matter to break off the slab, which is then by means of a huge crane lowered upon a car and run under the saws and blocked for cutting. The term saw would be misleading to the layman, as it is really a gang saw with blunt surface, and worked by the steam engine moves back and forth on the edge of the stone, not touching it, but cutting by the grinding into it of a mass of steel shot which are really the teeth of the saw. The rapidity with which this is accomplished is marvelous, and large slabs are cut out with ease—huge slabs for the side of a wall, fronts for fireplaces, aquarium sides or plates, tiles for flooring, etc. All the tanks of the Geological Station here were made from this stone, which apparently solves the question of producing a cheap but attractive aquarium and one so far as the tanks are concerned that can be built rapidly. The stone is cut into the proper shape and shipped to Los Angeles, where it is polished and applied to many purposes, and its development has become one of the valuable industries of Southern California.

A NOVELTY IN RAILROAD COLLISIONS.

The popular interest which a railroad collision possesses is, no doubt, due in part to the extraordinary manifestations of power revealed by the curious and often grotesque positions into which the various elements of the colliding trains are thrown. Although we do not see the solution of the popular conundrum as to what would happen if the "irresistible" were to strike the "immovable," we do have an opportunity to see how the huge moving mass of the locomotive and its load seeks out the line of least resistance and arranges itself accordingly. The confused entanglement which is known by the name of "railroad wreck" assumes its curious positions in accordance with strict physical laws.

The accompanying view of a wreck, which occurred recently on the Chicago and Alton Railway, was reproduced from a photograph, for which we are indebted to our esteemed contemporary The Railway Age. Our readers will understand how exceptional were the results of this collision when we explain that the coal car, upon which the locomotive is seen resting, is not one of the cars of the first train, but was the first car immediately behind the locomotive of the second train. The circumstances of the collision were as follows: Two heavy freight trains had been sent out over the lines, with about fifteen minutes' interval between them. The first train had been stopped at a tank to take water, when it was run into by the second train, which was being hauled by two engines and was running at the rate of about twenty miles an hour. The leading engine was flung to one side of the track, and, turning completely around, came to a rest headed in the opposite direction from which it had been traveling. The second engine, the one shown in our illustration, must, at the moment of the collision, have been forced into the air clear of the rails to a sufficient height to allow a forty-ton coal car, which was the leading car of the train, to shoot forward beneath it and catch it as it fell. In no other way could the relative positions, after the collision, of the engine, tender and coal car be explained. As a matter of fact, it is a common occurrence, where the locomotives meet front to front in collision, for the engines to rear squarely into the air and then fall sidewise or be thrown back upon their own trains. The mere momentum of the two engines alone would not accomplish this or fling a locomotive, as in the case of our illustration, clear into the air; but we must remember that behind the engines there is the stored-up energy of, say, a thousand-ton train moving at the rate of twenty miles an hour, which would be amply sufficient to force the locomotive clear of the rails.

The engine having elected to travel on other wheels than its own, the wrecking crew promptly accepted the suggestion, and, after backing the end of an empty coal car under the front end of the engine, as shown in the illustration, the two cars with their novel freight were hauled to the Bloomington shops for repairs. The weight of the engine is fifty tons, therefore, the total load of the car, including the coal, was about ninety tons. The bolsters were of steel, and it speaks volumes for the strength and general excellence of construction that it should have received and carried such an unprecedented burden without material injury.

Variations in Weight.

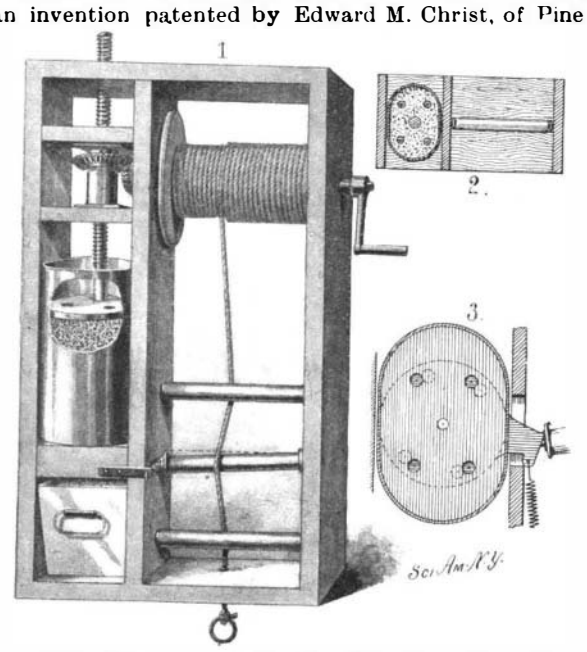
The following table, which is given by W. W. Wagstaff in the last number of Knowledge, is interesting:

