

Inventions.

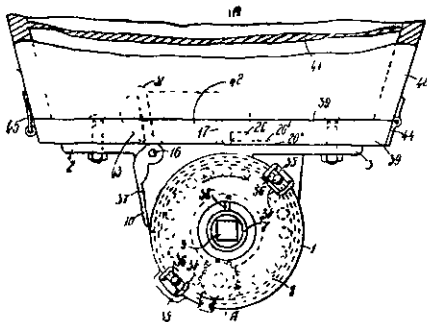
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The Colonial Turnip, Rape and Mangold Sower, and its Inventor.

It is interesting to learn that the new Turnip, Rape & Mangold Sower (Bristow's 1903 Patent), had its origin a few years ago in an idea given Mr. Bristow by a Mr. J. M. Johnston, of Palmerston North, who required a device for sowing turnip and rape seed. The former had to be deposited on the ground singly, and the latter in a continuous stream. After examining the best machines then on the market Mr. Bristow noted that, without exception, they depended on gravitation. To force out the single seeds appeared to be the task requiring the most thought; and in three weeks, labouring thirteen hours a day, a practical working model was evolved which to this day remains almost unaltered.

The first of our illustrations shows a side elevation of the sower fixed beneath a seed hopper, portion of which only is shown.

The cylindrical casing, 1, contains a drum, 8, which is fixed upon the spindle, 3, and revolves within the casing. The periphery of the drum has a series of small holes into each of which falls one seed from the hopper as the drum revolves. In case a hole receives more than one seed it is wiped out by a brush. As the drum revolves the seeds fall out of the holes and pass through an opening at the bottom of the casing into a delivery tube. To obviate the possibility of seeds remaining in the holes a small wheel within the drum has



studs spaced apart correspondingly to the seed holes and the studs pass into the holes one after the other as the drum revolves and eject the seeds therefrom.

Another illustration shows the various parts making up a complete seed sower, the way the parts fit together being quite understandable from the first illustration.

The new Sower is considered to be the most reliable turnip, rape and mangold Sower invented, it is a positive single-seed turnip Sower, and force-feed rape and mangold Sower. It positively drops one turnip seed at a time, and cannot over-carry or injure the seed. It is a positive force-feed for rape, and is the only force-feed mangold Sower invented. It is also an excellent Sower for every

description of land. Seed cannot fall out or get misplaced on rough or hilly land, and its accuracy of sowing makes it a splendid economiser. Its design is a marvel of accurate mechanism—the wearing parts being independent of the sowing faces, and the system of revolving such that warp or sag of the drill box will not affect it. The new Sower is constructed of malleable castings and gunmetal, accurately made with special machinery, and designed so that any farm hand can take a machine apart and put it together again without fear of injury or displacement. Combined with the Colonial Patent Fertiliser Sower, it makes, perhaps, the best Combination Drill ever offered to farmers of New Zealand, or any other country.

Mr. C. Bristow, the inventor, was born at Cannington, Bridgewater, England, and at an early period in life devoted himself to novel experiments that held possibilities in the world of invention. At the age of sixteen he came out to New Zealand, and at once turned his attention to mechanics and followed Civil engineering for six years. Like



MR. C. BRISTOW,
Inventor, New Turnip, Rape and Mangold Sower.

most energetic young men who wish to probe abstruse theories Mr. Bristow chose one of the most unassailable for his study, i.e., Perpetual Motion. But this was soon abandoned for the construction and study of a radiometer. Whilst creating a vacuum this affair was suddenly shattered inwards; and the interest arising from the consideration of cause and effect quickly led our young aspirant to forget the dire spectacle of his broken toy. As it happened the mystery came to be very easily explained—it was the lack of mechanical perfection in the radiometer. This little incident set the maker on his long course of practice in mechanical improvement which has enabled him to give to the world many useful and paying contrivances. Mr. Bristow obtained the much coveted gold medal for his invention at the Christchurch Show, 1900, and since then improvements have been effected to the Sower in order to oust competition from the running, the success of which work may be inferred from the Exhibition honours and farmers' approval which have been freely bestowed on the Patentee. At the Hawkes Bay, Palmerston North and Christchurch Shows of 1904 the Sower gained the Baldwin & Rayward Special Prizes for "the most meritorious invention relating to agricultural machinery," and at the Christchurch Show Mr. Bristow's Colonial Drill, fitted with his latest Turnip, Rape and Mangold Sower, was awarded the Gold Medal.

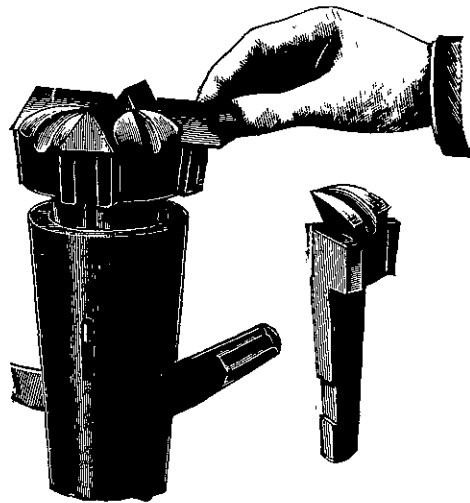
A New Boiler.

