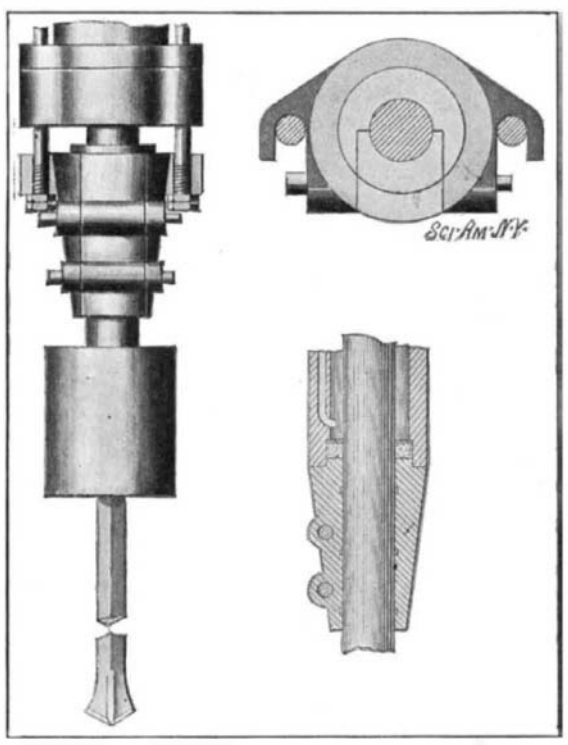
Patent Department

FRONT CYLINDER HEAD FOR ROCK DRILLS

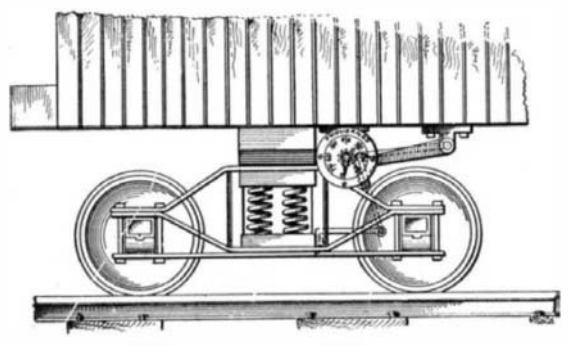
The constant jarring of rock drills of the percus sion type when in operation, causes the cylinder pack ings to frequently become disordered and require re pairs. In order to render the parts readily accessible Mr. John S. Spencer, of Cripple Creek, Col. (Box 72) has invented an improved front cylinder head which can be very quickly and easily removed without disturbing the other parts of the mechanism. In our il lustration the general view shows the cylinder head partly removed. The cylinder head is formed with a body member cut out at one side to receive a closing member. Lugs are formed on the two members, and the latter are firmly united by taper pins driven through the lugs. The cylinder head is formed with a longitudinal bore to receive the piston. It is preferably tapered, and is provided with an annular offset at the top, which fits into a recess in the front end of the cylinder, as shown in section in our illustration. The cylinder head is held against the cylinder by side bolts from the latter, which engage open ears formed on the body member of the former. When it is desired to move the cylinder head, the nuts on these bolts are loosened, permitting the cylinder head to drop to the position illustrated. The taper pins are then driven out, permitting the body and closing member to be drawn apart and removed from the piston. The process is, of course, reversed in applying the cylinder head to the cylinder. The simplicity of the construction and its advantages are such that it should appeal to all who are interested in drills of this type.



REMOVABLE FRONT CYLINDER HEAD FOR ROCK DRILLS.

A Railway Chronograph.

