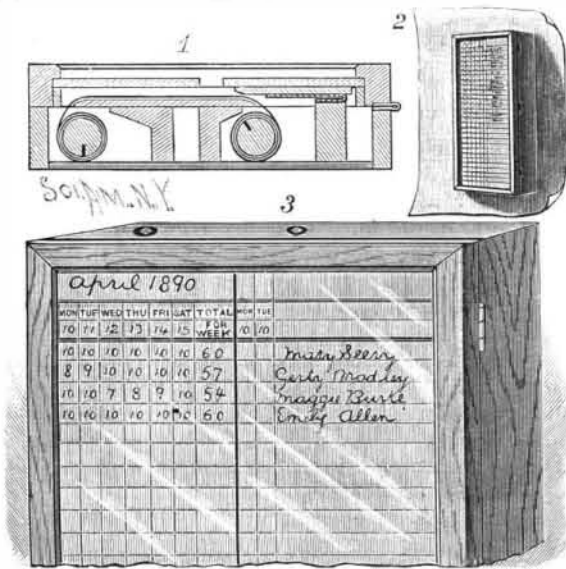


AN IMPROVED TIME REGISTER.

The illustration represents a register designed as a convenience in factories, mills, etc., to facilitate keeping the correct daily time account of the work of each individual. It has been patented by Mr. Leverett W.



TIFFANY'S TIME REGISTER.

Tiffany, of Winsted, Conn. Figs. 2 and 3 are views in perspective, and Fig. 1 is a sectional plan view. The time sheet is placed on rollers within the casing, one roller being, as shown in Fig. 1, on each side of a table over which the sheet is drawn so that it may be readily marked upon with a pencil or pen through an opening or slot in the cover. The slot is preferably formed by spaced glass plates fitted in the cover. Beneath the plate

applied to turn the timesheet back except by one having a key to the cover. The time sheet is preferably ruled for each day in the week, and adapted, as shown, to bring the columns in line with the opening in the slot.

NEW GERMAN ARMOR-CLAD CRUISERS.

As regards naval affairs, the Germans seem to be collecting their thoughts. They are devoting much study to foreign fleets, but are constructing nothing very new. It would seem that no programme has as yet been definitely resolved upon. The use that is to be made of the extraordinary appropriation that has just been voted is kept a secret. We propose to make known at present two of the modern cruisers of Germany—the Irene and the Princess Wilhelm, which belong to a new type called on the other side of the Rhine the protected cruiser.

The Irene, which we shall alone describe, displaces 4,400 tons. She is 308 feet in length and 45 feet in width. Her engine is of 2,000 horse power. She made 18 knots an hour on her trial trip.

This vessel is protected solely along her coal bunkers. It is provided with an armor plate deck strongly curved, so as to descend to a considerable depth below the load water line. The engines, two in number, are placed in distant compartments totally independent of each other. Each of them actuates a screw under cover of the lines of the stern. The supply of coal and ammunition is very large. Cruisers of this type have to navigate by steam only, and their masts, which are military ones solely, are deprived of yards.

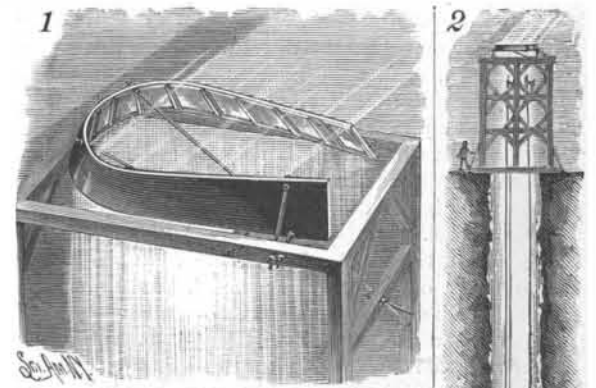
The armament consists of a barbette battery of 14 six inch guns, one on each side, away forward, firing through a port hole. Four sponsons, permitting of firing fore and aft, contain, each of them, one gun, and comprise between them the eight other pieces, which are placed simply upon the deck and have but quite a

there being, lower down on the upright, laterally extending arms or brackets having bearings for a horizontal guide roller. A small horizontal platform is held suspended by means of coiled springs from the upper end of the upright, and has a perforation for the passage of the hoisting rope. The windlass shaft has a balance wheel at each end, and at one end is pivoted a bell crank lever with a shoe on its lower arm adapted to bear against the periphery of one of the balance wheels, thus constituting a brake which may be easily manipulated.

