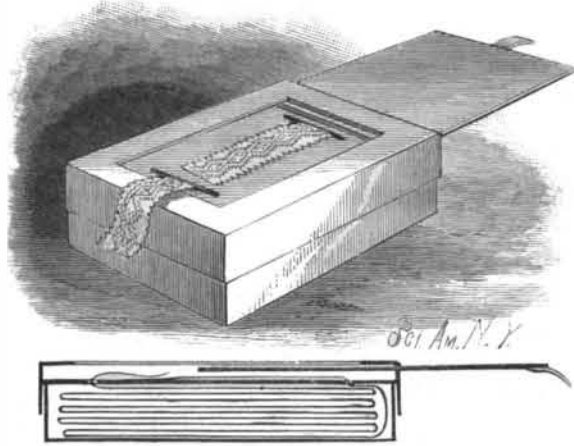


IMPROVED SAMPLE BOX.

The box shown in the engraving is for lace, edging, embroidery, etc., and is so constructed as to show a sample of the goods in the box on the cover—the sample not being a separate piece, but a part of the goods. The box cover has a large opening in its top, and is provided with a horizontal partition a short distance below the top, thus forming a compartment between the top of the cover and the partition, as will be understood from the sectional view. The cover is provided with an end slot, through which a slide can be passed. The partition has a transverse slot near each end. One end of the lace in the box is passed through one slot

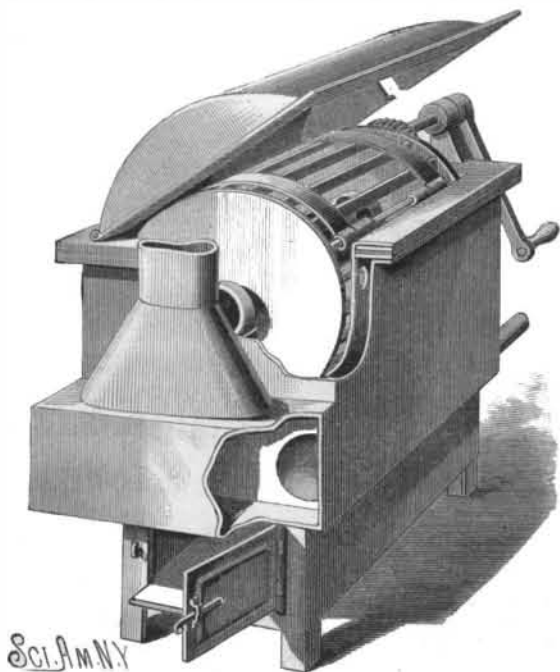
**LIEBERTHAL BROS. & CO.'S IMPROVED SAMPLE BOX.**

and pasted on top of the partition, and the other end is passed through the other slot and rested on top of the partition; the slide is pushed inward, to cover the partition and ends of the lace. A sample of the contents of the box can be shown by withdrawing the slide. By pulling on the free end of lace, any desired length can be drawn through the opening. The sample and contents of the box are kept clean, while any desired length can be quickly and easily obtained.

This invention has been patented by Messrs. Lieberthal Bros. & Co., of Iron Mountain, Mich., who will furnish further particulars.

WASHING MACHINE.

On the furnace is a metal box or steam generator, the top of which is made semicircular to receive a cylindrical cage constructed of two end pieces connected by bars. The products of combustion pass from the furnace through two flues passed longitudinally through the box at the bottom and into a smoke box connected with the stove pipe. A neck projects downward from the lowest part of the curved top into the cavity of the box, and side apertures are formed near the top edge of the box. The cage has a tubular shaft having numerous openings, and two hollow end trunnions journaled on the inner end of the box, between which inner end walls and outer end walls a steam space is formed. The top edge of the curved top and the outer side walls of the box, and the inner and outer end walls of the

**RICHARDSON'S WASHING MACHINE.**

box, are securely united at the top, so as to form a tight steam chamber. On one end trunnion is a cog wheel engaging with a wheel on a shaft having a crank handle. A suitable curved cover is hinged to the top of the box. Inverted V-shaped ribs are secured longitudinally on the tubular shaft, and the bars forming the cage are also V-shaped in section.

