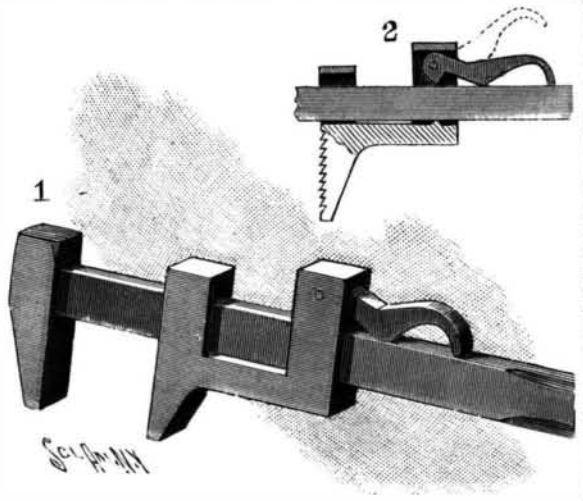
AN IMPROVED WRENCH.

The simple, readily adjusted wrench shown in our illustrations consists of a fixed jaw with a plain rectangular shank upon which a sliding jaw moves. Two strap extensions on the sliding jaw embrace the shank of the fixed jaw, and a spur on the sliding jaw serves as a fulcrum and gripping surface. In connection with the sliding jaw, a grip lever is employed provided with an angular head for engagement with the shank of the fixed jaw at a point opposite to the previously mentioned spur. In operation, after the grip lever has

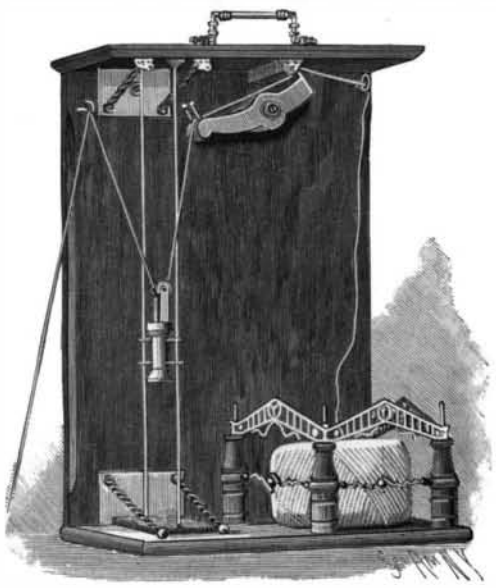


HENWOOD'S WRENCH.

been raised to disengage the angular head from the shank, the sliding jaw is adjusted to the desired position and the grip lever then carried forward, thus bringing the sharp-pointed angular head into contact with the shank. At first a rocking of the jaw on its spur takes place, and upon continued movement of the lever, the jaw will be locked in fixed position. The greater the resistance encountered in operating the wrench, the greater will be the binding action of the lever. Referring to our illustrations, it will be seen that the surfaces of the jaws may be either plane or toothed, according as it is desired to use the wrench for nuts or pipes. The wrench is the invention of Edwin Henwood, of Hancock, Mich.

A NOVEL TWINE HOLDER.

An invention which is an improvement upon that form of twine-holding devices in which means are provided whereby a certain amount of the free end of the string is retracted, has been patented by Frederick W. Copcutt, of No. 234 Stuyvesant Avenue, Brooklyn, N. Y. Referring to our illustration, it will be seen that the moving parts of the device are mounted on a frame consisting of a board or back plate provided at top and bottom with projecting ledges. Near the upper end of the board a clamping lever is pivoted, secured to one end of which is a cord guide. The other end of the lever is provided with a plate adapted to engage with a stop fixed to the under side of the upper ledge. An inclosure on the lower shelf contains the ball of twine. Adjacent to that end of the lever carrying the cord guide and connecting the upper and lower ledges



COPCUTT'S IMPROVED TWINE HOLDER.

are two guide wires, which are embraced by two side extending arms attached to a sliding weight. The upper end of the weight is provided with upwardly extending arms, to one of which a pulley is journaled. The other arm may be swung aside so as to permit the cord to be placed conveniently around the pulley. The manner in which the cord is rove through the several guides and pulley will be clear from the drawing. In using the twine holder. when the free end of the cord is pulled down, the vertically sliding weight is first raised until the pulley is nearly upon a level with the adjacent end of the lever. At this point the weight to a large degree ceases to act upon the lever, which then relaxes its binding or clamping action on the cord. When, after use, the free end of the cord is released, it is carried upward by the falling of the weight. The back board is of a size large enough to receive advertisements, to which the attention would be directed, owing to the novelty of the mechanism.

