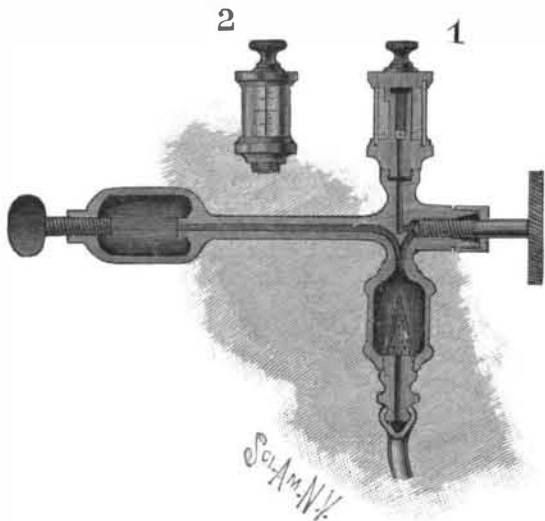


MIXING AND VAPORIZING DEVICE FOR INHALERS.

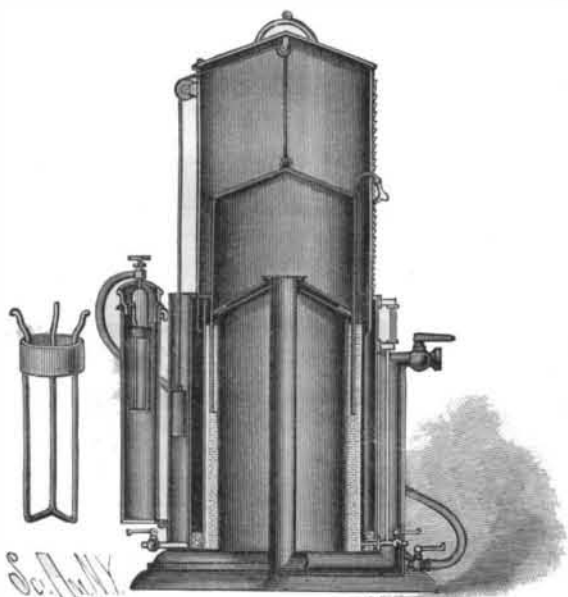
This device—the invention of Mr. G. E. Johnson, of Albion, Ind.—is designed for thoroughly mixing anæsthetics, such as nitrous oxide and laughing gas and ether, at the time they are being used. The neck of a cylinder containing nitrous oxide is held in a yoke formed at one end of the tube in such a way that the gas can pass into the bore of the tube. The inner end of the bore is curved downward, and leads into a chamber the lower end of which is connected by a tube with a gaso-

**MIXING AND VAPORIZING DEVICE FOR INHALERS.**

meter. Projecting upward from the bottom of the chamber is a wire gauze cone, which insures the perfect mixing of the gases as they pass through it. On top of the main tube is held a glass vessel having a screw cover and a gauge, as shown in Fig. 2. From this vessel the bore extends down to a bore in a neck on the end of the tube; a passage also leads to the chamber. In the neck is a screw valve. The anæsthetic liquid is contained in the glass vessel. By properly turning the screw valve, a small quantity of the liquid is permitted to flow into the chamber, where it is thoroughly mixed with the gas; it then passes through the tube into the gasometer.

GASOMETER.
The device, as illustrated, is to be used by dentists and others to provide for nitrous oxide. Secured to the side of the outer shell by hooks is a case containing a tripod frame—shown in the small view—for holding the nitrous oxide cylinder, which is connected by a hose with a cock on the inlet and outlet pipe; when the tripod is removed, a larger cylinder can be passed into the case. The valve of the cylinder containing the liquefied gas being opened, the gas passes through the hose and pipe into the bell, which is raised and locked in place by a catch engaging with teeth of racks formed on the outer shell, which is provided for the purpose of covering the bell when the latter is raised.

