

THE POLAR PANTOGRAPH.

The engraving represents an instrument by means of which an exact outline of the form of a body can be drawn on paper, and which is used for measuring the wear of bodies—as, for instance, that of the wheel tires. Its construction, as shown in the engraving, is very simple.

If a straight line of a variable length oscillates in a plane around its center, which is supposed to be fixed, its extreme points describe symmetrical and identical figures.

This principle has been applied in the instrument represented in the accompanying engraving, which consists of a frame pivoted at A. This frame carries two racks, C C', which gear into the pinion, A. A displacement of one of the racks will turn the pinion and move the second rack in the opposite direction an exactly equal distance. By attaching a pencil, B, at the end of one rack, and a pin, D, at the end of the other rack, in such a manner that the pencil and the pin are both in the same vertical plane, which also passes through the axis of the pinion, and that the pencil and the point are equally distant from this axis, the pencil will describe on paper the identical figure which is described by the point moving on the surface of a body. The point, D, is so arranged that it can revolve around an axis, *a b*, which axis can itself revolve around a second axis, *c d*, which is supported by the rack. The point of intersection between the axes, *a b* and *c d*, is also the extreme point of the pin. By this arrangement any shape of the surface of the body, even if it be concave, can be easily traced by the point.

This instrument is the invention of Mr. Napoli, the chemist of the Eastern Railroad of France.—*Railroad Gazette*.

COMBINED FORK AND SPOON.

The device shown in the accompanying engraving is the invention of Mr. A. B. Nott, of Fairhaven, Mass. It is designed for culinary use, and it consists of a fork in the handle of which is pivoted a spoon bowl, which may be turned down against the fork tines for use, or it may be folded back against the fork handle out of the way when not in use. A spring contained in the fork handle holds the spoon bowl in either of its positions.

Telegraphic Ignition.

The telegraph wire as a fire risk has, perhaps, not received the attention it is entitled to. During a thunder storm which began at Council Bluffs, Iowa, soon after 11 o'clock, night of June 10, the freight office and warehouses building of the Chicago, Burlington and Quincy Railroad Company was burned to the ground, though most of the contents were saved. It was supposed that the fire was caused by a heavy charge of electricity entering the building along the telegraph wires. Probably all this loss would have been prevented had the ordinary lightning arrester been provided upon the posts near the building. The arrester is simply a wire that has one extremity placed very near but not in contact with the telegraph wire. The other extremity of the arrester terminates in the ground. When lightning gets on the telegraph wire it leaps to the arrester wire and passes into the ground.

AN IMPROVED POTATO DIGGER.

The potato digger illustrated herewith has been recently patented in Austria by the Messrs. W. Siedersleben & Co., Bernburg, Germany. It is claimed for it that it not only takes the potatoes from the ground, but also places them, freed from adhering vines and soil, in narrow regular rows, so that they may be easily picked up.

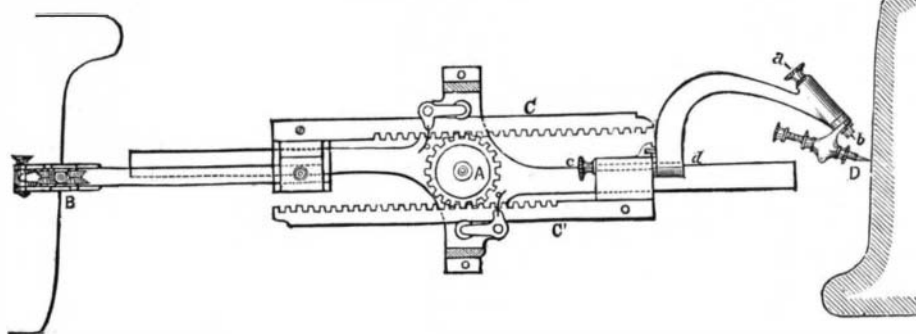
The front part is constructed like the steering apparatus on some kinds of sowing machines. The movable parts, consisting mostly of cast iron, are attached to a strong wrought iron frame. On the axle of the driving wheels revolves a toothed wheel acting on a shaft carrying two chain pulleys and a toothed wheel. The chains running over the pulleys operate two shafts placed between the extremities of two oblique iron plates; between the latter and over the shafts runs an endless chain, taking up the potatoes as they are brought to the surface by the share, and carrying them upward toward the cleaner placed in slightly inclined position at the rear end of the machine. Two persons are necessary for attending the machine, one for driving the team, the other for steering the apparatus. In this manner from three to four acres of ground may be gone over in a day.

