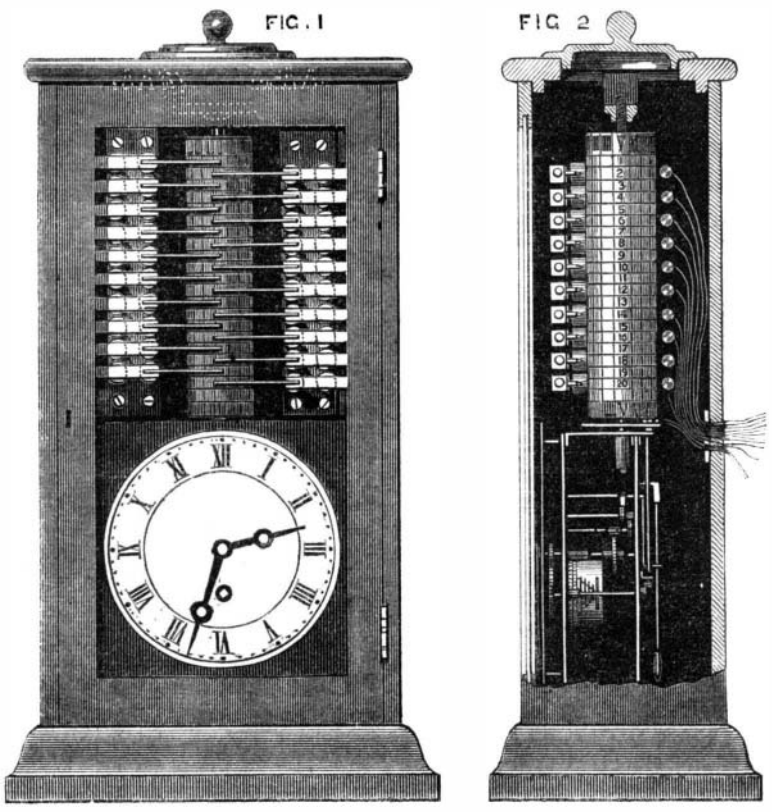
REGISTERING TELL TALE CLOCK.

This is an apparatus for checking a watchman on his rounds. Fig. 1 is a front elevation, and Fig. 2 a vertical section. A vertical revolving drum is placed in the center and is driven by the mechanism of the clock. To it is attached a sheet of paper divided perpendicularly into hours, and, by means of horizontal intersecting lines, into as many divisions, counted vertically, as there are localities to be visited. Each vertical division has a marker actuated by an electro-magnet placed on either side of the cylinder. The wires are led through the back of the clock to the different stations, at each of which is a knob which must be pressed at the time of the visit. A circuit is thus completed, the armature of the electro-magnet attracted, and a vibrating motion imparted to the marker, the point of which impresses a dot on the paper through the medium of a piece of carbonized ribbon. If, says *Engineering*, the watchman fails to visit any point on time, the cylinder in the interval will be carried on, so that a blank space will appear on the sheet and thus prove the neglect. Fresh paper can be substituted when required. The clock is placed beyond the reach of the watchman, and inspection in the morning reveals the fact as to whether he has been negligent or punctual in his rounds.



REGISTERING TELL-TALE CLOCK.

Camphor Wood.

Mr. J. Meldrum, Managing Director of the Johore Steam Saw Mills Company, at Johore, India, forwards to us various interesting particulars regarding the use of camphor wood, which, he states, may be applied to all purposes for which teak is used. The camphor tree belongs to the order *guttiferæ*, and grows without cultivation in the woods near the sea coast. It is frequently found upwards of 15 feet in circumference, and high in proportion. For carpenters' work the wood is much esteemed, beingeasy to work, light, durable, and not liable to be injured by insects; and it retains a pleasant and agreeable smell. It is especially suitable for shipbuilding and for the construction of wharves and jetties, as it is not destroyed by sea worms. Piles of this wood, in a comparatively good state of preservation, exist on the site of the old town of Johore, which was abandoned upwards of 100 years ago.

Our correspondent forwards a detailed report of tests made of this material, as regards strength, weight, etc. The breaking strain of a piece 3 feet long by 1¼ inches broad, and 1¼ inches wide, was 1,344 pounds. Its weight is 70 pounds per cubic foot. Large saw mills have been erected in Johore for the purpose of preparing this valuable timber for exportation.

IMPROVEMENT IN SAFETY VALVES.