As the bell ascends, the weight attached to its top by a cord leading over suitable pulleys descends. The

**JOHNSON'S GASOMETER.**

sides of the bell enter the water in a well formed by two cylindrical casings united at the bottom and secured to a base. Between the edges of the double conical top of the inner casing is held a rubber packing which rests against the inner surface of the bell. When the desired quantity of gas is in the bell, the oxide cylinder is closed and the hose uncoupled. To administer the gas, a flexible tube provided with a mouthpiece is coupled on the end of the outlet pipe, and the latch is raised to permit the bell to descend to exert pressure on the gas. Scales are provided, which show how much gas is in the bell and how much has been removed; a glass

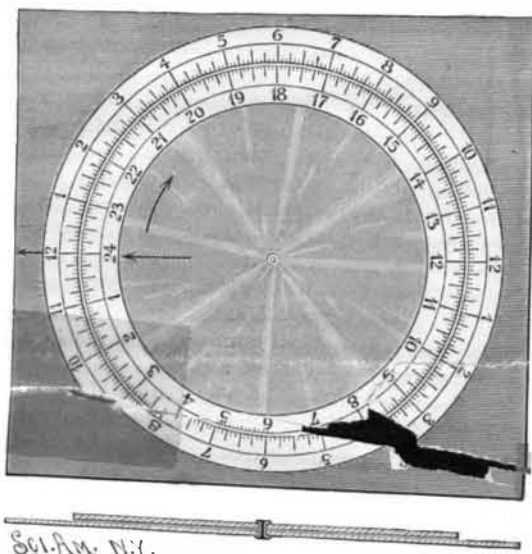
gauge shows the level of water in the well. The space between the outer well casing and the outer shell serves to catch the water that is forced out of the well.

This construction provides a dry gas chamber, and the water forming the seal cannot absorb much gas. The gasometer is small in relation to its capacity, and weighs very little. This invention has been patented by Mr. G. E. Johnson, of Albion, Ind.

TIME CALCULATOR.

This invention provides a simple and easily operated device for the use of time keepers or foremen in manufacturing establishments, to enable them to readily calculate the amount of time consumed by any workman upon any job. A circle in the plate forming the body of the instrument is divided into twenty-four equal parts, representing the hours of the day; each division is subdivided into parts of the hour. The circle is divided into halves, and the divisions in each half are numbered from 1 to 12. Opposite the twelve mark at one side is an arrow to indicate the starting point. Pivoted to the plate is a circular disk similarly divided, but the divisions are numbered from 1 to 24 in the reverse direction. Opposite the twenty-four mark is an arrow.

Suppose, for example, the workman quit at half-past one. The index on the disk is then moved to a point opposite the half-past one mark upon the upper half of the outer circle. He began work at half-past eleven. Now, by following the graduations of the upper half of the scale backward to the mark representing half-past eleven, it will be seen that the mark on the disk opposite half-past eleven is numbered two, thereby indicating that the workman had been employed two hours. It will be seen that the device is simple and easy to handle, and gives perfectly accurate results.

**STRECK'S TIME CALCULATOR.**

This invention has been patented by Mr. S. S. Streck, of 309 Coliseum Street, New Orleans, La.

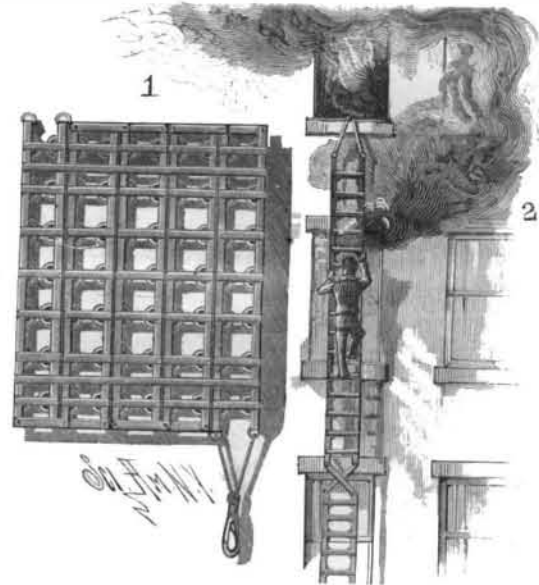
Medical Attendance for Railroad Hands.

The New York elevated railroads have some 4,000 employees, including about 500 repair men, constantly on duty. This is an extremely large proportion of labor for repairs and track inspection, which is necessitated by the peculiar character of the road, and it is a kind of work where the men are particularly exposed to accident and to injury to their eyes. The managers have, therefore, established a regular medical department, with one doctor for the eastern and one for the western division of the city lines, with facilities for prompt communication with any portion of the track. The company pays where men have to be taken to hospital, but its own doctors attend to the slight injuries, which are very numerous. A large satchel, with instruments, bandages, etc., stands ready for emergency, and is carried by the surgeons on duty. Among other functions discharged by the surgeons is the examination of employees for color blindness, sight, and hearing. Those not considered in sound condition are given other and less important positions, where these physical qualities are of less consequence. This medical attendance is without charge to the employees.

