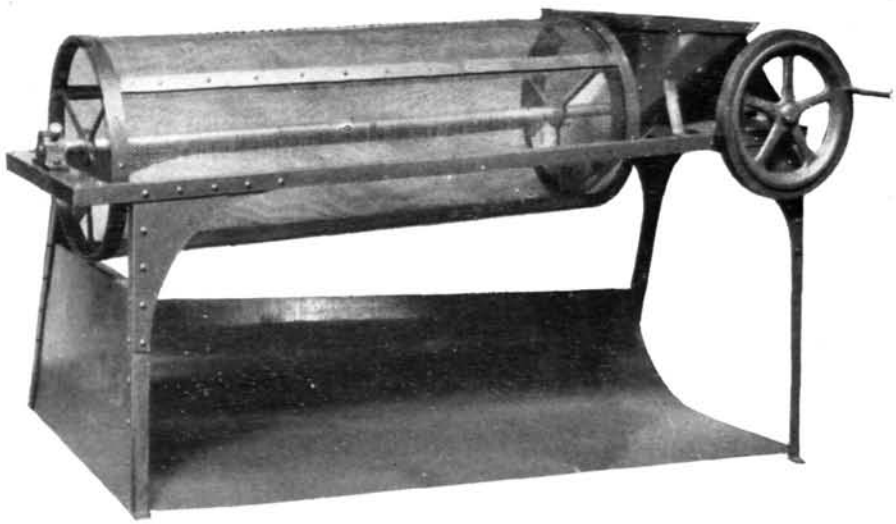
thus making it an easy matter for one man to operate continually without tiring. If desired, the apparatus can be equipped with a tight and loose pulley for mechanical operation.

"The machine consists of a heavy rolled steel frame securely cross-braced and riveted. The cylinder is 26 inches in diameter by 6 feet long, and is of ¼-inch mesh No. 16 galvanized wire screen reinforced both



Hand operated compost mixer.

inside and outside with flat steel bars. The screen is mounted on spiders, which in turn are set-screwed to a cold-rolled steel shaft 1⅛ inches in diameter. The terminal bearings of this shaft are mounted in cast steel blocks and operate on roller bearings. The main shaft is driven through a gear and pinion from a countershaft, upon which is mounted a heavy cast steel fly-wheel of sufficient weight to insure a constant motion as the mixer is put in operation. The receiving hopper is 24 inches square, constructed of No. 16 galvanized blue annealed steel. The cylindrical screen is so arranged that it may be easily replaced. The entire apparatus is built most substantially and the completed weight is 750 pounds."

Converting Red Fescue Fairways Into Bent or Bluegrass Fairways

It is usually the case that fairways which have been sown to red fescue alone produce a cuppy or patchy turf. This is due to the fact that red fescue is under most conditions a bunchy grass, and bare spaces develop between the bunches. Little can be hoped for in the way of improving the turf on such fairways by sowing additional fescue seed, but the turf can readily be converted into bent or bluegrass turf by sowing seed on top of the fescue turf. Whether bent or bluegrass is used for this purpose will depend on how well the grass thrives under fairway conditions in the particular section of the country. In Canada, the New England States, and the Pacific Northwest, bent, as a general rule, will be found to be the best grass for the purpose. Elsewhere in the northern

half of the United States bluegrass will probably be preferred. The new seed should be sown between August 15 and September 15, and the sowing followed with a light topdressing. To the bent or bluegrass seed a quantity of redtop seed should be added. The latter is cheap and will form a turf much sooner than either of the other grasses in the mixture, and will gradually be crowded out by the bent or bluegrass as these latter become established. The bent-redtop mixture should be sown at the rate of 30 pounds of redtop and 10 pounds of South German mixed bent to the acre, and the bluegrass-redtop mixture at the rate of 80 pounds of Kentucky bluegrass and 20 pounds of redtop to the acre. After two years the fairways should be practically pure bent grass or bluegrass.

QUESTIONS AND ANSWERS

All questions sent to the Green Committee will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column each month. If your experience leads you to disagree with any answers given in this column, it is your privilege and duty to write to the Green Committee.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

1. Acidifying alkaline soils with ammonium sulfate or ammonium phosphate in the control of white clover.—We have a number of our greens and tees in creeping bent and have been trying to get them acid by the use of ammonium sulfate but find thus far that the use of it in the quantities recommended gives no results so far as acidity is concerned. Our nursery, on the other hand, is in ground that is naturally acid, and the growth of the bent in our nursery is much stronger than on our greens and tees. Can you suggest a method of getting the soil sufficiently acid without injuring the turf? Is sulfur good for this purpose? Would it be practical, in preparing the beds of new greens for stolons, to treat the beds with a sufficient quantity of ammonium sulfate to make them acid before planting the stolons? (Iowa.)

ANSWER.—With soils originally acid the results of the use of ammonium sulfate or ammonium phosphate appear in a comparatively short time. With soils originally alkaline, a longer time is required. We would suggest that until the stage is reached where white clover disappears, you apply the chemical weekly as follows: 5 pounds per 1,000 square feet from October 1 to March 31; 4 pounds during April and May; 3 pounds during June; and 2 pounds during July, August, and September. You should of course use no other fertilizer along with the chemical, except such as is naturally contained in your topdressings. The applications during the warm months should be followed immediately with watering, to prevent burning of the grass. Do not use sulfur; it is dangerous to use on turf. We are now conducting some experiments in the acidifying of soil before planting. We are of the opinion that the liberal application of ammonium sulfate or ammonium phosphate to soil before planting will help greatly. These chemicals may be applied by broadcasting them dry or mixed with sand or compost, or they may be sprinkled on the turf in solution. The objects gained are two: (1) fertilizing, and (2) acidifying