Average.		lb.	oz.		lb.	oz.	
9	A. M.—Before breakfast	155	8	(losing	3	6)	during night.
10	A. M.—After "	157	4	(gaining	1	12)	
12	noon.—Before lunch	156	6	(losing	0	14)	
1	P. M.—After "	157	6	(gaining	1	0)	
5	P. M.—Before dinner	156	12	(losing	0	10)	
6¼	P. M.—After "	158	14	(gaining	2	2)	

By these figures it will be seen that an average person weighing 155 pounds loses 3 pounds 6 ounces during the night and that he gains 1 pound 12 ounces by breakfast and then that he loses about 14 ounces before lunch, that lunch adds an average of 1 pound and then he again loses during the afternoon an average of 10 ounces; an ordinary dinner to healthy persons adds 2 pounds 2 ounces to their weight. Of course excess in eating and drinking will change these figures, but they are interesting as averages.

A NEW FORM OF FIRE-ESCAPE AND LOWERING APPARATUS.

To provide a simple apparatus for lowering objects of any kind gradually, which apparatus will be particularly adapted for use as a fire-escape, is the purpose of an invention patented by Edward M. Christ, of Pine



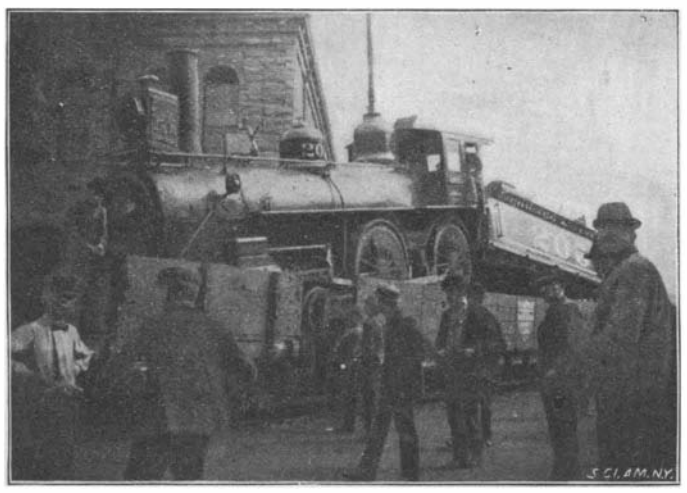
PERSPECTIVE AND SECTIONAL VIEWS OF THE FIRE-ESCAPE AND LOWERING APPARATUS.

Grove, Pa. The apparatus comprises essentially a sand cylinder with a valve outlet, in which cylinder a screw-driven perforated follower is contained, serving to regulate the rapidity of the descent.

Fig. 1 is a perspective view of the apparatus, the sand cylinder being broken away to show the follower. Fig. 2 is a cross-section taken immediately above the cylinder. Fig. 3 is a cross-section taken through the bottom of the cylinder.

The cylinder and perforated follower are supported in a frame in which a windlass is mounted. About the windlass a rope is wound, passing behind an upper and lower roller and in front of a central roller, so that it is bent out of the straight course, as shown in Fig. 1. The shaft of the windlass carries at one end a bevel gear meshing with a bevel gear on the threaded shaft of the follower. The bottom of the sand cylinder as well as the follower is perforated, providing a number of outlets for the sand. These outlets are normally closed by a valve plate, which is provided with openings adapted to register with the outlets in the cylinder bottom.

The valve plate has an extension or arm with which



CURIOUS COLLISION—COAL CAR BRINGS HOME ITS OWN LOCOMOTIVE.

a spiral spring is connected, serving to hold the valve plate in the position shown in Fig. 3. One end of the central roller is connected with the arm, the other end of which is loosely held in a bearing on the frame.