The Wellman Polar Expedition.

Mr. Walter Wellman, the correspondent and explorer, has sailed for Europe. He will go to London and then to Norway, from whence he expects to start northward about June 20. His point of departure will be Tromsoe, on the northern coast of Norway. From Tromsoe he will go to Archangel, Russia, where a pack of Arctic dogs are awaiting him. From Archangel the expedition will sail through the floating ice to Cape Flora, in Franz-Josef Land, where he expects to establish a supply station. The explorers will then push on to the north end of Franz-Josef Land. They will winter somewhere between 82° and 83° north latitude, in a hut built of stone, drift wood, walrus skins and ice, living on the game of the country, which is said to be very abundant. Before the middle of February the long Arctic night will be over and the dawn will be light enough to permit of further travel. Mr. Wellman has allowed himself about sixteen weeks between February and June for his journey of 1,000 miles between his winter stations and the pole and back again. He has not dared to allow himself a longer period, because soon after the first of June the snow in that region begins to melt enough to make travel through it extremely hard. Allowing an average of nine hours' travel every day for 112 days, the party could make one mile an hour and accomplish their round trip between their winter stations and the pole with a little time to spare, but with all their supplies carried by dogs, sleds and by themselves on skii they will be able to make much better progress than this and allow liberally for all sorts of delays and for a sufficient stop at the pole, if they are fortunate enough to reach it, to make valuable observations. Mr. Wellman has decided to devote a year and a half to his expedition, and whether he finds the pole or not, he feels he may bring home news of the fate of the explorer Andrée. Mr. Wellman has been forced reluctantly to believe that Andrée has perished. Celebrated explorers, including Dr. Nansen, have spoken very favorably of Mr. Wellman's plans. Prince Luigi has adopted the same route for his own expedition, which is to start in 1899. Mr. Wellman's ship will be the "Frithjof." The members of the expedition will consist of Prof. Harlan, of Columbian University, who will be the physicist of the party under the auspices of the United States Coast Survey; Lieut. Baldwin, of the Weather Bureau, who will serve as mineralogist, botanist and geologist; and Dr. E. Hofma, of Grand Haven, Mich., who will act as medical officer and naturalist. Mr. Wellman will be the leader and director of the entire expedition. He has selected Norwegians instead of Esquimaux to accompany his party, as experience has proved to him that the Norwegians are more hardy and understand traveling through the frozen zone in all its technical details quite as well as the Esquimaux and have vastly greater courage, intelligence and persistence.

Prizes for Railway Inventions.

The German Railroad Union (Berlin), says The Railway Gazette, has every four years offered prizes for inventions and improvements in railroad construction and machinery and railroad management. This spring it announces a first prize of $1,800, a second prize of $720 and a third prize of $360 for inventions and improvements in construction and mechanical apparatus; equal prizes for inventions and improvements affecting rolling stock and its maintenance; and a first prize of $720 and two prizes of $360 each for improvements in administration and operation. Without excluding other things, the union suggests as matters in which improvement is desired:

Improvements in the construction of locomotive boilers, especially such as, without increasing weight materially, secure economy in fuel, the prevention of sparks, the most complete consumption of smoke possible, and the reduction of cost of maintenance.

An arrangement by which the coupling of cars with automatic American couplers and those with the standard couplers of the times may be made without danger.

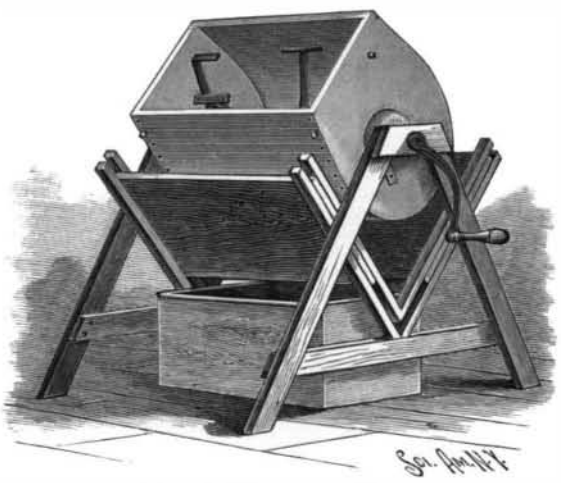
Weighing apparatus by which separate cars while moving or loosely coupled cars of a whole train may be weighed with sufficient accuracy.

