

EDISON'S PHONOMETER.

It is admitted that there is power in the human voice, but hitherto this power has been applied indirectly to produce mechanical results.

Mr. Edison in his telephone and phonograph experiments discovered that the vibrations of the vocal cords were capable of producing considerable dynamic effect. Acting on this hint he began experiments on a phonometer, or instrument for measuring the mechanical force of sound waves produced by the human voice. In the course of these ex-

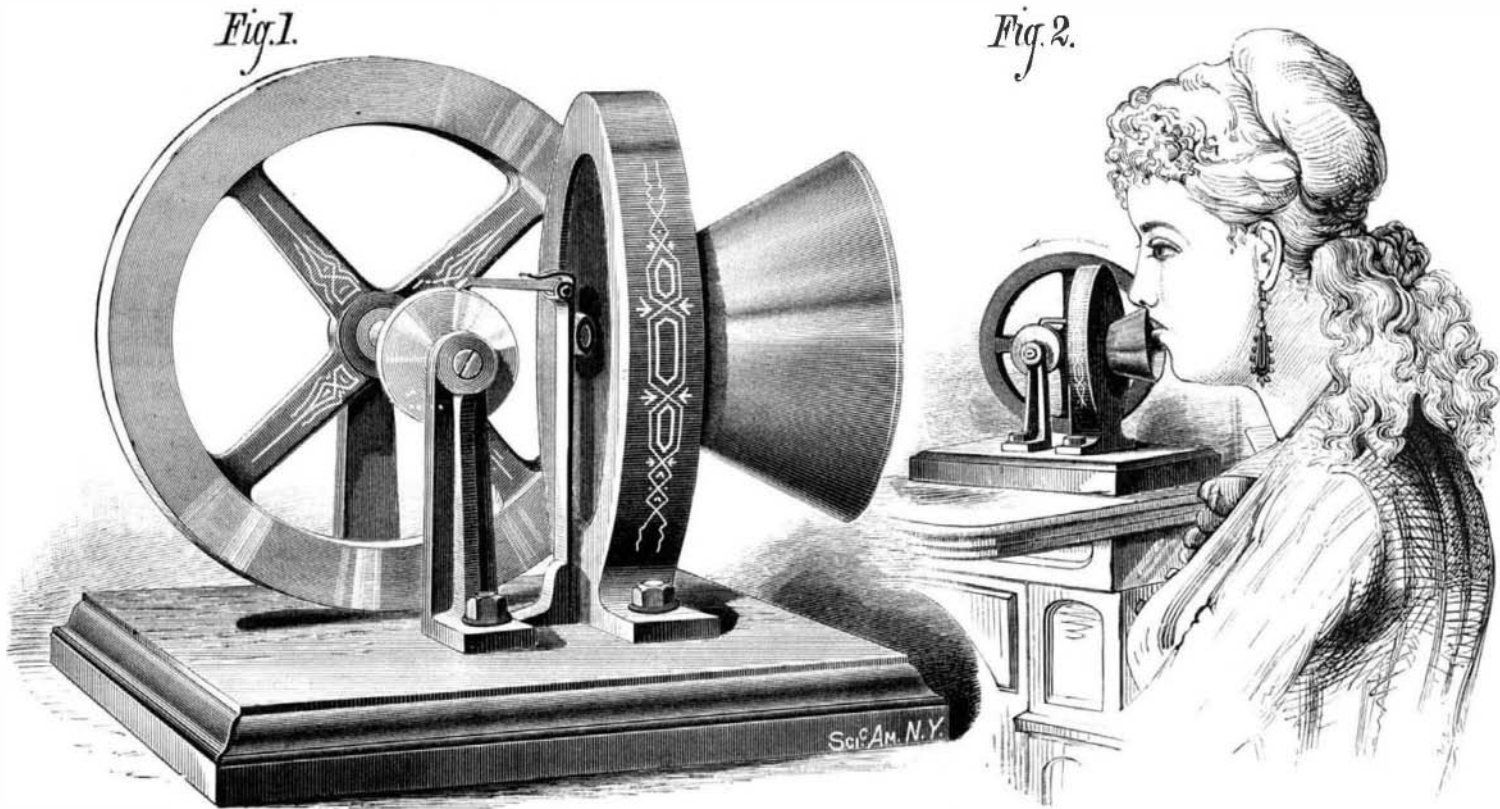
periments he constructed the machine shown in the engraving, which exhibits the dynamic force of the voice.

ing pulled backward and forward between them. The scoop, however, cuts or fills only in one direction, and one of the engines is employed to do this work, the other engine being used only for pulling the loaded scoop to the point where it is required to deliver the spoil.