COMBINED SPRING BED AND FIRE ESCAPE.

When necessary, the spring bed shown in Fig. 1 can be unfolded and used as a fire escape, as illustrated in Fig. 2. The apparatus is made up of several sections hinged together at their ends, so as to be folded alongside of each other to form a bed bottom, or extended to stand endwise to each other to form a ladder. Each section is composed of two upper and two lower parallel bars or plates, upper and lower cross plates, and springs held between the bars. The sections are hinged together end to end by upper crossed hinge plates that join the ends of the upper bars and lower cross hinged plates that join the ends of the lower bars. The sections can thus be folded side by side, or extended to form a ladder. When folded, they are held from

spreading apart by two binding plates formed with downwardly projecting arms at their ends to reach over the outside edges of the outside sections, and also with arms to reach down between the adjacent edges of the sections. One of the outside sections is attached to any stationary object in the room by means of a strong cord, so that when the apparatus is cast out of the window, it will be securely suspended from the sill. The

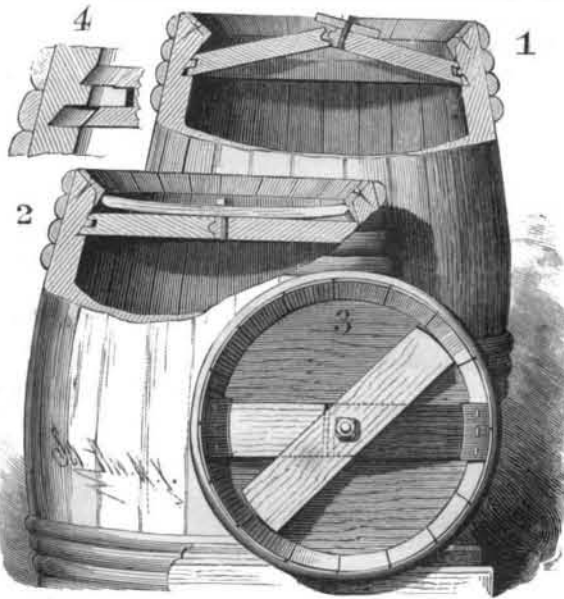
**COMBINED SPRING BED AND FIRE ESCAPE.**

cross pieces of the sections constitute the rounds of the ladder.

This invention has been patented by Messrs. W. G. Wilson and G. Zimmermann; the latter, whose address is 2165 Oldam Street, Philadelphia, Pa., will furnish further particulars.

A NOVEL BARREL HEAD.

The accompanying engraving represents an improved barrel head—the invention of Mr. Francisco J. Oliver, of 43 Cheever Place, Brooklyn, N. Y.—which can be easily placed and locked in position on a finished barrel, or removed from the same without disturbing the hoops, so as to facilitate the inspection, filling, or emptying of the barrel. The head is made in three pieces. The center piece is made in two parts, one of which has on its inner end a projection that fits into a corresponding groove in the inner end of the other part. The form of the beveled periphery of the head and of the corresponding croze in the barrel is plainly shown in the cut; a packing of rubber or other suitable material is placed in the groove of the head; the double joint is placed in the groove of the head; the double joint is placed in the groove of the head; the double joint is placed in the groove of the head. To place the head in position, the side pieces are inserted in the usual way, and then the bevels of the center pieces are placed in the croze directly under shoes fastened to the upper edges of the staves and projecting slightly inward. The inner ends are then fitted into each other, and the two parts are pressed downward to form a straight piece, thereby completing the head. The locking plate, through which passes a bolt secured to the inner end of one of

**OLIVER'S NOVEL BARREL HEAD.**

the center pieces, is then placed transversely over the center part, the bolt passing through an aperture. The plate is then turned so as to cover the center piece, and its ends are placed under the shoes. The nut is then tightly screwed on the bolt against the plate, whereby the entire head is firmly locked in place. The head is removed by first unscrewing the nut, swinging the plate from under the shoes, and then, with the bolt as a handle, raising the center pieces. This head is strong and durable, since it is of the same thickness all over, and it requires no skill to handle it.