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Improved Manure-spreader.

Farmers are very generally acknowledging the importance of manuring the soil in order to retain its fertility and produce better crops. The usual method of procedure in manuring ground is well known, and practical farmers will, we think, appreciate this improvement upon the former slow and tedious process.

The machine illustrated herewith in Figs. 1 and 2, consists of a wagon mounted on wheels and provided with a movable bottom; this bottom is formed like an endless apron of a series of slats, A, arranged to slide over rollers, B, shown in Fig. 2. This apron has ropes attached to its extreme ends, which are wound in opposite directions upon the shaft, C, just behind the wagon body. This shaft is connected by a train of gears, D, with a gear upon the axle, E, so that as the vehicle advances the shaft will rotate slowly and cause the apron or loose bottom to advance toward the forks. These gears are thrown in and out of connection with the driving wheel by the lever, F, which has a pin and hook at G, so as to keep the wheels together when they are thrown in. The forks, H, are connected in the center to the crank shaft, I, and at the bottom the frame, J, they set in, has two rods, K, which slide through slots in the cross-brace, L. The effect of this arrangement is to produce a hooking or a clawing motion of the forks well adapted to the duty they have to perform, for by the revolution of the crank shaft the forks are raised, thrown over into the manure, and then drawn out with the load sticking to them. This load falls on to the conical screen, M, and is thereby evenly spread over the ground.

Fig. 1

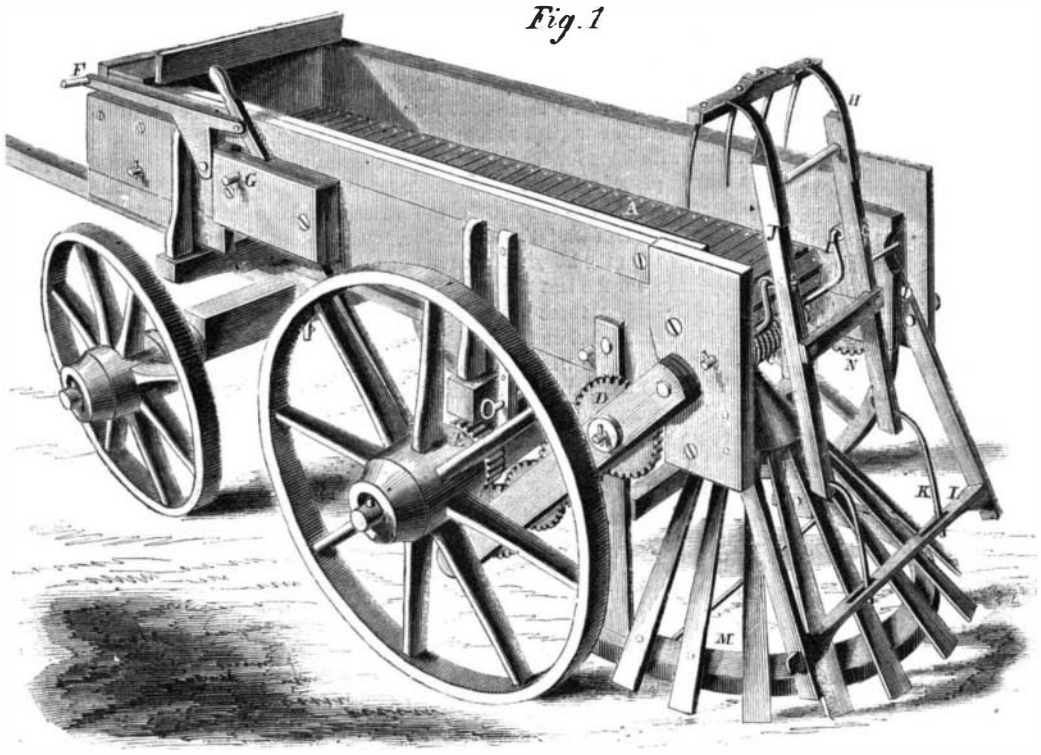
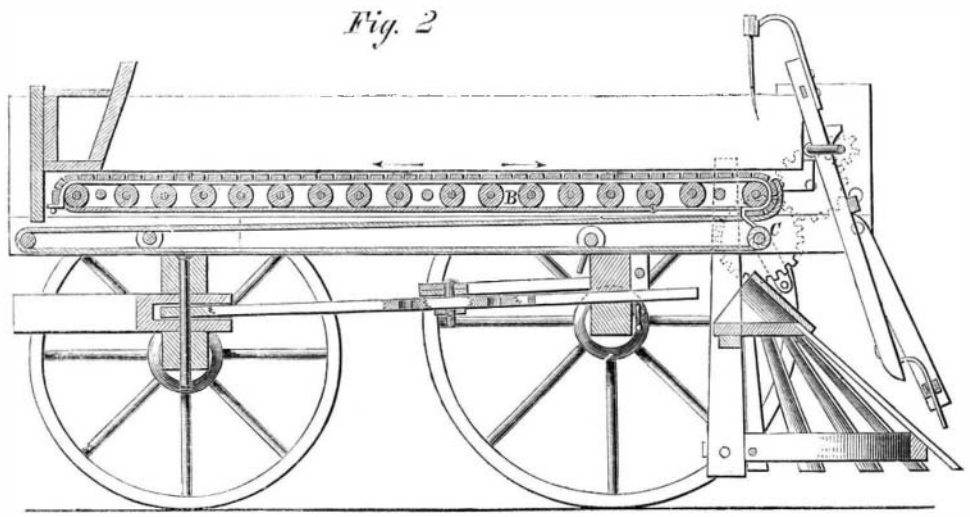


