Why Some Mechanics don't get on.

We were much interested the other day in drawing from one of the oldest practical mechanics of Cleveland the secret of his success. Said he: "I have always made it a rule to do my work so well that it left a good impression on my employer." There is more in this than at first appears. Hard work is one thing; conscientious work is another. The hard worker may outwardly conform to all the requirements of the shop; he may always be in his place at the starting of the machinery; he may take short noonings, and he may be among the last to drop his tools at night, but after all he may utterly fail to get on in the world, and why? Let our experienced informant answer: "I know of a young man of just that kind. He works hard enough and wants to succeed, but somehow he can't. He came to me for counsel, and I found that he was slighting his work. That is, in his anxiety to turn off a large amount, he neglected the finish which always tells on good work. The consequence will be that, unless he makes a change, when times are dull he will be one of the first to be dropped by his employer." Superintendents and foremen notice these defects more closely than many are aware. The man who slides over his task, who lacks in thoroughness, who lets an unfinished piece of work leave his hands, is marked. In the unwritten law of the shop he is barred from promotion, while the conscientious workman is morally certain of advancement. Is the tendency of the day in the direction of a better finish to work? We think it is. As machinery is brought into competition the strife will be to secure superiority in cheapness, simplicity, and finish. Here it is that the thorough workman brings into play all the resources of his skill and honesty—his "mechanical moral sense," it has aptly been called. Here it is, too, that the slovenly, or careless, or hasty workman utterly fails. There are some forms of bad work that can be deftly covered up, but the compensations of life bring the inevitable result—failure to him who does not put his heart in the work, success to him who not only does his task, but does it well.—*Trade Review.*

How a Locomotive was raised from a River.

The *Elevated Railroad Journal* relates how the feat of raising a huge freight engine from the mud in Bush River, on the Philadelphia, Wilmington, and Baltimore Railroad, below Havre de Grace, was successfully accomplished a few days ago. The engine fell through the draw bridge some time ago. The difficulties of the feat may be imagined when it is understood that the engine was several feet below the water's surface, and completely buried in the mud. The wreckers have been at work a week, the first thing accomplished being the placing of heavy chains beneath the great mass of iron. Two divers, sent down for this purpose, were compelled to dig several feet under the soft mud at the bottom of the river. The chains were made taut to four heavy scows, which were filled with water at low tide. Everything being satisfactory, the water was pumped out of the scows, thus tightening the chains about the engine. When the tide began to rise, the engine was pulled a few feet from the mud. Then other scows were brought, and when the tide was again low, water was pumped in and the chains fastened to them. The tide went up again, and so did the engine, which came to the surface. After this had been repeated a number of times, the engine was swinging clear of the water, and was then placed on a large float, only slightly damaged, and wanting but few repairs to make it as good as before its tumble into the river. The railroad will now take charge of its fished up property, and tow it to the river bank near the railroad track. To that point, when the tide is high, a temporary track will be built connecting with the railroad, and when the tide has fallen sufficiently to place the wheels of the engine on a level with the temporary structure, the engine will then be run on the wharf and to the main track. It will be taken to Wilmington and repaired; it cost $1,000 to fish the engine out.