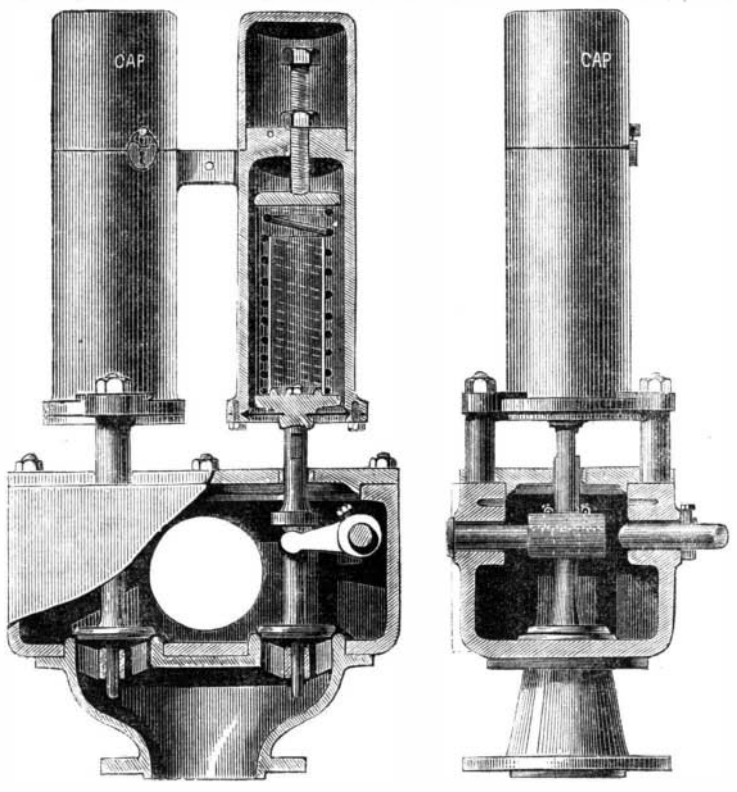
Our engraving shows an arrangement of spring loaded safety valves for marine boilers, designed by Messrs. Pollit and Wigzell, of Sowerby Bridge, England, and lately applied by them on board a steamship which they are fitting with engines. It will be seen from the illustrations, says *Engineering*, that the valves are of the ordinary form, and are fitted with the usual lifting gear; but on the top of the valve box are fixed two cylindrical casings, each containing a helical spring which bears upon a disk carried by the spindle of the corresponding valve. The lower ends of these spring casings are kept air and water tight by india rubber disks secured as shown, while at the upper end, each casing is fitted with a cap secured by a bolt and padlock, this cap preventing the spring from being tampered with. The valves are quite free, and can be turned round by the two flat places formed on the spindles just above the valve box cover. The arrangement is a very simple one, and the plan of protecting the spring by means of an india rubber disk, which closes the mouth of the spring case, and at the same time does not interfere with the play of the valve, is, we believe, novel.

The Hoosac Tunnel Mineral Water.

Large pockets of water have been opened at the west heading of Hoosac Tunnel during the past week, keeping the miners completely drenched. More than a year ago it was discovered that the water at the west end possessed medical properties, so that the workmen have avoided using it as a drink, choosing to be provided from a clear spring nearer the shaft and next to the mule stables. One tumblerful of this water proves an active cathartic; it leaves the skin soft and pliable when applied for washing without soap. A plentiful deposit of a soft substance is found in the crevices of the rocks, and when dried is an impalpable powder. Since the gushing out of this water in such quantities, it is proposed to have an analysis of it, and to make some further experiments to ascertain its virtues.

The Creeping Rail Question.

A correspondent, J. S., suggests that one rail of a track may be extended beyond the other by the trains in one direction being the heavier, as coal trains, which are loaded from the pits and empty when returning, usually are. But as this fact would apparently affect both rails of the track, J. S. says that a diurnal side strain, produced by the rotation of the earth, would cause trains in both directions to press on one rail more than on the other, on a single track. C. T. and others have also written their opinions, and they attribute the phenomenon to the motion of the earth. But none of them recognize the fact that this is the first instance of the kind on record, and that the two rails of a track are not sufficiently far apart for any such cause to lengthen one and not the other.



IMPROVED SAFETY VALVE.

A Singular Railway Accident.

Recently, on the Hudson River Railroad, at Yonkers, N. Y., a freight train came in collision at the depot with an engine which was on a side track. The engineer of this engine jumped off just previous to this collision, having, as he says, shut off steam. No sooner had the collision occurred than off started the said engine northerly, with no one on board. It soon acquired a fearful velocity and at the next station, three miles distant, plunged into the rear car of a passenger train standing at Hastings depot, and made sad havoc. The car was split half open, telescoped upon the next car, etc. Two persons were mortally hurt, and others injured. The engineer of the runaway engine says that the shock of the collision must have opened the throttle; but it seems more probable that the gear was reversed by the engineer and steam let on before he jumped off. The collision was due to the non-observance of the danger signals by the engineer of the freight train.