Filaria Snake from the Eye of a Horse.

At a recent meeting of the New York Pathological Society, Dr. H. D. Noyes showed a filaria which he had removed from the anterior chamber of the eye of a horse on the day previous. The parasite was first seen in January,

and was visible three days. It then disappeared from view for six weeks, and since then, while often visible, it would not be discoverable for several days or hours.

The creature, as seen by Dr. Noyes, was running actively about the anterior chamber, and the horse did not evince any consciousness of suffering. There was decided opacity of the cornea and some cerium-corneal hyperæmia. The re-

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moval was done to prevent increase of corneal opacity. The horse was supposed to be twelve years old. These filariae were common in the peritoneal cavity of the horse, and occasionally appeared in the eye.

At the operation, which was done with the help of Dr. Liautard, at the American Veterinary College, the horse was thrown and etherized, the cornea punctured with a lancet-knife, and the wound held open as the point was partly withdrawn, so as to cause the aqueous humor to spurt in a gush.

The parasite was thus driven out and lived for an hour after its extraction. It measured two and a quarter inches, or fifty-eight millimeters, in length. Its neck was curved into a spiral, forming one and a half turns, and at the extremity of the head was a minute papilla, from which the name, *Filaria papilli fornix*, was derived.

Dr. Noyes explained the disappearances of the filaria by supposing that he went through the pupil behind the iris, but did not penetrate into the deeper part of the eye. Since the specimen was presented, the horse had been heard from;

**NOTT'S COMBINED FORK AND SPOON.**

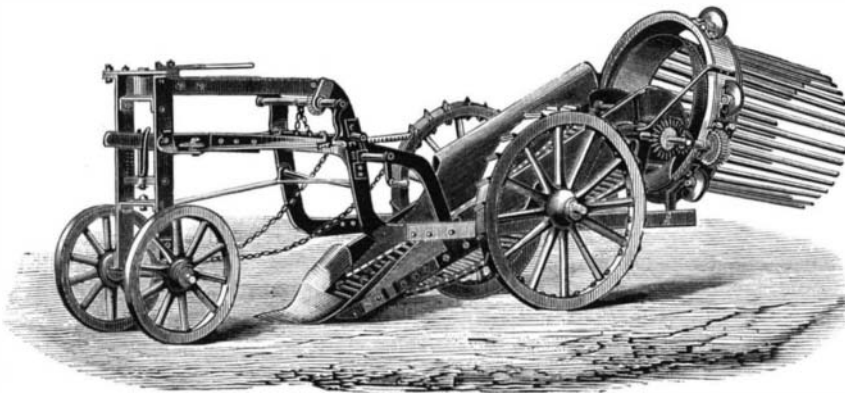
the eye recovered from the operation, and the opacity of the cornea had begun to fade away.

A Finback Whale in New York Harbor.

Capt. Patrick Owen, of the sloop Storm Child, lately captured, off Sandy Hook, the finest finback whale ever taken in these waters. The whale was twenty-five feet in length. It was brought to Pier 22, East River, where it was visited by many curiosity seekers. The prize was promised to the Smithsonian Institution. The whale, when caught, was attended by a crew, which followed the carcass to the city.

RECENT MECHANICAL INVENTIONS.

An improved machine for separating perfect nails from headless nails, slivers, and dirt, has been patented by Mr. Moses A. Williams, of Knoxville, Tenn. It consists in one

**NEW POTATO DIGGER.**

or more pairs of rotary disks or wheels, having curved or beveled peripheries forming a peripheral trough, the disks being placed a short distance apart so that headless nails, slivers, and dirt may escape between them, while the perfect nails are carried forward to a clearer, which removes them and delivers them to a suitable receptacle.