When the parts are in their normal position, the coil spring will hold the valve plate of the sand cylinder closed; but when the rope is pulled, the central roller will be thrown aside, thus swinging the valve plate, causing its openings to register with the cylinder outlets, and permitting the sand to flow into a receiving pan. The follower cannot descend until the sand begins to run, and the rapidity of its descent will be regulated by the quantity of sand dropping into the pan in a given time.

The degree of pressure on the rope automatically controls the flow of sand. The rotation of the windlass is regulated by the follower; hence the rope, with the object to be lowered, is caused to descend gradually. The rewinding of the rope will simultaneously raise the follower shaft and return the follower to its initial position.

Automobile News.

A representative of a German firm purchased one of each make of several automobiles at the National Export Exposition. He says he was attracted by the superiority of the ball-bearings and running gear of the American machines. He intimates that the superior points of the American machines will be taken advantage of, and will most probably be incorporated in their future output.

The electric automobile recently covered the distance between Atlantic City, New Jersey, to a point four miles west of Berlin, Camden County, a distance of fifty miles. The round trip was made at an average speed of 15 miles an hour, and a speed of 20 miles an hour was attained at times. The distance was carefully measured by three bicycles provided with cyclometers.

A steam plow invented by Colonel Templer, R.R., Director of the Military Ballooning and Steam Transport, has been given a trial near Aldershot, says The Mechanical Engineer, and fully carried out the objects for which it was designed. It threw up a 4-foot intrenchment at the rate of 3 miles an hour across a very rocky and rough country, Two of these machines are to be shipped at once for use with the South African field force in storming positions. The machine is so arranged that it will throw up works on either the right or left, and so powerful are the picks in front of the plowshares that rocks and stones are split to pieces and hurled upward.

The Automobile Almanac for 1900 and the Automobile Trade Directory is soon to be published by The Automobile Magazine, of New York, and will contain a large amount of valuable information interesting to automobilists, such as special reference to signs of the weather, moonlight tables, wind pressures, State ordinances, highway laws and directories of all kinds. We see from some of the advance statistics which have been furnished us that there are 688 automobiles in use in the United States, or about ten per cent of those used in France, that number being 6,546. No other country, however, can boast of as many automobiles as our own, Belgium coming next with 478; then comes Germany with 434 and Austria 403. Great Britain has 412. It seems that there are 190 manufacturers in the United States, but that of this number only twenty were in a position to deliver carriages on December 1, 1899. In France, on the contrary, there are 702 manufacturers and 1,150 dealers.

Laurel Wreaths.

It is an interesting fact that the large laurel wreath which was presented to Admiral Dewey by the United States Senate was composed of leaves grown in Africa. The wreath was about three feet in diameter and was made of silver laurel leaves mounted on a base of natural pampas grass. The leaves are pure silver gray on both sides and are delicately veined. The leaves have a white metallic luster and an exquisite softness of tone. The New York Tribune recently had some interesting facts concerning the silver laurel. It is looked upon by the natives of Africa as a sacred plant, and was used as a decoration for festive occasions. Its beauty and similarity to silver have induced collectors to send it to European countries, and the inroads on the growing stock have been so great that its exportation has been prohibited, and the leaves which now come to Europe and the United States are said to be smuggled, the price in New York being about 25 cents a leaf. By the presentation of the laurel wreath, the custom established by the Greeks many hundreds of years ago was followed, and by the ceremony Admiral Dewey became one of the host of laurel-crowned characters who figure in the chapters of history. The laurel of the ancients was dark green and was the same hardy plant which is now found in abundance in the Mediterranean region and in the Canary Islands. There were at least four shrubs and small trees known as laurel, or bay. The Laurens nobilis, or "Victor's laurel," known also as sweet bay, was one which was used by the ancients for the decoration of favorites. It was a large leathery, shining, reticulated leaf and with axillary cluster of yellowish-white flowers. The fruit is oval, bluish-black in color and about a half inch long. It is not as common in Europe as the species of cherry laurel or common laurel, which is also found in the United States.

THERE were nearly 22,000 deaths in 1898 from snake bites in India. According to The Medical News, the efficiency of the new serum is now fairly well established, but the price of a bottle, which is $1, puts it beyond the reach of most of the victims.