A GOOD trade is always a comforting companion to travel with, a something that a man can fall back upon in time of need, and yet it does not preclude him from entering upon some profession, if his inclinations or genius develope the proper capacity. In fact, our most successful business men in almost every capacity are from the workshops and farms.

THE best linseed oil is yellow, transparent, and comparatively sweet scented, and has a flavor resembling that of the cucumber.

New German War Ship.

The Imperial German Admiralty recently decided to build three armor-clad vessels, the Grosser Kurfürst, the Friedrich der Grosse, and the Borussia; the two former are being built at the Imperial docks of Wilhelmshaven and Kiel, whilst the latter vessel, the Borussia, has been ordered of the Vulcan Engineering company, at Bredow, near Stettin.

The Borussia is an armored-turret ocean-going ship, and has a length between perpendiculars of 308 feet 6¾ inches, the greatest length being 318 feet and 2 inches, with a breadth of 53 feet and 6½ inches, and a depth of 34 feet 10 inches, from upper deck to keel. The displacement of the vessel, completely armed and fitted, will amount to 6,748 tuns. The draft of water in sea-going order has been fixed at 23 feet 8 inches amidships. An armored casement surrounds the two turrets, which project 6 feet 2 inches above the upper deck; this casemate is separated from the fore and aft part of the vessel by armored transverse bulkheads, whilst these parts are protected only between wind and water by an armored belt reaching from about 6 feet 2 inches below water up to the battery deck.

The turrets, the port sills of which are 13 feet 5·4 inches above the water line, will be armed each with two 10·23 inch naval guns of the newest construction, and are to be moved either by separate engines placed between the decks, or by manual power. Besides the four guns in the two turrets, both in the forecastle and in the stern a 6·69 inch gun will be placed. The funnel is situated between the two turrets, and is thus protected, by the latter and the armor plates of the casemate, to the hight of the turrets, against the enemy's fire.

The bow forgings, with the spur in two pieces connected by a joint plate, will weigh about 18 tuns, whilst the stern post, which, welded together with the rudder post, forms a large frame, will have a weight of about 30 tuns.

The arrangement of the connection between the various parts of the Borussia will give her a great strength with a comparatively small weight of hull. She will be constructed with a double and watertight bottom.

During action the chief protection will be offered to the vessel by the armor, which rests with its lower edge upon the armor framing about 6 feet below the full load water line; the thickness of the armor will be 18·50 inches. The armor plates at the water line are 9·25 inches thick, below the water line 7·28 inches, and above water 8·26 inches; these thicknesses decrease towards the ends to 4·13 inches. Before the fastening of the armor plates, the inner skin is covered with a backing of teak about 10·23 inches thick, but varying with the thickness of the plates; angle irons are used for fastening this layer of teak to the outer skin. The armor plates are fastened by means of strong bolts 2½ inches diameter with conical heads fitting exactly in corresponding holes of the plates. The nuts of the bolts of the armor plates are provided with double washers, between which a thickness of rubber is placed in order to prevent as far as possible the tearing off of the bolt heads when the armor plates are struck by shot. The armored cross walls have plates 5·11 inches thick with a backing of teak 8·26 inches thick.

The two turrets, each of 26 feet 9 inches diameter, will be constructed of plates and angle irons; they extend, as already stated, from 6 feet 2 inches above the upper deck to the battery deck, and are covered with armor at the parts only exposed above the upper deck. The plates of these turrets are 8·26 inches thick, with the exception of those through which the porthole for the gun are cut, and which have a thickness of 10·23 inches; the backing of teak in the turrets is only 8·26 inches thick.

The following are the weights of materials used for the hull of the vessel, the masts, and the turrets:

	Tuns.
Plates	1,375
Angle iron	600
Bar iron and large forgings	330
Iron for rivets	115
Cast iron	100

It is expected that the Borussia will be launched during this month.

Street Architectural Laws of Paris.

The hight of the facade of buildings on the public streets of Paris is determined by the width of the streets. This hight, measured from the sidewalk and taken in every case in the center of the facade cannot exceed, including entablature, all stone and all construction pertaining to the front wall, the following rules, namely: 38 feet in hight for streets less than 26 feet wide; 48 feet in hight for streets 26 to 32 feet in width; 58 feet for streets exceeding 32 feet in width; and for boulevards, and streets exceeding 65 feet in width, the municipal authorities shall be able, for the sake of proportion and harmony in the lines of construction, to permit the hight to be carried to a maximum of 65 feet, upon condition that in no case shall the building have more than five full stories above the first story. The outline of the roof on the street front shall not project beyond a line drawn at an angle of 45° from the cornice of the facade.