

Inventions of the Month.

[By HENRY HUGHES, Patent Agent, Wellington.]

AGRICULTURAL DRILL.—(No. 6340, J. G. Doak, Fernside, Canterbury).—This invention relates to the feeding apparatus of agricultural drills, and is designed to prevent the feed spaces from becoming choked. Attached to the drill, at or near to each feeding wheel or spiral, are revolving spindles, carrying radial tines or teeth, which project in such a manner and revolve at such a velocity that each time the groove or space of the feeding wheel presents its load for delivery, one of these radial tines passes through the said groove, and secures a certain and uniform delivery of the material to be sown: the said groove of the feeding wheel returning back to the box or reservoir comparatively clean and prepared to receive another load.

BROOCH PIN FASTENER.—(No. 6866, Annie Cussen, Hamilton, Waikato).—This invention relates to a new safety catch for securing brooches. It is well known that when a brooch is pinned it is often the practice to take up so great a quantity of the article to which the brooch is attached, that the pin is strained and often broken, or is bent so that it leaves the catch, resulting in the loss of the brooch. Now, by this invention, the pin rests in a catch which prevents it slipping out, and is elastic so as to expand with the amount of material taken up.

IMPROVEMENTS IN GRAVITATION RAILWAYS.—(No. 6878, R. M. Macdonald, Christchurch).—This invention relates to switchback railways, and consists in running the car upon wire ropes ingeniously arranged on brackets, so that the velocity and curves through which the cars travel can be easily altered and regulated. This arrangement of a switchback enables it to be readily removed from place to place and rapidly fixed.

THERMO ELECTRIC GENERATORS.—(No. 6880, H. B. Cox, Hartford, United States of America).—This invention consists in connecting and arranging the thermo couples to form the pile, coating the same with fire-proof material, and surrounding it with a water jacket.

WATER BAR FOR DOORS.—(No. 6886, Patrick George Smith, New Plymouth).—This invention consists in forming in the sill, just under the door, a groove having one or more lead-way pipes.

INTER-ROTARY TABLE.—(No. 6897, W. J. Wiltshire, Summerhill, N.S.W.).—This table has a circular central portion, which is supported and revolves on a leg. The legs is pivoted on stays fixed to the table frame.

FIBRE CLEANING MACHINES.—(No. 6890, T. A. Smith, Baltimore, U.S.A.).—This invention consists of sets of grooved wheels and gearing which alternately grip the ends of the flax at the same time that it is subjected to action of scraping wheels.

IMPROVEMENTS IN GOVERNORS.—(No. 6843, G. J. Altham, Swansea, Massachusetts, U.S.A.).—This invention is an ingenious governor, which supplies a great desideratum, viz., to regulate the speed and supply of water to turbines.

TOOTH FOR GRUBBERS.—(No. 6857, J. Drummond, Kirwee, Canterbury).—The upper part of the tooth is made double by bending back the strip of steel of which it is formed.

IMPROVEMENTS IN SPINDLE SHAPED OCEAN STEAMERS.—(No. 6747, William Louis Winans, London).—The object of this invention is to construct for ocean navigation a vessel of moderate draft and displacement, capable of a very high rate of speed, having large capacity for freight and passengers, and great coal endurance, and which will not appreciably roll, or pitch, or receive injurious shocks, when moving or stationary amongst the largest waves encountered in an ocean voyage. This invention consists in making the spindle-shaped hull much longer in proportion to breadth of beam than the hulls of vessels are now made, or than it would be possible to make them upon the model followed in the construction of ocean steamers of the

ordinary type, this element of greatly increased length in proportion to beam being found essential to the accomplishment of the objects above set forth. The inventor says he has by observation and experiment determined, 1st, that a vessel having a hull of spindle shape may be made with moderate displacement and draft, of a length in proportion to beam greater than fifteen to one; and, 2nd, that a vessel of spindle shape so proportioned and otherwise properly constructed, will not appreciably roll, or pitch, or suffer shocks, or diminution of speed, in waves of the largest size.

AN IMPROVED FINGER FOR GRASS MOWERS.—(No. 6888, J. P. Richardson, Christchurch).—This invention relates to a supplementary finger, and method of attaching the same to the present grass mowers and reaping machines; the said finger being more especially applicable to lifting pease, beans clover, or lain crops. The object of this invention is to raise the crop to a sufficient height from off the ground to allow the knife of the machine to get under and cut the crop without injuring or cutting the heads of the different kinds of grain, and clover seed, or the pods of beans and peas.

AN IMPROVED FIRE LIGHTER.—(No. 6903, Edmund Potts, Ashurst).—The object of this invention is to produce fire lighters which are cheap, small in bulk, light in weight, can be readily packed into a small compass, are certain to produce combustion, and the flame from which will last until the fire is fairly ignited without giving rise to a dangerous flare in the chimney. The materials of which the improved fire lighters are composed are about as follows, viz., Pitch, 60 per cent by weight; wood sawdust, 33 per cent by weight; resin, 5 per cent by weight; kerosene, 2 per cent by weight.

IMPROVEMENTS IN THE FORE-CARRIAGE OF BUGGIES.—(No. 6910, James Duncan, Adelaide).—According to this invention when building a vehicle with a fore-carriage on the lines of an American one with a cross spring or springs the attachment of the shafts or pole is made above the spring, either by extending the upper spring bed the necessary width, or by providing a special draft bar attached to the top spring bed for that purpose. In some cases if so preferred the wheel plates or fifth wheel which are used in both American and English fore-carriages may be dispensed with and the improved boss fore-carriage used instead. This latter improvement is also applied when building a vehicle with a fore-carriage of the English pattern having side springs, and the essential feature is that it confines the friction to the centre of the fore-carriage only, and thus considerably reduces the wear as well as avoids the rattling occasioned by the contact of the surfaces of the wheel plates, which surfaces are dispensed with. The inventor substitutes in place thereof collars with stays or trusses, which strengthen the fore-carriage and evenly distribute the strains resulting from working the same.

PORTABLE TELESCOPIC FIRE GRATE.—(No. 6787, E. J. Tobin, Sydney).—The fire grate consists of two side plates bent to form hobs, and so arranged that they can be advanced towards, or retired from, each other, either by having the bars made solid on one plate and tubular on the other so that one slides into the other; or by having holes in the plates through which the ends of the bars, etc., pass.

PRODUCING COLOURED EFFECTS IN PHOTOGRAPHS.—(No. 6855, L. W. Mence, Dunedin).—This invention consists in the use of paper and the like on which designs such as clouds, etc., and have been printed before the paper is sensitised.

PREPARING SOLUTIONS CARRYING SALTS OF ZINC.—(No. 6867, Parker Cogswell Choate, 38 Wall street, New York).—For purifying impure solutions of zinc salts, this invention consists in subjecting the solution to the action of an electric current to precipitate and deposit the impurities, and meanwhile neutralizing the acid set free in the bath with an oxidized zinc fume freed from its more volatile soluble constituents. For forming solutions carrying salts of zinc, the invention consists in forming a sulphate solution of the soluble elements of the ore and recovering the same by evaporation and crystallisation, heating the product to drive off the salts of metals more volatile than