A new type of boiler was recently shown in operation at the works of the Road Steam Engine Company, Finnieston, Glasgow, by the directors of the Inglis Boiler Syndicate, Ltd. During the past few months Inglis's boiler has been tested by a number of engineering experts and by Clyde engineering firms, the reports being, it is said, all satisfactory. It is a single-ended marine steel boiler, with corrugated flues, the mean diameter of the shell being

14ft. and its length 11ft. There are three furnaces with grates 3ft. 4 in. broad by 5 ft. 6 in. long. The return corrugated tube is 3 ft. 4 in. minimum diameter, and 8 ft. 2½ in. long, while the tubes are 2½ in. external diameter and 11 ft. long, the total number being 309. The heating surface is 47.6 times the fire-grate area, the total grate area (excluding dead-plate) aggregating 55 square feet. The total effective heating surface is 2,620 square feet.

Detachable Cutters for Rock-Boring Drills.

To various classes of tools the idea of detachable cutters is now being applied with considerable advantage. In adapting the idea of rock-boring drills, however, numerous obstacles are encountered owing to the severe stress much work entails. To screws, catches, and other devices used for fixing and holding detachable cutters in other kinds of tools, the shock sustained by a rock-drill from the heavy blows of a miner's hammer is fatal. That a rock-drill should be practically a solid tool is absolutely essential. In the "Mowbray" detachable cutters and holders for hand and machine



CUTTER IN POSITION FOR CHANGING CUTTERS.

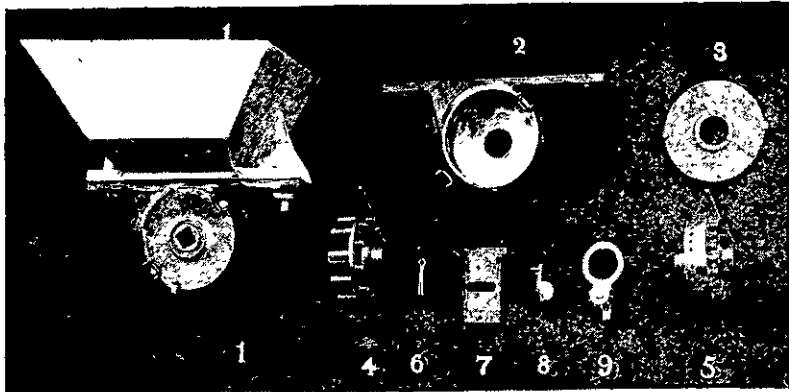
drilling, introduced by J. Nicholson and Sons, of the Mowbray Steel Works, Sheffield, these difficulties have apparently been overcome. For holding the cutters an ingenious and carefully-thought-out device is employed. The cutters have three cutting edges, representing practically three tools, and, armed with a dozen of these in his pockets, the miner has no need to waste time in having his tools sharpened—often a lengthy operation. The importance of having detachable cutters will be understood when it is known that some machines in the deep levels of gold and other mines need a hundred drills of different sizes to keep them going, and then often have to wait for sizes specially required. Not a minute is occupied in changing the detachable cutter.

Edison Storage Battery.

The new Edison storage electric battery (writes the *Rural New Yorker*) is now said to be ready for the market. Great things were anticipated from the device. It was expected that a windmill or other power could be used to generate electricity, and that this light battery when stored could be picked up by two men and carried to any point on the farm where work was required. Thus, it was hoped that the farm-power problem would be solved, but the actual facts do not seem to give much body to these dreams. The battery seems to be designed for running automobiles at a high speed. It will weigh about forty pounds per horse power, and can be charged only from a regular dynamo. It is quite likely that the principle will be in time applied so that most small machines can be operated, but the trouble on the farm will be to generate the electricity. The cost of a dynamo and fixtures is considerable.

A New Lock-nut Washer.

A new lock-nut washer is being introduced by Messrs. H. D. Woolley & Co., of 25 and 29, Coleman street, London, E.C. This has a V-shaped projection diagonally across it, which fits into a recess in the bottom of the nut, the recess being made exactly to fit the collar. By this means, when the nut is being tightened, the washer also turns with it, and since the nut cannot move unless the washer moves, it will, it is said, always remain tight.



THE PARTS OF THE NEW TURNIP, RAPE AND MANGOLD SOWER.

1. Seeder and Hopper Combined
2. Seeder Shell
3. Seeder Shell Cap
4. Mangold and Rape Feeder
5. Rape and Turnip Feeder
6. Shutter to either feed
7. Release Button
8. Turnip Forcer