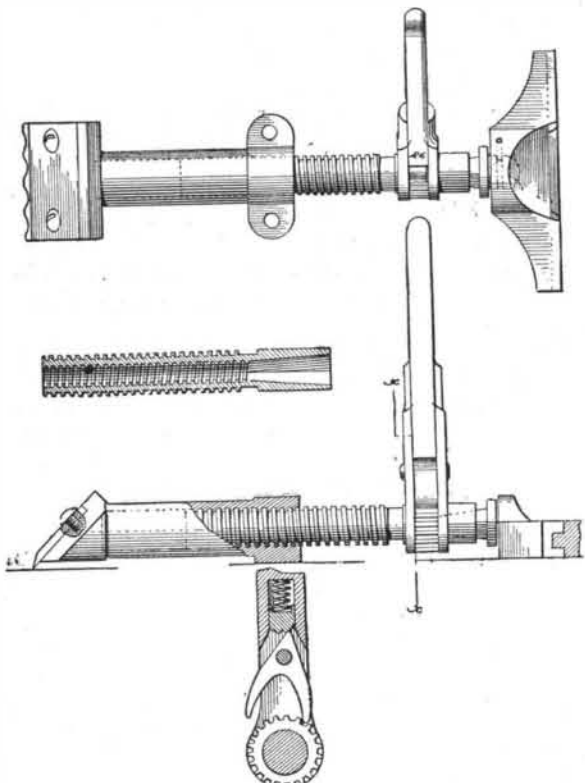


**AN IMPROVED FLOORING JACK.**

The illustration herewith represents a jack for laying floors, clamping sash, etc., which may be conveniently manipulated and used for various purposes. It has been patented by Messrs. Herman F. Townsend and Charles T. Winslow, of Groton Pond, Vt. The body has a threaded bore, and at its outer end has an inclined head or base, upon which is attached a plate having teeth in its lower edge, the plate being attached by screws, so that it can be readily removed. The inner end of the body has ears, whereby the device may be fastened to the floor or attached to the sides or ceiling of a building or room. A threaded spindle