The scoop, as shown in the engraving, is in position for being filled. The scoop is drawn forward by the engine whose rope is coupled to the chain hanging from the scoop box. When the scoop is sufficiently full the man on the scoop gives the signal to the engine driver to stop pulling

which it has deposited is evenly spread by the mouth or cutting edge of the scoop box.

When the implement is far enough away from the place where the spoil has been deposited, the bolt is again withdrawn, the scoop box allowed to resume its middle position, the bolt shot in, and the scoop again run to the place where it left off work at the previous bout. The bolt is then again withdrawn and the box is pulled into position, and is ready for work as before. The implement is a useful one for many purposes, and in suitable situations can perform a



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The machine has a diaphragm and mouth piece similar to a phonograph. A spring which is secured to the bed piece rests on a piece of rubber tubing placed against the diaphragm. This spring carries a pawl that acts on a ratchet or roughened wheel on the fly wheel shaft. A sound made in the mouth piece creates vibrations in the diaphragm which are sufficient to propel the fly wheel with considerable velocity. It requires a surprising amount of pressure on the fly wheel shaft to stop the machine while a continuous sound is made in the mouth piece.

Mr. Edison says he will have no difficulty in making the machine bore a hole through a board; but we consider such an application of the machine of very little utility, as we are familiar with voices that can accomplish the feat without the mechanical appliance.

EXCAVATING SCOOP.

We give herewith a perspective view of an excavating scoop made by Messrs. John Fowler & Co., of Leeds, England, and represented by a model at their stand at the British Agricultural Machinery annex at the Paris Exhibition. This implement is one originally designed for making large ponds or reservoirs, 100 yards square and 25 feet deep, for Australian sheep farmers, but its successful employment for this purpose has led to other applications of it, and it is now used for other descriptions of excavating work and particularly for leveling land and constructing dams.

The scoop is worked by drawing it backward and forward between two steam plowing engines in the same way as the implements employed in the double engine system of steam plowing tackle, the engines being placed one on each headland, and the implement be-

and throw his engine out of gear. After this is done the signal is then given to the opposite engineman to start his engine, but before he does so the scoopman withdraws a stop from the tipping drum, which allows the latter to revolve. So soon as the engine exerts its power upon the rope, the drum revolves and also turns the chain barrels, round which are coiled the lifting chains, which are coupled to the sides of the scoop box, as shown in the engraving. The scoop box is thus caused to turn round its center; and so soon as the scoopman sees the box sufficiently clear of the ground and in position for carrying the spoil away he shoots the stop bolt into one of the notches in the rim of the tipping drum, and stops the action of the latter.

During the time this is going on (which is very short) the implement has stood still, but as soon as the tipping drum has been locked and becomes a rigid part of the frame, the engine pulls the implement in a backward direction to the requisite place for emptying. When within a few yards of the required position, the scoopman again pulls out the stop and the box is tipped over the rest of the distance it has got to travel to empty itself. The engineman is now signaled

very large amount of work. We take our illustration from *Engineering*.

New Mechanical Inventions.

An improved Fan Blower has been patented by Robert Waskey, of Blue Ridge, Va. It consists in a series of fans placed upon a shaft, and arranged so that the first fan in the series discharges into a chamber that communicates with the second fan in the series, and the last fan discharges into the pipe that conveys the wind away to be utilized. To increase the capacity of the blower, it is only necessary to add other fans, the speed at which it is driven remaining the same.