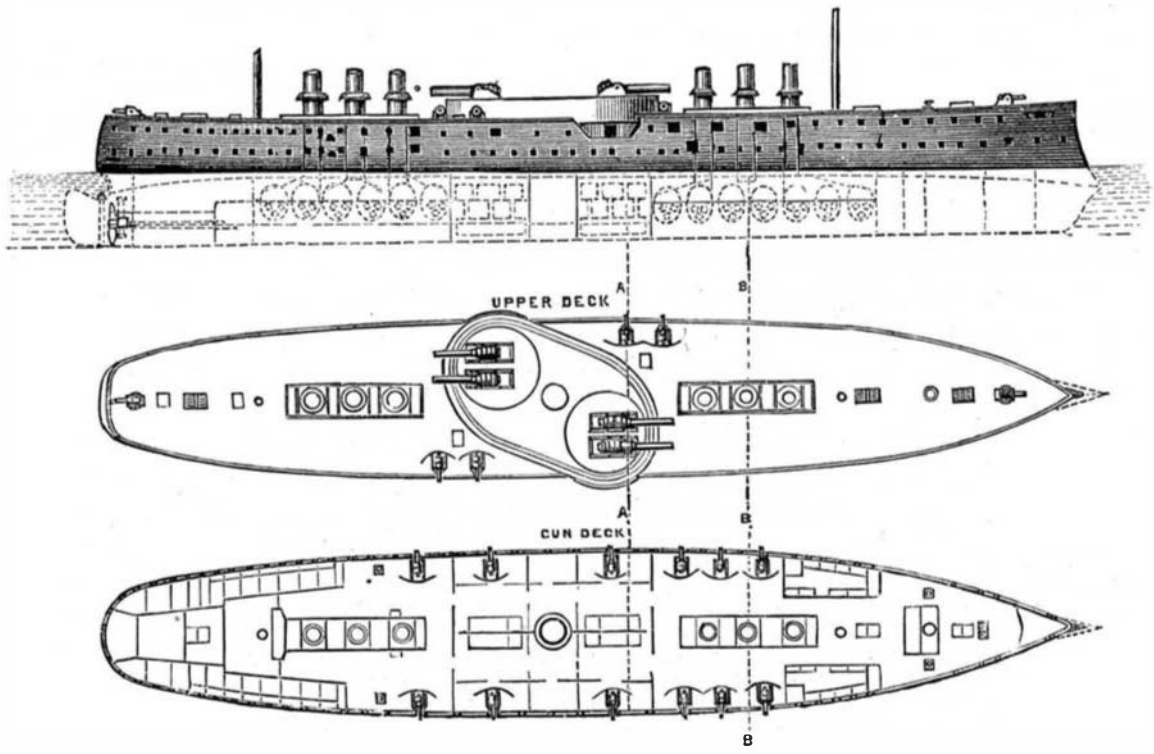
A MAN breathes about eighteen times a minute, and uses 3,000 cubic feet of air per hour.

Indestructible Bank Notes.

It is a curious fact that so firm in texture is the paper of a genuine Bank of England note that burning alone can hardly destroy it. The authorities have in a little glazed frame the remnants of the note which was in the great fire of Chicago. Though completely charred and black, the paper holds together, and the note is sufficiently legible to establish its genuineness and to be cashed.

THE GREAT WAR SHIP LEPANTO.

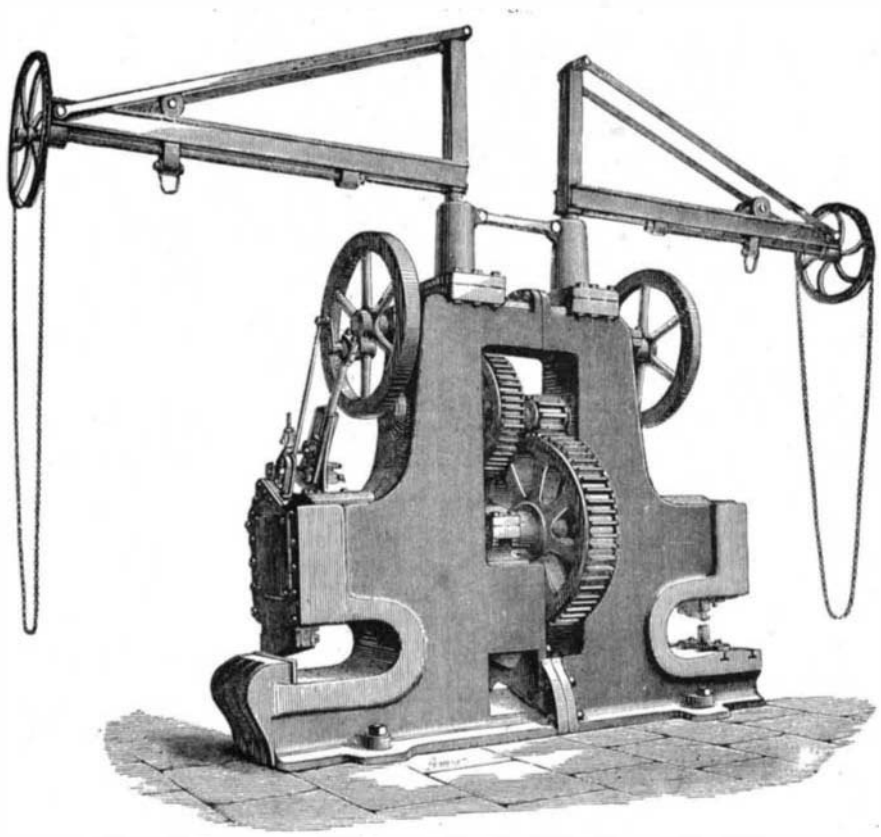
In the SCIENTIFIC AMERICAN for April 21 we gave a view of this remarkable ship of war, supposed to be the most powerfully armored of any vessel afloat. We now give diagrams showing the general arrangement of her guns and other defenses. The ship is 400 feet long, 73 feet beam; weight of hull, armor, etc., 10,000 tons; power of engines, 18,000 horses; speed, 16 knots; armament, four 100 ton Armstrong guns and twelve 6-inch guns; steel armor 19 inches thick.