Among the new industrial companies recently formed is one at Milwaukee, Wis., which will engage in the manufacture of a novel railroad device. The latter is called the railway chronograph, and is the invention of H. G. Sedgwick, formerly of Beloit, Wis., and now a resident of New York. By the use of the device referred to, an accurate record of the trip is kept, so that it is possible after the completion of the run to ascertain the location and the rate of travel of the train at any time during the trip. The apparatus is contained in an iron box one foot square and three inches thick, which is fastened to the front of the cab. This holds a self-winding clock, by means of which a tape is kept in constant motion, and by means of connections maintained with the various parts of the engine, a record is made of everything which transpires thereon. Every stroke of the bell as well as every blast of the whistle is indicated in its proper column on the tape, and there are other columns in which are shown the time and place of each application of the brakes, and also the escape of steam by the safety valve. As the tape runs along, every tenth of a mile made by the engine is ticked off, and as the time is constantly in evidence on the slip, it is readily possible to arrive at the most minute details of the trip. There is a column on the tape known as the engineer's column, on which he may make a record of anything which he thinks may be of interest. For instance, on the occasion of a trial of the instrument, the engineer noted the loss of a jam nut, and by quickly making a note of the incident, the exact location was arrived at, and the nut recovered with little trouble.



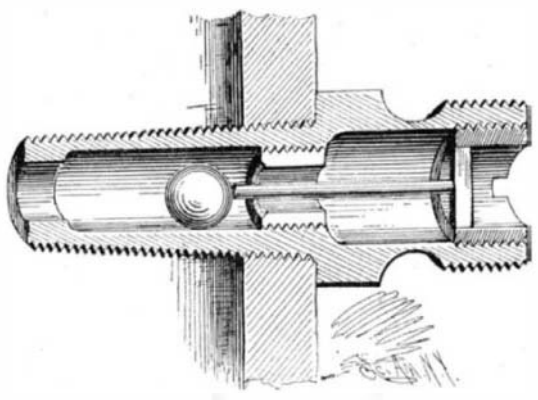
LOAD INDICATOR FOR CARS.

CONCEALED TROUSERS GUARD.

ODDITIES IN INVENTIONS.

TROUSERS GUARD.—A device which bicycle riders will find very useful is a trousers guard which, in addition to holding the trouser leg rigid to prevent its coming in contact with the mechanism of the wheel, will also preserve the shape of the trousers, and when applied will be entirely concealed from sight. It consists of a band of spring metal, bent to a heart-shaped outline, with an inner circular portion connected by parallel portions forming a throat. The device is applied to the foot by forcing the ankle through the throat to the circular band within. The latter snugly fits the ankle, holding the guard in place. The trouser leg is then drawn over the heart-shaped outer rim. The guard holds the trouser leg at a slight distance from the foot, but not far enough to come in contact with the moving parts of the bicycle. The outer rim is made adjustable to different sizes of trouser legs. The guard may be readily applied or removed, and as it does not detract from the appearance of the trouser leg, it can be worn either on or off the wheel.

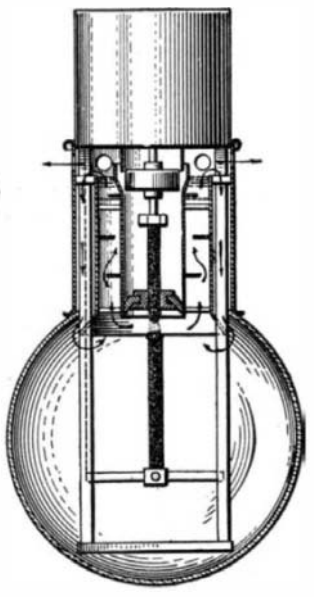
SAFETY NIPPLE FOR STEAM GENERATORS.—The accompanying illustration shows an improved safety device adapted to prevent escape of steam from a boiler in case of accident to the steam gages or test devices. The device consists of a plug threaded into the boiler The outer end of the plug is threaded to provide for coupling the steam gage or other attachment. A channel is formed in the plug between this threaded portion and the shell, thus weakening the plug, and providing for its rupture at that point. Threaded into the outer end of the plug is a bushing, from which a rod extends through a second bushing within the plug, intermediate of the ends. The latter bushing is formed with a valve seat on its inner end adapted to receive a valve on the end of the rod. Normally, however, the outer bushing serves as a stop to the valve stem, holding the valve unseated, as illustrated, but should the pressure in the boiler rise to a dangerous point, the plug would break along the weakened channel, and the valve would be instantly seated, thereby effectually shutting off the escape of steam.