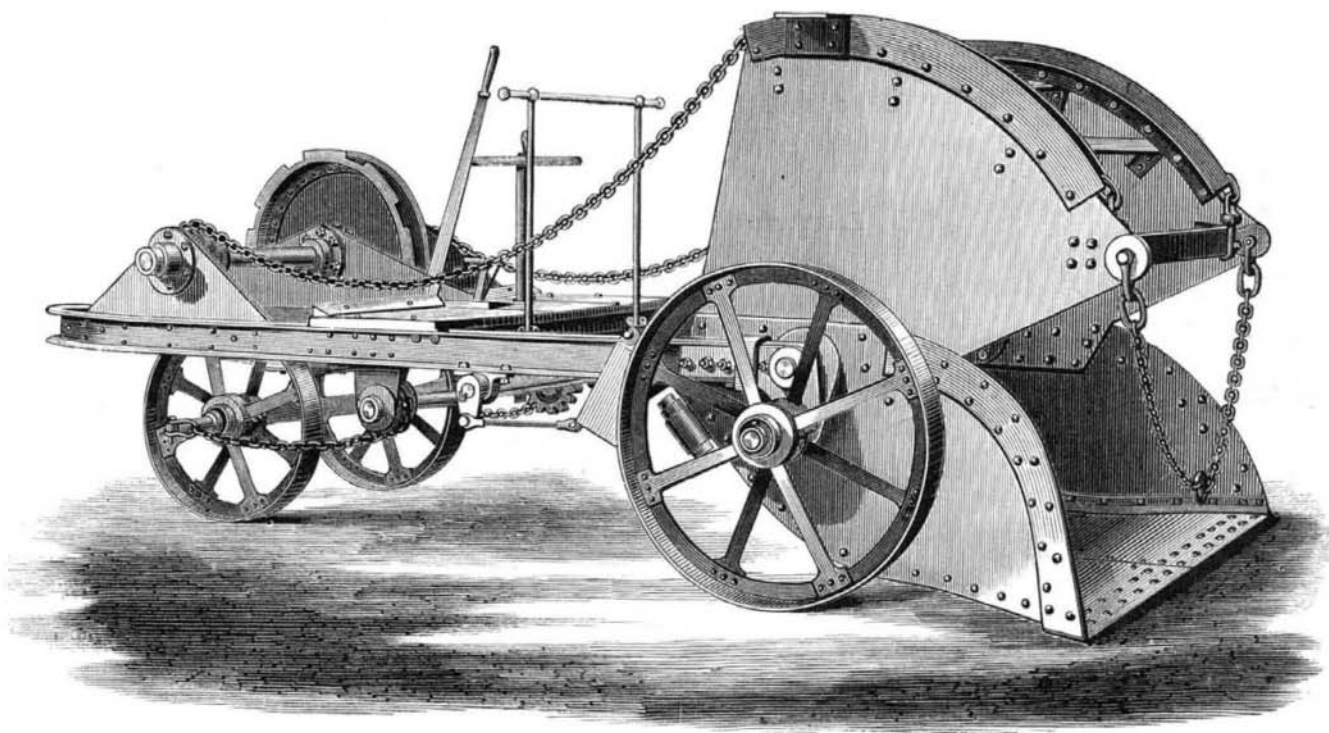
An improved Fare Register has been patented by Julius Bluemel, of San Francisco, Cal. This invention relates to a device for registering cash fares, and clipping and registering tickets; and it consists in a case having glass sides, and containing a clipping device, a bell which rings when the clipping device is operated, a registering device for recording each ticket clipped, and also a device for registering the cash fares.

James C. McIntyre, of Fort Edward, N. Y., has patented

an improved machine for preparing Wood Fiber for Paper Pulp, which is designed to prevent the formation of long and large fibers or splinters, so as to enable timber of any desired or convenient size or thickness to be operated upon. The timber is carried against the saws automatically, and the feed table is brought forward automatically (when one cut is completed) into proper position to enable the timber to be fed forward for another cut.

Wm. C. Howard, of Grahamville, S. C., has

invented an improved Machine for Hulling Rice, which is designed especially for family use, but which may be made of any desired size and capacity. This invention cannot be properly described without engravings.



EXCAVATING SCOOP.

to stop, the box being by this time in an almost vertical position. The engineman who drives on the filling side is next signaled to go on; and when the implement moves back again empty, the box being in a vertical position, the earth