THE ITALIAN IRONCLAD LEPANTO.

PUNCHING AND SHEARING MACHINE.

We illustrate a heavy punching and shearing machine manufactured by Messrs. Francis Berry & Sons, of Sowerby Bridge. It is driven by a steam engine mounted upon the main casting, and is capable of punching 1½ inch holes through 1½ inch plates at one end, and of shearing 1½ inch plates at the other end, the gaps being 30 inches deep. The middle shear will cut 6 inches by 6 inches by 1 inch angle iron, or 12 inch by 11 inch flat bars. Provision is made for lifting and turning the work by a jib crane at each end of the machine. These cranes are each capable of carrying 30 cwt., and are provided with screw traversing gear, worked by endless chains. The total weight of the machine, which is a powerful and useful tool, is 26 tons.—*Engineering.*



IMPROVED PUNCHING AND SHEARING MACHINE.

IT is estimated that 2,000 persons a year, mostly prisoners, take their own lives in Russia.

Post-mortem Examination of a Snake.

Mr. H. B. Stanley, of Placerville, Cal., communicates to the *Pacific Medical and Surgical Journal* an interesting account of an examination he made in dissecting a hibernating snake. On the 14th day of last February, says the writer, one of my neighbors, while digging among some rocks near this place, suddenly came upon the winter quarters of a small "bull snake." The serpent was in a torpid state from the cold weather, and was easily killed. During the afternoon of the 15th I happened to be at the place where it was killed, and procured it for examination. It measured 3½ feet in length and weighed 7 ounces. On opening the body, the stomach was found to be entirely empty; the bowels were almost empty, containing only a small amount of creamy looking substance in the lower bowel, streaked and tinted with something greenish resembling bile. Being a female, the parts answering to ovaries were large and congested, and each consisted of 26 distinct parts or divisions. The liver was very small and pale. The gall bladder was large and full of bile, containing nearly half a fluid drachm. The lungs were fully inflated and extended on each side of the spinal column nearly the whole of the middle third of the body. The heart and arteries were nearly full of bright red blood. The spleen was 7 inches long, and weighed one-fourth of an ounce, which it will be seen was one twenty-eighth of the weight of the entire animal. It was of a dark red color, and seemed to be rich in blood.

Is it probable that this enormous spleen serves as a reservoir of nourishment upon which the animal lives after its stock of adipose tissue is gone? The cavity of the body contained but very little fat, perhaps not more than 10 grains. Snakes at this altitude usually go into winter quarters about the 20th of October, and emerge from their winter homes about the last of April, or 15 days earlier if the weather be warm. This gives them a period of about six months in which they take no food. If not for the purpose of nourishing the body during this long fasting period, the writer adds, what can be the use of such an enormous spleen?

The Danger of Explosives.

Whether dynamite, nitroglycerine, gun cotton, and kindred explosives can be properly packed for transportation so that the danger will be comparatively slight is a matter upon which the community is for the most part quite ignorant. The London *Observer*, treating very briefly of this subject, says:

An explosive is a body of unstable chemical composition, which, when its chemical equilibrium is disturbed, violently expands in bulk. This expansion is called explosion, and the conditions of explosion vary. Gun cotton may be held in the fingers, and burnt; but if a detonator be attached to it, and it be clapped between the palms of the hands, it will blow a man to pieces. Gunpowder may be thrown about with impunity unless there be friction sufficient to produce an actual spark. Chloride of nitrogen—an oily liquid something like chloroform—will explode with terrific violence if the bottle containing it be tapped with a feather. Gunpowder mixed with its weight of sawdust may be safely thrown on the fire. A bottle of gunpowder lodged at the back of the grate is dangerous. Explosives may be roughly divided into combinations which are purely chemical and those which are chemical and quasi-mechanical. Nitroglycerine is purely chemical. All purely chemical compounds decompose spontaneously and group themselves into subcombinations of a treacherous nature. Ordinary nitroglycerine can be carried about safely. But if kept for any length of time, it passes through internal changes which render it unsafe. Amorphous or red phosphorus may be held in the flame of a candle. If left alone for some weeks, it reverts to its original condition of waxy phosphorus, and will burst into a violent flame upon mere contact with atmospheric air.

PROF. JOHN W. CLARK, of the Massachusetts Agricultural College, will set out 1,000 apple, 200 pear, and 3,000 peach trees in his North Hadley orchard this year. He has 2,000 peach trees which he expects to bear this season, and 1,000 bushels is his lowest estimate of the crop.