Some means of protecting a train which has come to a stop or is threatened with delays which in bad weather and at night will work better than the track torpedoes and the hand signals of track and train men.

Those inventions or publications alone may compete which have been made or published between July 15, 1891, and July 15, 1899. The invention or method must be already introduced on some railroad in the Railroad Union, before application is made to compete, and its application must be supported by the railroad trying it. Notice of competition must be sent in to the executive of the union between January 1 and July 15, 1899.

AN EFFICIENT FEED MIXER.

A feed mixer has recently been patented by Walter G. Pearson, of Newburyport, Mass., which is designed to mix feed without kneading it. In this feed mixer a shaft is mounted in a frame, and a cylinder is axially mounted on the shaft so that its walls will be concentric with the shaft. Connected by their central portions to the shaft are a series of arms so arranged that their ends shall be in proximity to the inner sides of the chamber. The end portion of each arm has its sides beveled in opposite directions so as to cause a portion of the material to be thrown by one side of the



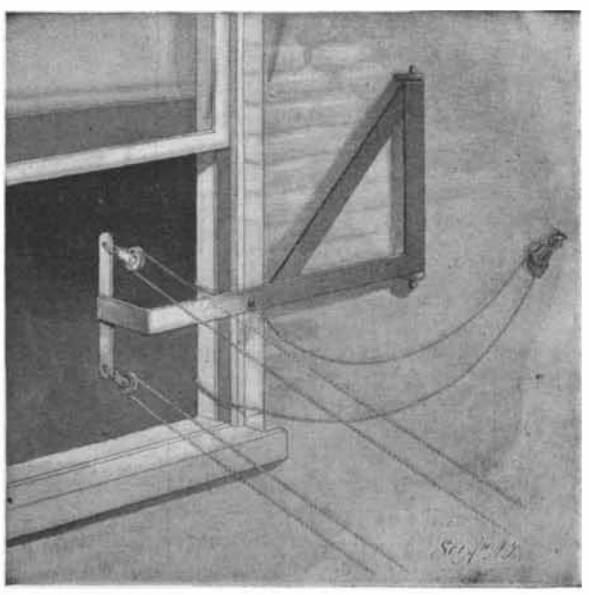
PEARSON'S FEED MIXER.

arm in one direction, and a second portion of the material to be thrown by the other side of the arm in an opposite direction. Upon the ends of the arms knives are carried which lie flat against the inner sides of the chamber so as to scrape away the feed. When using the apparatus, the feed is inserted through an orifice on the top, and the chamber is held with the orifice uppermost during the period in which the shaft is revolved to mix the feed. When the mixing operation has been completed, the chamber is permitted to turn one-half a revolution so as to throw the orifice downwardly and permit the discharge of the contents.

A NEW CLOTHES HANGER.

A clothes hanger designed to facilitate the hanging of clothes without danger from windows has been patented by Richard B. Fordham, of Rahway, New Jersey. As will be seen from our illustration, a bracket is pivoted to the outer wall of a building adjacent to a window, and is of such length as to enable its free end to be readily swung inward to the center of the window. A cross piece at the free end of the bracket is provided with pulleys. Around these and around pulleys attached to a pole or other distant support an endless clothes line passes, as in ordinary clothes line contrivances. To the middle part of the bracket are attached the ends of two cords for swinging the bracket to and from the window, the ends of which are to be passed into the window and secured to a free cleat or the like. One cord is passed around a pulley whose block is attached to the wall at a distance from the window so that the bracket can be swung outwardly away from the window by pulling upon the cord. By pulling upon the other cord the bracket can be swung inwardly into position for use. This arrangement permits the line to be placed conveniently for receiving or removing clothes without danger of a person falling from the window and yet places the devices out of the way when filled or not in use.

The clothes lines are attached to the pole or other support by means of spiral springs interposed between the pole and pulley blocks. Hence, when the line contracts during wet weather or the bracket is swung in toward the window, the elastic connection at the pole will yield, and when the line dries out and lengthens, the elastic connection will take up the slack.



FORDHAM'S WINDOW CLOTHES HANGER.