

RECENTLY PATENTED INVENTIONS.

Pertaining to Apparel.

ABDOMINAL REDUCING-CORSET.—S. BURNSTEIN, New York, N. Y. The more particular purpose of the invention is to provide a type of corset having portions, the general diameter of which can be contracted by degrees, and also having an auxiliary flap adapted to occupy different positions representing different diameters for the corset and provided with appropriate means located with reference to the position of this auxiliary flap.

Electrical Devices.

INSULATOR.—C. ROSENBERG and V. T. BAILEY, New York, N. Y. In the present patent the invention is an improvement in insulators such as used in connection with incandescent electric lamps, and has for its purpose to relieve the binding screws or posts of the strain incident to the stringing and the stretching of the wires.

TERMINAL FOR ELECTRIC WIRES.—B. MORGAN, Newport, R. I. The object of the invention is to provide a form of tip, whereby the liability of the tip becoming detached from the conductor is reduced to a minimum, in which extensive contact is made between the conductor and the tip, and in which the latter may be readily secured to or detached from a binding post or the like, without the aid of any wrench, clamp, or other tool.

REGULATION OF THE PERIOD OR INDUCTANCE OF HIGH-FREQUENCY CIRCUITS.—G. FERRIE, 51 bis Boulevard de La-tour Maubourg, Paris, France. The invention consists in providing in proximity to the inductance windings other conductors, preferably surrounding said windings and in short-circuiting a portion of such other conductors, the inductance being regulated by varying the relative position of the inductance windings and surrounding conductors and the position of the short circuit.

Of Interest to Farmers.

VENTILATOR FOR HEN-HOUSES OR BROODERS.—G. H. LEE, Omaha, Neb. While the ventilator is intended to be used particularly in connection with brooders and hen houses, it is capable of general use as a ventilating device, that is, where an inner compartment or chamber is to have its air refreshed through communication with the outer air.

WAGON-BODY AND HAY-RACK LIFTER.—W. C. WILSON, Livermore, Iowa. The invention consists in an improved construction of wagon body lifter, in which special provision is made for bringing down the body in proper relation to the running gear when it is to be reconnected, thus avoiding all heavy lifting and making the reconnection of the wagon body to the running gear automatic as well as its disconnection from the running gear.

BEEHIVE-CARRIER.—A. C. BROVALD, Finley, Wis. In this patent the wheel barrow is equipped with novel grasping and holding devices for the hive. The centers are so arranged that when the barrow is brought to an approximately upright position adjacent to the hive, certain members on which the hive rests are centered beneath the same; whereupon the arms for grasping the hive and which are manipulated from a point near the handles are brought into proper position to securely engage the hive and properly supported in the barrow when transported.

Of General Interest.

SAFETY-RAZOR.—T. F. CURLEY, New York, N. Y. The object of this inventor is to provide a razor arranged to permit of conveniently placing the blade into accurate position on the frame or holder relative to the guard thereof, and to provide a back plate for giving the desired rigidity to the blade and which back plate can be readily opened or closed and securely locked in place when in a closed position.

HOSE-NOZZLE.—F. J. RADLER, Jersey City, N. J. The connections of this nozzle are particularly adapted for use with hose on fire water-towers, stand-pipes and the like, the object being to provide a nozzle with connections whereby it may be readily turned in various directions, the connections being so constructed that no leakage can occur at the joint.

PROCESS FOR THE MANUFACTURE OF RESINOUS PRODUCTS CAPABLE OF REPLACING NATURAL RESINS.—L. GROGNOT, 18 Rue Labat, Paris, France. Phenols have the property of combining with the aldehydes under the influence of catalytic agents (such as mineral or organic acids, alkaline or other bases) for forming the various resins analogous to the natural resins in their properties. Nevertheless the action of these catalytic agents is difficult to control and beyond what is required. The present process avoids this defect.

MOLDING-FASTENING.—A. C. GODDARD, New York, N. Y. Metal doors, windows, and other similar structures are comprised in this invention, and the object is to provide a fastening for securely fastening molding and like parts in place without the use of screws, rivets or similar fastening devices, and without showing the fastening means on the outside of the molding or marring the exterior face thereof.