Fig. 2



The apron or loose bottom of the wagon does not rotate or traverse entirely around the body, but it goes far enough to carry the whole load out to be acted upon by the forks. At the opposite side of the wagon there is a system of gearing, N, to be worked by hand; this enables the attendant to draw the bottom back to its place again so that another load may be placed within the wagon. There are also a series of friction rollers set in the wagon frame for the ends of the slats, constituting the bottom, to bear against; these materially lessen the friction of the parts one against the other, which, in passing over undulating ground, would be great. By the use of this machine a great deal that is unpleasant in the performance of this necessary duty is avoided, and after the load is once placed in the wagon the farmer may ride over the field and not come in contact with the manure in any way, all handling, whether by forks or otherwise, being dispensed with.

The machine as thus arranged, forms a very efficient and convenient one for the purpose. It was invented by James H. Stevens, of East Durham, N. Y., and a patent is now pending on it through the Scientific American Patent Agency. For further information respecting it address the inventor at that place.

STEVENS'S MANURE-SPREADER.

An Ounce Weight and a Tun Weight.

An ounce weight and a tun weight of iron will fall down a pit with equal speed and in equal time. Until about 300 years ago, all the learned men in the world disbelieved and denied it. Galileo, an Italian, taught the contrary to the popular belief. The University of Pisa challenged him to the proof. The leaning tower of that city was just the place for such an experiment. Two balls were obtained and weighed, and one was found to be exactly double the weight of the other. Both were taken to the top. All Pisa looked on, and crowds of dignitaries were confident that young Galileo, then obscure and despised, but honored and immortalized now, would be proved to be in error. The two balls were dropped at the same instant. Old theory, and all the world, said that the large ball, being twice as heavy as the less, must come down in half the time. All eyes watched, and, lo! all eyes beheld them strike the earth at the same instant. Men then disbelieved their eyes, and repeated the experiment many times, but each time with the same result. The little ball was big enough to destroy a theory 2,000 years old; and had it been little as a pea, it would have destroyed it just as well, or even more quickly.

But how was this? Did not the earth draw down the large ball, which was double the weight of the smaller, with double force? Did not the double weight indicate the double force? Yes, truly; but in drawing down the large ball there was a double force of resistence to be overcome, and as the two forces acted in a given proportion on the large ball, and in the same proportion on the less, the velocity of the two was equal, though in bulk they were unequal. Let us suppose there to be two wagons, one with a load of five tuns, and the other ten tuns, and that the unequal loads are drawn by an equal horse-power—should not their speed be equal, though their weight is unequal? No. There must be double horse-power to draw the double weight, to obtain equal speed. Let a ten-pound weight and a one-pound weight fall to the earth at the same time, and the earth must draw down the heavier weight with ten times greater force than the other that they may have equal speed, and it does so. A tun weight of iron and an ounce weight, leaving the top of a pit at the same instant, would, therefore, at the same instant fall to the bottom.

GREAT activity prevails in all our navy-yards.