coupling designed to be simple, durable and noiseless, whereby the pole may be conveniently connected to or detached from the axle by the most inexperienced helper. It also provides a means whereby the safety straps may be readily connected with or disengaged from the pole or shaft.

LOAD BINDER. - Harry M. Bradley. Canon City, Col. A longitudinally slotted bar with teeth on opposite sides has an aperture in one end for the attachment of a rope, the bar being passed through a slot in a lever, where it is held by a pin and spring-pressed pawls, and there being a rope attached to the lever, the whole forming a simple and conve nient device for binding loads upon vehicles in a quick and secure manner. The device may also be used for pulling posts, tightening wire, and as a lifting jack.

WAGON BRAKE. - John W. Herrin, Mount Vernon, Ill. This invention provides a brake which will be automatically applied to the front wheels when the vehicle to which it is attached starts down on an inclined grade, and will be automatically released when a level grade is reached or the vehicle is started up hill. The invention also provides a locking device whereby the brake may be locked either when applied or released, thus taking all strain off the draught animals.

WATERING TROUGH.—John T. Thatcher, Frankfort, Ind. This trough has an apertured end, with a valve arranged to slide past the aperture, in combination with a float hinged to the side of the trough and a rod connected with the valve at its lower end and adjustably connected with the float at its apper end. It is designed that the trough shall always be filled to a definite level, the valve and float working to effect this automatically.

STOVE. — James W. Calta, Castalia, South Dakota. This is a stove of simple and durable construction for heating and cooking purposes, and specially designed for burning hay, straw, trash and rubbish as fuel. All the heat generated is passed around four sides of au oven, and the draught is readily so arranged as to entirely avoid the puffing of the

OIL CAN AND LAMP FILLER.—Charles W. Proctor, Lake Forest, Ill. This is a portable device, secured on a post having a suitable base, the can having a valved outlet at its lower end connected with a delivery tube through which oil is supplied to a lamp without any waste and without the use of pumps. The device is simple and durable, and the oil flows by gravity from the can to the lamp.

Note.-Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date

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BUILDING EDITION.

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(3113) G. M. says: A question has come up as to whether a piece of 1ron dropped into water of any given depth would sink to the bottomor would find a point where its density and that of the water would be the same, and cousequently remain suspended. Will you kindly answer this and give explanation, also please state the greatest depth of any well or boring in the world? A. The iron will sink to the bottom of the deepest oceans. Every solid substance that is heavier than water sinks to the bottom. The bottoms of the deep oceans are covered with gravel, sand and mud, with shells and vegetable growth of the deep seas. Fish and other living organisms are found at great depths. The pressure of the water is in proportion to the depth, but its density is but very slighty increased, as water can be but very slightly compressed under great pressures. The deepest bored well is about 5,000 feet.

(3114) A. C. R. asks: 1. Is lead a good electrical conductor? A. It has twelve times the resistance of copper. 2. Can you give me a recipe for a good cheap silver polish? A. Use whiting and alcohol. 3. Have the effects of a kaleidoscope ever been shown on the wall like a magic lantern? If so, is the apparatus difficult to make ? A. The kaleidoscope car be thus used. It is described in Dolbear's "Art of Projection," \$2 by mail.

(3115) M. T. F. asks for the cheapest way of makinghydrogen gas. I wish to use it for a balloon in small towns where I can't find the manufactured gas A. By treatment of iron or zinc scrap with dilute sulphuric acid. This is the usual way on a small scale, On the larger scale it may be made by passing steam ver red hot iron scrap.

(3116) J. S. R. asks (1) as to the obelisk (in Central Park, New York), and also the Pyramids of Egypt. Are they not generally considered (by scientific men) a composition, and not blocks of natural stone A. They are natural stone, not an artificial composition. 2. What was the date of publication of the first number of Scientific American? Was it a monthly paper, or or magazine, in its youth? A. September, 1845. It was a weekly.

(3117) W. F. B. asks how bird lime is nade; it is used to trap birds. A. One receipt is to boil linseed oil until thick and viscid. There is much dange of conflagration in conducting this operation. A bet ter way is to boil the middle bark of the holly for sever or eight hours in water, and put in a heap in a hole in the earthcovered with boards or stones for some weeks. until reduced to a mucilaginous mass. It must be rubbed up in a mortar and washed until clean, and pu into earthen pots.

(3118) P. B. says A and B have an argument about the motion of a clock's pendulum. A says it never stops in its forward and backward motion. H says it does, or it could not reverse. Who is right? A.

B is right. The pendulum must come to a dead stop

Bis right. The pendulum must come to a dead stop

before it can change or reverse its movement. The time required for the change is very short and not within our perception to measure it.

TO INVENTORS.

An experience of forty years, and the preparation of ore than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and all gn countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and o tensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 361 Broad-

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