused by the 10-foot difference in the level of the two oceans would have to be taken into account. Now I thought that the old "difference in level" doctrine had long been disposed of, and that the mean sea level was the same on both sides of the Isthmus of Panama. No doubt the writer referred to the tide, but he did not say so, neither would his article suggest the tide at all, as the cause of the difference in level. What is the maximum of high tide at Panama or Colon? And which direction would the tide take through the canal, were a sea-level channel to be made? A. The "doctrine" of the difference of level between the oceans at Panama has not yet been "disposed of." It is a little difficult to dispose of a physical fact of a few million square miles of ocean with a surface 9 feet higher than that at the other end of the canal. The difference of level referred to is caused by tide; it does not cease to be a difference of level on that account. The current through the canal would be nothing very serious; 9 feet head in 42 miles is not much; but in conjunction with a number of other conditions, the filling up of a sea-level canal by detritus from the Chagres River, etc., the daily reversal of a flow of that extent is a matter for serious consideration. The mean sea level is approximately the same at both ends of the canal, but the amplitude of the tide has a maximum of 2 feet at Colon and of 20 feet at Panama. That is to say, supposing the tides to synchronize, low-tide level at Colon may be 9 feet higher than low tide at Panama, and high tide at Panama 9 feet higher than high tide at Colon. The flow from one end to the other of a sea-level canal would be reversed with each mean tide.

(12069) E. G. de C. asks: I beg to refer to you for elucidation a certain point in engineering, feeling certain that you will help me with your kind assistance. Two eccentrics are hitched on to a slowly-revolving shaft, 2 r. p. m. The eccentrics are respectively 4 inches and 8 inches in diameter. To each is attached a rod, connected at the opposite end to a sliding plate, which moves in a horizontal plane. Each plate is perforated with a slot, 4 inches long and 1/4 inch wide. The length of the slot is at right angles to the plane of motion. The slots are so regulated that at the end of each stroke of the eccentric, each slot is exactly under a corresponding slot of the same size, which opens the tapering end of a hopper full of sand,