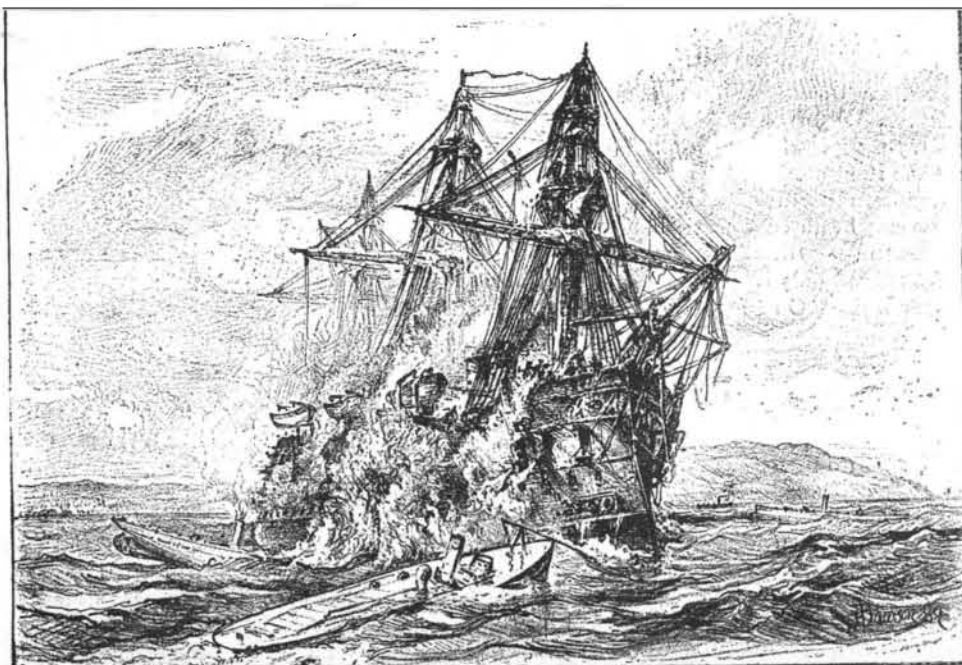


**TOWNSEND & WINSLOW'S FLOORING JACK.**

is secured in the bore of the body, this spindle being tubular and threaded on its interior, both interior and exterior threads extending to within a short distance of the outer end, which is enlarged and provided with a tapering rectangular bore and attached ratchet wheel. At each side of the latter are journaled the members of a lever, the inner end of which is bifurcated, or provided with arms attached upon opposing sides. In the end of the lever between the arms is a longitudinal recess in which is a spring having secured to its lower end a head-block with beveled sides and a central notch, the head-block being adapted to slide in the recess, as shown in one of the views. Between the arms of the lever and the head-block is pivoted a V-shaped dog, the angled body of which engages with the head-block and the members with the ratchet wheel, either member being thrown in engagement according to the direction in which the spindle is to be revolved. In operation, the teeth of the body-plate are driven into the floor beam, joist, or other support, and the clamp-block is forced forward by means of the ratchet lever, thereby revolving the spindle, which is interiorly threaded to admit of the attachment of a drill chuck or point, if it is found desirable to use the ratchet in that connection.

**TORPEDO BOATS.**

An able paper was read, not long ago, before the United Service Institution, by John Donaldson, on the recent improvements in Thornycroft torpedo boats.



**HOW TORPEDO BOATS ARE MEANT TO ATTACK IRONCLADS.**

It was accompanied by various diagrams, among them an illustration, which we give, intended to show how these little vessels are expected to operate in attacking one of the great French ironclads. In the discussion, Admiral Barnaby, speaking of the torpedo boats, said : "It is undoubtedly true that she can be pierced by shot. I have heard that so often said concerning big ships, for which I was responsible, that I can sympathize with our friends the torpedo boat builders when it is said that the shots can get in. Of course they can, and I have no doubt the people in the torpedo boat will feel terribly nervous when they are going to make the attack. But be perfectly sure the people will be very nervous on board the ironclad that is going to be attacked. That is an important thing. If you can succeed in making the other fellows nervous, never mind that you are running some risks yourselves. The real point lies, I think, there. It can be of no use to attempt to give protection against shot. I know that in France, where they have enormous ironclads of 11,000 and 12,000 tons, they are as nervous as can be over this fact, that the whole of their batteries can be searched out by machine gun fire. They know that, and they do not see how to remedy it. But if you cannot remedy it in a ship like that, what are you going to do with such vessels as these? The best thing you can do is to get a number of them and make them as good as ever you can."

**Bicycles.**

The Supreme Court of Indiana was recently called upon to review a non-suit in an action brought to recover damages for being struck down on sidewalk by a bicycle rider. The trial court had held that bicycling was a form of pedestrianism, and that the bicyclers had as much right on the sidewalk as any pedestrian. The appeal from the non-suit was argued in the forenoon. When the court adjourned for dinner, Judges Coffey and Berkshire started to walk to their hotel, and as they were passing out of the capitol grounds a clumsy bicycle rider ran into them, knocking both down, and badly bruising the former. This practical argument had such a convincing effect on the minds of the learned judges that they immediately overruled their unrendered decision and filed an opinion setting forth that a person who "rudely and recklessly" rides a bicycle against a man standing on a sidewalk is responsible for damages for assault and battery.

After quoting an Indiana law forbidding persons from riding or driving on the sidewalks, the court says : "If sidewalks are exclusively for the use of footmen, then bicycles, if they are vehicles, must not be ridden along them, since to affirm that sidewalks are exclusively for the use of footmen necessarily implies that they cannot be traveled by bicycles. It would be a palpable contradiction to affirm that footmen have the exclusive right to use the sidewalks and yet concede that persons not traveling as pedestrians may also rightfully use them. We think, however, that a bicycle must be regarded as a vehicle within the meaning of the law."—*N. Y. Law Journal.*

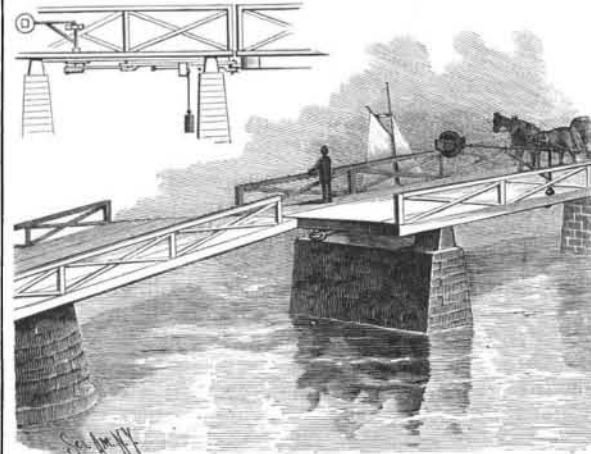
**Testing the Safety Apparatus of the Otis Elevators at the Eiffel Tower.**