The water in the generator is converted into steam by the fire in the furnace beneath it and by the hot gases, etc., passing through the flues. The hot water passes up through the neck in the lower part of the space occupied by the cage. The steam issues through

the side apertures into the cage, and steam and hot water pass up in the space between the end walls into the tubular shaft, and through the holes to the interior of the cage. A thorough circulation of the hot water is thus kept up in the machine. The cage is revolved by means of the cog wheels, whereby the clothes are thrown about and dipped into the boiling water and raised out of it alternately. The ribs on the shaft assist in throwing the clothes about, while those on the cage act as buckets to raise the water and drop it upon the clothes. The cage is provided with a hinged gate, and the generator has an outlet pipe for drawing off the water.

This invention has been patented by Mr. Wm. H. Richardson, of Mexia, Texas.

Bellows Falls Water Power.

Correspondence to the Springfield (Mass.) *Republican* says the Bellows Falls Canal Company, Bellows Falls, Vermont, has just completed important and expensive repairs, begun some four years ago, to the canal which furnishes power for the large paper mills in that growing town. These improvements are for the purpose of systematizing the use of the water, so that it may be used by those establishments two or three times over, whereas heretofore it has only been used once. By systematic dredging the canal company has secured a fall of 52 feet from level water above the Sullivan Bridge to the still water below the mills. Large head gates have replaced those used about fifty years ago. Nineteen large mills are supplied by this canal, nearly all of which are engaged in the manufacture of paper and wood pulp.

Few people outside of Bellows Falls are aware of the vast amount of paper and pulp produced by these mills. The Fall Mountain Paper Company alone owns and operates thirteen of the nineteen mills, and these use a great part of the wood pulp made there, though a considerable quantity is furnished to Philadelphia, Cleveland, and Cincinnati manufacturers. Much of the manufactured paper is sold to the daily papers. Another thing for which Bellows Falls people are largely indebted to these extensive manufacturers, which gives to the town an additional advantage over larger places in the State, is the electric light, which is furnished the village merchants and others for a mere song, as it were. The Fall Mountain Company furnishes the power for no less than 800 electric lights, 400 or 500 of which are used in the company's different mills, and the balance by the village storekeepers and others, who are charged but one cent an hour for the use of each light, which is of 16 candle power. These lights give such general satisfaction that it seems quite likely that within a few months the plant will be so extended as to furnish many of the village dwellings with a light which it is claimed by those now using it, is cheaper even than kerosene.

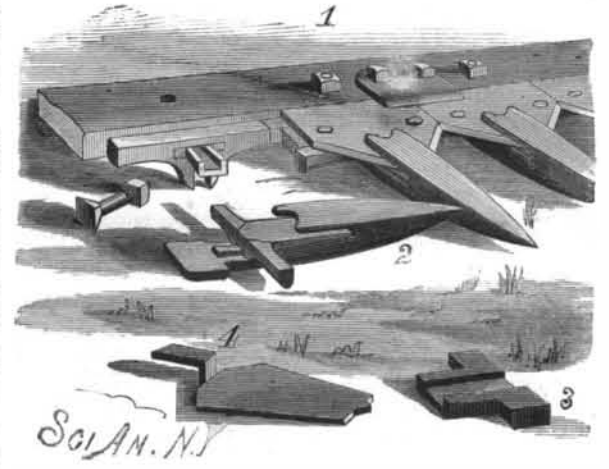
The Pyrophore.

At a recent meeting of the Academy of Sciences, at Paris, a plate half filled with water, in which were half a dozen insects about an inch in length, which shone like diamonds, although the room was filled with sunshine, was passed around among the members. These insects had been brought from Mexico, where they are to be found in the forests. Their scientific name is the pyrophore; and, as none had ever been seen before in Europe, they created quite a sensation. The light resembles that of a glow worm or a fire fly, although as much more brilliant and intense as an electric lamp surpasses a wax taper in its power of illumination. When the light begins to fade, it can be made as brilliant as before by shaking the insect, or dipping it in water. It is said the Indians of Mexico use them for a light at night, as a few will suffice to illuminate an entire room. When they are walking at night, they put one on each foot, so that they can be sure of their way, and also that they do not step upon any venomous snake or reptile with which the tropical forests abound. The Mexican ladies buy them of the Indians, and inclose them in a transparent bag, which they wear in their hair or at the neck. The effect is very beautiful, especially when several are worn; and, as the Indians sell them for a few cents a dozen, they are within the reach of every fair one. They are fed on sugar cane, and, if well taken care of, will live a long time. One placed upon a page will enable it to be read with ease in the darkest night.