SHAVING-SOAP CAKE.—L. C. BENITZ, Philadelphia, Pa. A conical cavity is worn down by the brush in the center of the top

of a soap cake, and the shaving brush finally comes in contact with the bottom of the cup in which the cake is held, and at last there remains nothing of the cake save a thin ring which soon breaks up into pieces or sections that are thrown away and thus wasted. The invention provides a cake of improved shape that will wear so as to avoid the loss incident to the use of the old form.

WATER-STORAGE SYSTEM FOR USE IN EXTINGUISHING FIRES.—L. H. SONDEHEIM, New York, N. Y. The object here is to provide a system whereby water may be stored in such manner as to be available in the event the usual water supply should fail, as for instance, by the breakage of the water mains by earthquake shock, or such a temporary reduction of the normal pressure occurs in the mains at a given point as to cause an inadequacy in the supply.

WOVEN FABRIC.—H. SARAFIAN, Yonkers, N. Y. The aim of the invention is to provide a woven fabric, which is soft in tread, and provided with an exceedingly strong yet flexible back, thus rendering the fabric very serviceable for use as a carpet, rug or the like. It relates to fabrics such as shown and described in Letters Patent formerly granted to Mr. Sarafian.

Hardware.

COMBINATION-TOOL.—W. WRIGHTSMAN, Evansville, Ind. This tool embodies a center punch, a try-square and a linear scale. An object of the invention is to produce a device having a center punch, and arranged so that when it engages a body of circular cross-section in a suitable manner, the center punch can be positioned at the cross-sectional center of the body.

Heating and Lighting.

BOILER-FURNACE.—J. O'NEILL, New York, N. Y. The intention in this instance is to provide a furnace, more especially designed for water-heating systems, and arranged to utilize the heat from the burning fuel to the fullest advantage, to render the furnace exceedingly strong, and durable by constructing the same mainly of sheet metal and brickwork and to allow convenient cleaning of the furnace of soot whenever desired.

Household Utensils.

STRAW-BURNING STOVE.—H. C. RUGGLES, Moro, Ore. The invention relates to stoves for use in burning a highly combustible substance as hay or straw. The aim is to produce a stove which is simple in construction and provided with improved means for insuring a good draft and for controlling the draft.

WASHBOARD.—LOUISE H. PERCY, Philadelphia, Pa. The invention has in view the provision of means for supporting the board over the tub in a substantially horizontal and slightly depressed position. Its use prevents backache from bending, prevents injury to the hands, such as callous knuckles and injuries resulting from pins, broken buttons, etc. The finest or coarsest article may be cleaned in one-half the time and in a manner saving long boiling and the use of chemicals.

PORTABLE REEL GAS-OVEN.—G. B. MEEK, New York, N. Y. The object here is to prevent heating of the exterior wall by the heat of the gas burners employed in the baking. This is accomplished by forming each of the walls or wall sections with an inner packing of asbestos or other suitable non-heat-conducting material, and outside of the asbestos lining, there is provided a plurality of air passages, so arranged that an automatic circulation of air is maintained.

Machines and Mechanical Devices.

WATER-MOTOR.—H. BROWN, Brandt, Ohio. The purpose in this invention is to simplify the piston construction by making the cylinder from the wall of the chambers between the piston faces, to mount the inlet and exhaust ports in the cylinder wall and to provide mechanism intermediate the piston faces for operating the valves.

SAWMILL.—F. O. WILLEY, Newport, Ind. The object of the inventor primarily is to provide in connection with a saw mill or other like cutting machine a variable feed, which is under the absolute control of the operator, and which will give every possible rate of travel to the feed carriage within certain limits in either direction.

AUTOMATIC STOP FOR TALKING-MACHINES.—R. B. SMITH, New York, N. Y. The more particular purpose in this case is to enable a moving member carried by the machine and having a travel related to the progress made by the record to play, to act upon and operate one or more brakes for the purpose of stopping the machine promptly when the playing of the record is completed.

DRIVEN WHEEL.—J. T. MOORE and W. J. FLEMING, Evansville, Ind. The object of the improvement is to provide a driven wheel wherein the momentum of the driving wheel at all times, when in action, predominates over the driven wheel, and the wheel is especially adapted for use as the driven wheel of a band saw or band knife machine but may be used in any loose pulley where a minimum momentum is desired.