For further particulars with reference to this invention address Thomas H. Bridges, the patentee, Valley Mills, Texas.

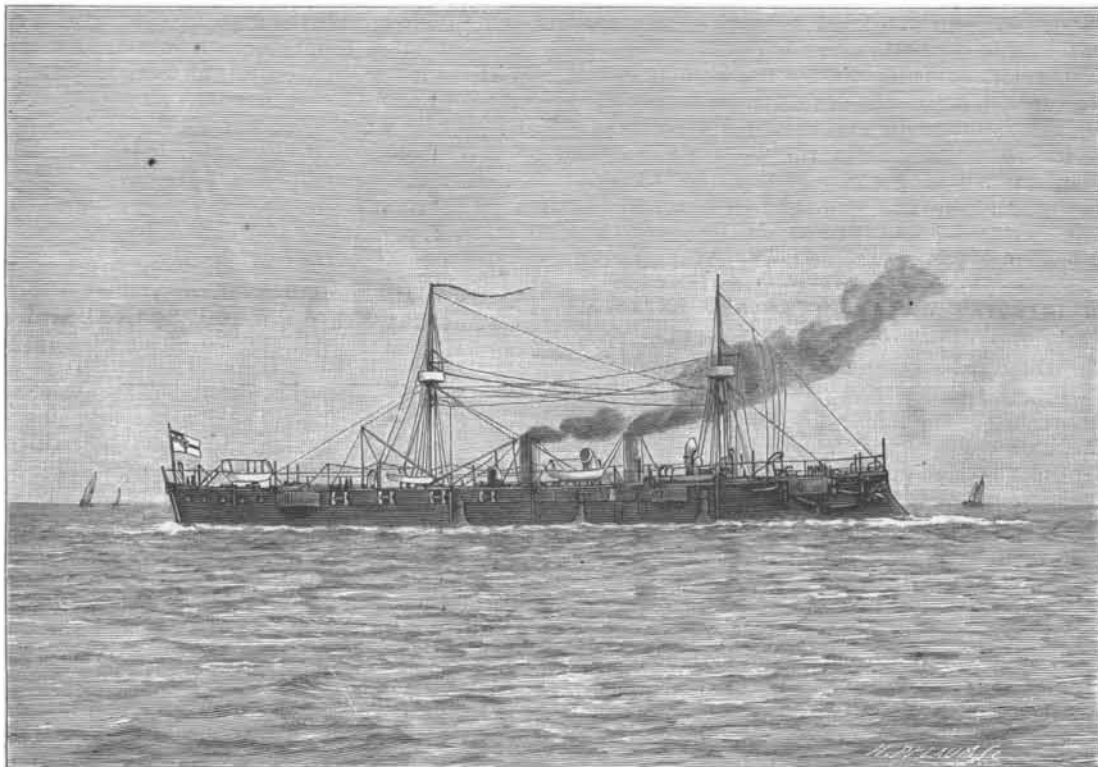
AN IMPROVED SHAFT LIGHTER.

The construction shown in the accompanying illustration is designed to provide for directing the rays of



STEVENSON'S SHAFT LIGHTER.

the sun downward upon one spot at all hours of the day. Fig. 1 being a perspective view of the device and Fig. 2 showing its application to a light shaft or well. The invention has been patented by Mr. Hugh Stevenson, of 155th Street and St. Nicholas Avenue, New York City. A frame of horseshoe form is mounted at the top of the light shaft, the convex end of the frame toward the north, and its free ends adjusted to an angle of about forty-five degrees. On its inner side the frame has a series of reflecting surfaces. The convex end of the frame is supported by a bracket, and its extending ends rest loosely upon brackets at the sides. Each end of the frame is connected by two rods, one over the other, with the side walls of the light shaft, the rods carrying nuts, whereby the ends of the frame may be adjusted at a proper angle to reflect the light down the shaft. In the summer the convex end of the frame should be practically vertical, but in winter a slight angle of inclination is desired, and to effect this two rods are made to extend from this end of the frame to a fixed support, the rods being so proportioned as to length that the winter temperature will contract them sufficiently to give the required incline. With this construction, as the sun travels round, it bears successively, from its rising till its setting, upon the different reflecting surfaces of the horseshoe frame, from one end to the other.