CUTTING APPARATUS FOR MOWERS AND REAPERS.

The accompanying cuts show a cutting apparatus for mowers and reapers, constructed in such a manner that the wear of the sickle bar can be readily taken up, and the sickles thereby kept in proper position. The stationary cutters can be readily removed, sharpened, and replaced. The fingers are secured to the finger bar in the ordinary way. The sickle bar slides upon the shanks of the fingers in front of the finger bar, and carries the sickles, whose rear ends project a little to the rear of the sickle bar, as shown clearly in Fig. 1. The sickles and sickle bar are held down to their places by keepers attached to the finger bar. Between the shoulders of the fingers and the forward edge of the finger

bar are secured plates (shown detached in Fig. 3) whose rear side edges are extended to form flanges, and in whose upper sides are formed grooves to receive the shanks of the stationary cutters, Fig. 4. In the space between the sickle and finger bars is fitted a wear bar, made in sections. In the lower side of the center of each section is a T-groove, the body of which is of such a width as to receive and fit upon the narrow part of the shank of the finger. The arms of the groove fit upon the flanges of the finger shank plate, Fig. 3, so that the sections of the wear bar will be held securely in place when moved back against the finger bar. With this construction, the sections can be easily removed, when

**GORE'S CUTTING APPARATUS FOR MOWERS AND REAPERS.**

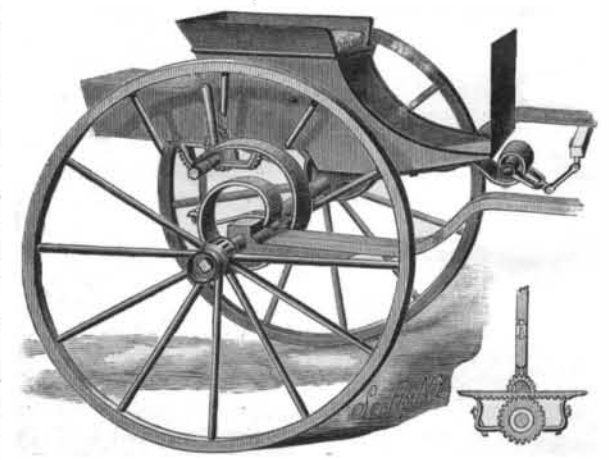
the sickle bar has been detached, by moving them forward to the narrow parts of the shanks of the fingers. Also, when the sickle bar and wear bar wear so that the former becomes loose, the wear can be taken up by inserting a packing of leather or other material between the finger and wear bars. The form of the stationary cutters, which are held firmly in place, and yet can be detached and sharpened or replaced without detaching the fingers, is plainly shown in Fig. 4.

This invention has been patented by Mr. J. M. L. Gore, of Raymond, Kansas.

IMPROVED TWO WHEELED VEHICLE.

The object of an invention recently patented by Mr. Walter C. Bradford, of Germantown, Cal., is to provide an improved cart of a special construction, which is strong and durable, and rides very easily. Secured at each side of the underside of the vehicle body, and some distance behind the axle, is a frame, on the bottom bars of which a shaft rests loosely. On each end of the shaft is a cog wheel engaging with a rack formed on the top piece of the frame, which is shown detached in the small view. Secured on one end of the shaft is a handle bar, carrying a sliding locking bolt, the end of which enters the notches formed between the teeth of a curved rack on top of the frame, or racks on the ends of the frame. The rear ends of coiled steel springs are passed loosely around the shaft, so that the latter is free to turn in the eyes thus formed, and the other ends are clamped to castings on which the vehicle shafts are held; the castings are clamped on the axle. Rubber cushions carried by arms projecting from the castings toward the rear support the body when it swings down too far. Straps connect the ends of these arms with the frames.

By swinging the handle bar toward the rear, the

**BRADFORD'S IMPROVED TWO WHEELED VEHICLE.**

cog wheels are turned to move the body in that direction, thereby relieving the horse. When more weight is desired, the body is moved to the front and the springs are uncoiled. The bar can be locked in any desired position by the bolt, and the springs held at the required tension. By means of the front spring, which is attached to the front of the body and suitably connected with the crossbar uniting the shafts, the front of the body can be properly adjusted in regard to height. It is apparent that the springs and their attachments can be strongly and durably made, and can be easily and quickly adjusted as required.