CAMERA ATTACHMENT.—E. L. HALL, New York, N. Y. There is provided in this invention a construction of a camera under

furnished with an adjustable hood that is applicable to any type of camera and which can be expeditiously and conveniently fitted thereto, and which is also capable of being readily removed.

PANTOGRAPHIC SHIFTER.—H. L. FALCO, New York, N. Y. The invention relates to printing and arts allied thereto, the more particular object being to provide means for readily shifting a printing film or the like, for the purpose of multiplying the design carried by the film. The mechanism is a system of levers for use in moving the printing film frame and mechanism for guiding the operator as he actuates the system of levers by hand.

Railways and Their Accessories.

RAILWAY-SIGNAL.—M. M. KANE, Montgomery, Ala. This signal is for use in preventing collisions or accidents caused by open switches. The object of the inventor is to construct a signal or semaphore in such a way that it may be readily operated so as to display different colors indicating whether the track is clear or not.

TRACK-SANDER.—J. SCHMITZ, San Francisco, Cal. The aim of the invention is to provide a simple and efficient track sander, which can be applied to railway rolling stock of various kinds, which is inexpensive to manufacture, and by means of which sand can be distributed in a plurality of directions and delivered to the track at a plurality of points.

TICKET OR RECEIPT CUTTER.—G. MCN. ROSE, JR., Nashville, Tenn. The invention is an improved device for use in cutting and thus dividing receipts, or tickets, given for cash fares paid by passengers on railway trains. It is embodied chiefly in the form, arrangement and adaptation for adjustment of the several coating cutters. The device may be quickly and easily adjusted.

Designs.

DESIGN FOR A GLOVE.—I. OLIVER, New York, N. Y. The glove is formed with a hand and a gauntlet portion. The latter is split from the junction of the hand portion therewith to its free end, on the side adjacent to the little finger and the sides of the split are snap fastened. The wrist portion is split from the beginning of the palm upwardly and the sides of the split are provided with buttons and button holes.

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.



Full hints to correspondents were printed at the head of this column in the issue of November 14 or will be sent by mail on request.

Attention has been called by several correspondents to the answer to Query 11007, regarding the properties of aluminium. The editor must say that the latter part of the answer is not entirely justified by the facts in the case. The compounds of aluminium are not to be regarded as poisons and are simply adulterants of food. For this reason some have condemned the use of aluminium dishes, but they are no worse in this respect than tin, if as bad, and excepting the caustic alkalis, the amount of action of these chemicals of foods upon the aluminium is so small that the salts formed cannot be sufficient to do harm.

(11033) B. T. asks how to make buff wheels. A. Turn up the wooden disk to form the wheel on the mandrel on which it is to run. Cover the periphery of the wheel with good glue, prepared as for gluing wood, stretch the leather around and confine it with shoe pegs driven in about 2 inches apart. When dry turn off true with a sharp chisel. Give the leather a coat of glue and roll it in emery, so as to make it retain it by being imbedded in the glue. Let the wheel dry until the glue is hard and it is ready for use.

(11034) C. L. F. asks how to preserve bird-skins. A. Make an incision from the breastbone to the vent; with a small piece of wood work the skin from the flesh. When the leg is reached, cut through the knee joint and clear the shank as far as possible, then wind a bit of cotton wool on which some arsenical soap has been put round the bone; do the same with the other leg. Now divide spine from root of tail, taking care not to cut too near the tail feathers, or they will come out. Next skin the wings as far as possible and cut off. The skin will now be entirely clear of the body. The skin must now be turned inside out and the neck and skin gently pulled in opposite directions till the eyeballs are fully exposed. The whole of the back of the head may be cut off and the eyes and brain taken out and their places filled with cotton wool. The whole skin should be rubbed well with arsenical soap or plain arsenic, and the neck returned to its natural position, when, after filling the body with a little dry grass or wool, the job is done. It is very easy, and the skin of a bird is much tougher than one would suppose, though, of course, they vary, the night-

jar being very thin, while humming birds are fairly tough. All the apparatus required is a sharp knife and a pair of scissors, or, for large birds, a strong pair of nippers to divide the bones.