NEW GERMAN WAR SHIP, THE IRENE.

at the right is held a narrow slate on which the names of the employes are written, as shown in Fig. 3. The rollers are turned to shift the time sheet by a key inserted in holes at one end of the casing, and to prevent their turning back they are journaled in a spring plate which lifts them against the top of the main frame and acts as a brake. Attached to the cover is a plate adapted to enter a slot in the main frame when the cover is closed, and wholly prevent a key from being

limited field of fire. Upon the shields and in the tops are installed eight revolving guns. Three torpedo tubes are placed at the extremity of the ship. The Irene carries a crew of 320 men.

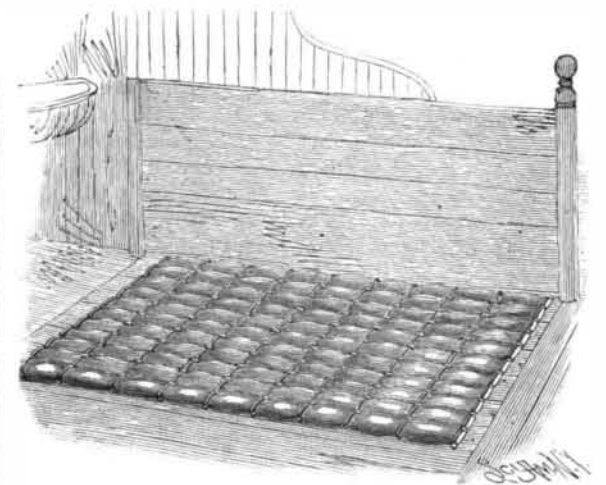
Let us add that the present German fleet comprises five ironclads remodeled prior to 1870. In case of war, these vessels would form an open sea squadron. The defense of the coasts would be assumed by four cruiser corvettes, without masts, making scarcely 12 knots per hour. The German navy includes in addition the ironclad Aldenburg, a remarkable vessel, 21 gun boats, and an old monitor, the Arminius. Its cruisers are well armed, and its torpedo boats are numerous. There are also special gun boats, which carry 8 guns, and are designed for Africa.—*La Nature*.

AN IMPROVED WINDLASS.

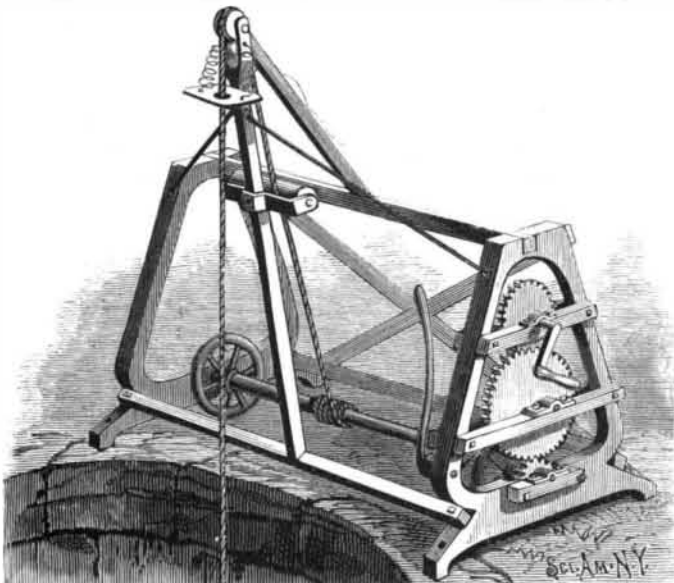
The illustration herewith represents a windlass specially designed for hoisting well buckets and similar uses, and to be rapidly operated with the least possible expenditure of power. The several parts of the frame are bolted together, and its foot pieces have perforations for bolts for securing the windlass in position. The windlass shaft is mounted in bearings in the ends of the frame, and at one end has a small pinion meshing with a large gear wheel, a spur wheel meshing with this gear wheel, the spur wheel having an operating crank. In the front brace or crossbar of the frame is mounted an upright, the upper end of which has a grooved pulley, over which passes the hoisting rope,

AN IMPROVED ANIMAL BED.

A bed designed more particularly for horses, and so constructed as to be durable, dry, and comfortable, while adapted for use with or without the ordinary straw bedding, is shown in the accompanying illustration, and has been patented by Mr. Hugh Stevenson, of 155th Street and St. Nicholas Avenue, New York City. The bed is formed of elastic tubes, preferably made of rubber, and held in place by transverse strips and binding strips to constitute a number of series of practically air-tight chambers. The compartments may be formed after the tubes have been vulcanized, by drawing the binding strips down tight. There are sufficient spaces between the aligned cushions thus provided to insure thorough ventilation and cleanliness.



STEVENSON'S ANIMAL BED.



BRIDGES' WINDLASS.