Mr. Vincent A. Menuez, of Michigan City, Ind., has patented an improved swinging cradle which may be readily taken apart and folded compactly together for shipment and storage.

Mr. J. R. Payson, of Chicago, Ill., has patented an improved bolt for doors, which can be applied to the jamb or frame of the door without injury to the finish. It fastens the door without sockets, and is not affected by the settling of the door or door frame.

Mr. William A. Yeatts, of Little River, Va., has patented an improved automatic brake for wagons, which consists in combining the brake bar, sliding hounds, and connecting rods attached to the brake bar and to the rear hounds, so that when the rear axle is forced forward the rods will rotate the brake bar and effect the lock.

A machine especially adapted for bottling liquids under pressure with Allison's suspender or gravitating stopper, has been patented by Mr. James J. Allison, of Nelson, Ill. The frame that supports the bottle is pivoted so that it may be inverted after the liquid is introduced into the bottle to allow the stopper to take its place in the neck of the bottle.

An improved attachment, by means of which the forward part of an ordinary buggy may be converted into a sulky, has been patented by Mr. Andrew H. Morse, of Norwich, Conn. It consists in a sulky frame adapted to the front running gear of a buggy.

An improved press for baling cotton, hay, and other substances has been patented by Mr. Frederick J. Gardner, of Washington, N. C. The follower block has a central opening, and a screw rod passes through it and also through the bed. The platen and bed are both concaved between the bale band grooves.

An improved device for tapping steam and water pipes, when under a full head of steam or water, without escape or leakage, has been patented by Messrs. James H. Chapman and Richard Hawthorn, of Peekskill, N. Y. The invention consists of a vessel to be clamped against the side of the pipe, and in drilling tapping devices and means for screwing in the valve.

Mr. Clarence J. Reynolds, of Poughkeepsie, N. Y., has patented an improved lemon squeezer, which consists of two cups, one inverted and having a convex bottom fixed to a handle, with a slot through it for a lever, which connects with the under concave cup, and has its fulcrum in the handle of the first cup. By means of this device a heavy pressure may be brought upon the lemon.

An improvement in felt guides for paper making machines has been patented by Mr. Jacob Peaslee, of Ashland, N. H. It consists in an upper and lower roller mounted on a pivoted frame, the upper roller

having conical pressure surfaces that act in connection with the pivoted frame to retain the felt in a central position.

A wagon which may be used as a light road wagon or buggy, and which may be adjusted according to the work to be done, has been patented by Mr. James L. Phillips, of Lowville, N. Y. The joints of this vehicle are made so that they will not rattle.

An improved stovepipe coupling and brace has been patented by Mr. Wm. E. Hofman, of Fort Omaha, Neb. It consists of a strip of sheet iron about one and one half to two inches wide, with both edges turned up and bent toward each other, forming a brace which engages buttons riveted to the stovepipe lengths.

Mr. Julian Chase, of Pawtucket, R. I., has patented an improvement in whiffletrees, which consists in the combination of a lever trace holder and a spring with the whiffletree, the object being to prevent sudden jars or shocks on the traces or whiffletrees.

An improved machine for crosscut sawing logs has been patented by Mr. Thomas B. Fagan, of Van Wert, Ohio. It consists in the combination of a swinging bar, a curved lever, and a curved spring, with the saw and saw frame.

Mr. Nelson W. Brewer, of Williamsport, Pa., has invented an improved whiffletree, designed to equalize the draught and to prevent sudden strains on the harness or carriage. The whiffletree consists of two arms hinged on the whiffletree pin and connected to a common spring.

An improved fastener for clothes lines has been patented by Mr. John Bohlen, of Big Rapids, Mich. It consists of three pieces of cast metal, a support, a swivel

piece, and a clamping lever. It may be secured to any suitable support and will hold the line securely.

A combination machine for blacksmiths' and carriage makers' use, has been patented by Messrs. Robert Bates and Joseph Wild, of Spring Valley, Ohio. It combines a drill, punch, shears, bender, upsetter, and lathe in a single frame.

Mr. Henry Parker, of Claiborne, Miss., has patented an improved baling press, which consists in a novel combination of a windlass shaft, pulleys, ropes, and bars for operating the follower block.