At the Eiffel tower, an experiment was performed recently which produced a strong impression on those present. The engineer of the American firm of Otis subjected the Otis lift to a final test before handing it over for public use. The lift, the car of which consists of two compartments, one above the other, weighs 11,000 kilogs., and loaded with 3,000 kilogs. of lead—that is to say, weighing 14,000 kilogs—was raised to a considerable height. There it was fastened with ordinary ropes, and this done it was detached from the cables of steel wire with which it is worked. What was to be done was to cut the ropes, and allow the lift to fall, so as to ascertain whether, if the steel cables were to give way, the brakes would work properly and support the lift. Two carpenters armed with great hatchets had ascended to the lift, and were ready to cut the cables. At a given signal, a blow cut the rope. The enormous machine began to fall. Every one was startled, but in its downward course the lift began to move more slowly, it swayed for a moment from left to right, stuck on the brake, and stopped. There was a general

cheering. Not a pane of glass in the lift had been broken or cracked, and the car stopped without shock at a height of ten meters above the ground.

**AN IMPROVED DRAWBRIDGE SIGNAL.**

A drawbridge signal, which shall be automatically displayed when the bridge is open, is shown in the accompanying illustration, and has been patented by Mr. M. H. Long, of Sabula, Iowa, the small figure giving a sectional view of the signal-operating mechanism. To the under side of each end of the draw is connected a double cam-faced flange, and upon the bridge approach is mounted a crane, which carries a

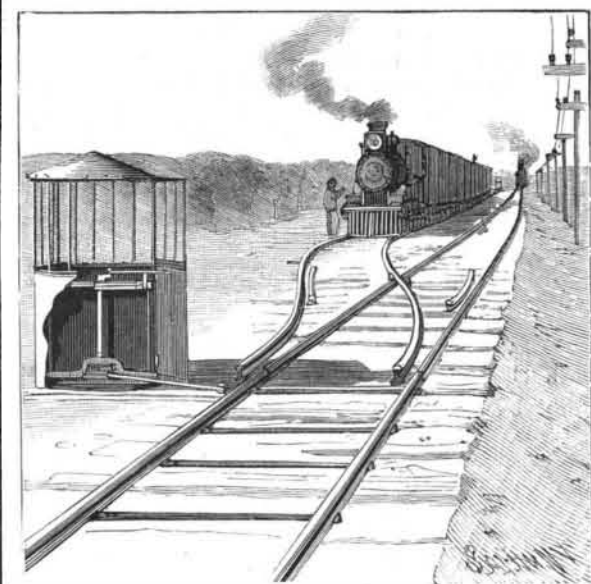


**LONG'S DRAWBRIDGE SIGNAL.**

disk, to serve as a day signal, and a box in which a lamp may be placed for a night signal. The crane is supported by a collar resting upon a wear-plate, centrally apertured to provide for the passage of the crane-standard, to the lower end of which is secured a sleeve, which carries a sliding lever-arm, pivotally connected by a link with one arm of a bell-crank lever mounted beneath, the other arm of the lever being connected to a slide. Upon the forward end of this slide is an anti-friction roll, borne upon by the cam-flange of the draw, so that when the latter is in closed position the disk-supporting arm will be held substantially parallel with the roadway. In order that this arm may be moved to indicate the open position of the draw, a weight is connected to the slide by a rope or chain, whereby, as the draw is opened, the disk-supporting arm is automatically carried to a position across the bridge roadway, being again returned to its normal position on the closing of the draw.

**A LOCK-HOUSE FOR SWITCH-STANDS.**

The accompanying illustration represents a strongly constructed house for a switchman, erected adjacent



**MCCARTHY'S LOCK-HOUSE FOR SWITCH-STANDS.**

to the switch for a siding, to operate which the operator has to enter the house, and cannot again leave it till the switching rails have been returned to open the main track. The invention forms the subject of a patent issued to Mr. Wm. J. McCarthy of Menominee, Mich. The house, shown partly in section, is of sheet metal, with a lower flange adapted to be bolted to switch ties, the upper section of the house being open, for the convenience of the operator in giving signals, and having a sheet metal roof. Within the house is arranged a switch-stand of any proper construction, the vertical crank-shaft of the stand having an upper crank connected by a link to an eye secured to the inner side of the door. The vertical crank-shaft has the usual operating lever, which, when the siding is open, occupies a position to hold the door of the house closed, retaining the attendant until the lever has been thrown to a position to move the switching rails to open the main track. This construction is also designed to prevent the interference of meddlesome people with the switch rails.