SAFETY NIPPLE FOR STEAM GENERATORS.

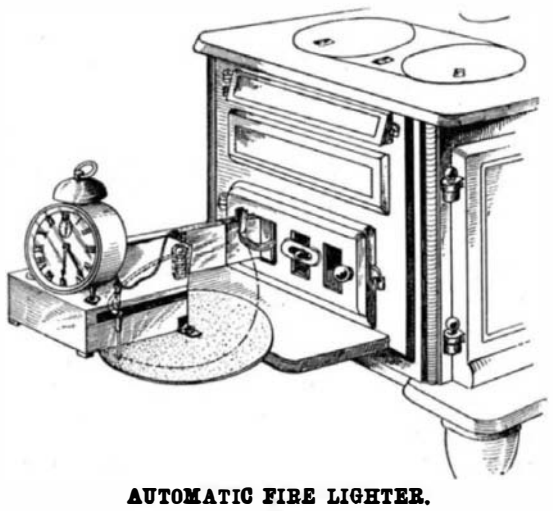
LOAD INDICATOR FOR CARS.—By means of the simple attachment for freight cars illustrated herewith, one is enabled to determine at a glance the weight of the load on a car, thus obviating the danger of overloading the car and dispensing with track scales. The indicator is arranged to measure the depression of the car springs, thus registering the weight they support. The indicator dial is secured to the underside of the car. The pointer on this dial is mounted on a shaft which carries a pinion. The latter meshes with a toothed-sector secured to a crank shaft mounted in the bracket on the underside of the car. The crank arm of the shaft is connected by a link with a bracket carried on the spring plank of the car truck. Now, as the car is being loaded, the weight of the load forces the car body downward, carrying with it the indicator dial. The outer end of the sector, however, is held at a constant level by the link which supports the crank shaft, and the pinion of the indicator, since it meshes with the teeth of this stationary segment, is thereby caused to turn through an angle depending upon the weight of the load. The pointer indicates this angle on the dial.

IMPROVED ELECTRIC ARC LAMP.—It has long been known that the luminosity of the arc lamp carbons could be greatly increased by the addition of salts of lime, magnesia, and other materials. However, in practice it is found that the advantages are outweighed by a number of disadvantages. The light is unsteady, owing to diffusion of smoke and vapors and the production of scoria. A recent invention is designed to overcome these defects. The lower pencil, contrary to ordinary practice, is made the positive electrode, and is formed of pure carbon with a core of carbon mixed with light-producing salt. The main body of the upper carbon is protected by a tube closed at the bottom by a shield, through which the carbon projects. Surrounding this tube is a cylinder, provided with baffle plates and screens adapted to intercept and consume the smoke and vapors which are drawn up therein. In operation any scoria formed on the positive carbon runs off without interfering with the arc. The mineral vapors produced have a tendency to rise, and are acted upon by the current throughout their upward course. On striking the shield a portion of the vapor condenses, forming a layer of reflecting material thereon, which increases the efficiency of the lamp.



IMPROVED ARC LAMP.

AUTOMATIC FIRE LIGHTER.—Surely laziness and not necessity is the mother of many present-day inventions. A Pennsylvania inventor has devised a scheme for making his alarm clock light the kitchen fire, thus allowing him time for an extra nap in the morning. The fire lighter comprises a friction plate on which a block is mounted. The block is secured to a bracket, which is fastened to the stove. A slot is cut in the side of the block to receive a spring arm extending from a coiled spring secured in the block. This arm, at its outer end, is provided with a holder for a match. The alarm clock is mounted on the block with the legs secured in socket pieces. A cord from the alarm key of the clock stretches to a pin, which acts as a stop for the spring arm. When at the set time the alarm is sounded, the alarm key, as usual, rotates, winding up the cord and withdrawing the pin from engagement with the spring arm. The latter then, under action of the spring, lights the match by sweeping it over the friction plate. At the end of its course, the match comes into contact with and ignites a fuse leading to the kindlings, thus lighting the fire.



AUTOMATIC FIRE LIGHTER.