(11035) C. L. asks how to lace belts. A. The ends of a belt should always be cut off square, not guessed at by the eye, but laid off with a tool. The holes ought to be made with a small punch at a proper distance from the end; the size of the holes and the distances of them depending on the width of the belt. The use of an awl is reprehensible, for the holes are apt to be made irregular by it, and much larger than there is need of. The end of the lace should be tied with a square knot in the middle of the outside, for the corners of the belt where it is cut are most exposed and apt to whip out. Tying a belt lace does not look so neat as where the ends are put through an incision, but tying saves the belt from having extra holes made in it. The laces ought to be of the same thickness from end to end, or as nearly so as possible. It often happens that laces have very thin spots in them; such should be kept for short belts, and never used for long ones. Moreover, the holes must be made at equal distances apart and not too many of them. Every hole weakens the belt, and none that are not absolutely essential should be cut. All new laces, as well as new belts, should be stretched by hanging weights on them before they are used; petroleum, sawdust, resin, and similar substances should never be used. When a belt gets harsh or dry, neat's-foot oil is the best thing to apply to it.

(11036) C. M. S. asks: 1. Why does not an arc lamp short-circuit a current or cause a live wire, the same as when the two wires leading from the generator are touched together and pulled apart, thus making an arc? A. The carbons of an arc lamp do not short-circuit the current because the resistance of the coils in the lamp cut the current down to the number of amperes needed to light the lamp. 2. Is there any form of a rheostat used in the ordinary arc lamp? A. There is a rheostat in all arc lamps. 3. Please send me one of the SCIENTIFIC AMERICAN SUPPLEMENTS showing the construction of an electric furnace. A. Our SUPPLEMENT 1182 contains a good article upon the construction of an electric furnace.

(11037) K. G. C. asks: Owing to the precession of the equinoxes, is the apparent diurnal motion of Polaris around the pole of the northern celestial sphere describing now a larger or a smaller circle than formerly, or in other words, is the star approaching or receding from the actual pole? A. At present the distance of Polaris from the North Pole is about one and a quarter degrees. At the time of the Star Catalogue of Hipparchus, it was 12 degrees distant from the pole. It will approach the pole for the next hundred years, at which time it will be within a half degree of the pole. After that time it will recede from the pole, or rather the pole will recede from the star.

(11038) L. C. S. writes: 1. As I understand it the resistance is what makes the field coil get hot. In order to avoid the heating more wire is added; now, if resistance is what heats the coil, how do you account for the coolness of the fields after adding more wire, consequently more resistance? A. Your statement that resistance causes the heating of an electric circuit is less than half right. The exact statement is that the heat developed in a circuit is directly proportional (1) to its resistance in ohms, (2) to the square of the current in amperes, (3) to the time that the current flows in seconds. Now one ampere flowing through one ohm develops 0.24 calorie in one second. Putting these facts in a formula we have: Heat in calories = 0.24 $C^2 R t$. It can now be seen why the heating of a coil can be remedied by adding more wire. The increase of resistance cuts down the amperes in the same ratio as the increase. But the reduction of the amperes affects the heating power in the ratio of the squares of the amperes. Thus, if the resistance were doubled the amperes would be halved, but the heat produced would be reduced to one-fourth of what it was, since the square of $\frac{1}{2}$ is $\frac{1}{4}$. 2. What is the cause of the humming in the field coils and pole pieces of an induction motor when the armature does not revolve, but the current is passing through the fields? A. The alternations of an electric current produce vibrations which are heard as sound. These can be heard near an arc light run by an alternating current, or near an alternating electro-magnet. 3. What changes are necessary to reverse the running of an induction motor? Crossing the positive and negative wires at the binding posts will not do it. Of course, merely reversing the main wires will produce no effect upon the direction of rotation of a motor. If the induction motor is two phase, the direction of rotation will be reversed by changing the two leads of either phase. If it is three phase, it will be reversed by changing any two of the leads. The different phases are a fraction of a period behind each other, and the direction of rotation depends upon the direction in which the phases lag behind around the rotating part of the motor, whether clock-wise or contra-clock-wise. To reverse the motor the direction of the lag in phase must be reversed. 4. Would it be possible to illustrate and explain the induction motor in the SCIENTIFIC AMERICAN some time in the future? A. The induction