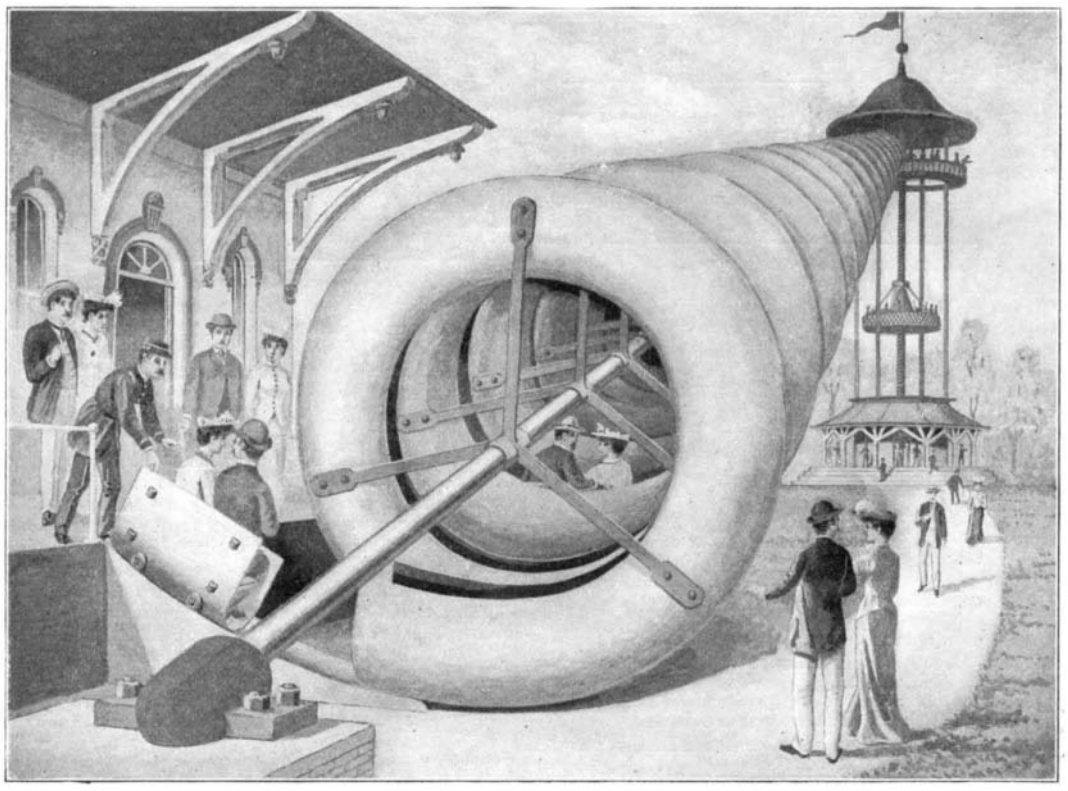
A NOVEL ADAPTATION OF THE ARCHIMEDEAN SCREW.

An ingenious inventor has revived the old principle of the Archimedean screw, and adapted it for use as an amusement apparatus for pleasure resorts, fairs, and the like. It will be recalled that the screw which Archimedes is accredited with having invented was a spiral conduit that rotated on an inclined axis. It was used for raising water, the lower end of the screw being immersed in a body of water, and on being rotated the water would constantly flow toward the bottom of each convolution of the spiral conduit, and be thereby raised to the upper end of the screw. In the present adaptation of the Archimedean screw, a spiral trough is used, which is supported by a central shaft turning in suitable bearings, also by a series of rollers bearing against the under side of the trough. Traveling on tracks in the trough are cars, each carrying two or three persons, which are lifted up by the rotation of the spiral trough. As in the case of raising water, the car constantly gravitates to the bottom of the particular convolution in which it is situated, but as the bottom is constantly advancing forward and upward, the car is likewise progressively moved forward and upward, until it reaches the top of the spiral trough. The tower at the upper end of the screw furnishes a suitable upper bearing for the shaft of the spiral trough, and also provides a suitable landing for the passengers. The cars when emptied of passengers are carried by gravity down an inclined plane to the starting point. This inclined plane is not shown in the accompanying engraving, being hidden by the spiral trough. The landing at the top of the tower comprises an annular platform, which surrounds the passenger drop. The latter consists of a circular car formed with a nut which is threaded on to a simple, vertically-disposed screw. In operation the car will move downward by gravity, and at the same time will turn with the nut around the screw. The nut is formed of two sections which, under control of the operator, may be moved together to tightly grip the screw, and thus act as a brake to prevent too rapid a descent of the car. The car is raised by counter-weights when relieved of the weight of the passengers, and when the operator relaxes the strain of the nut on the screw. The apparatus should afford considerable entertainment. The passengers first experience the unusual sensation of having a spiral trough whirled rapidly about them, while they advance slowly and in a straight line up to the top of the tower, and then in descending they experience another unusual sensation just the reverse of the first, as they wind rapidly downward around the stationary screw. The inventor of this apparatus is Mr. John J. Carr, of 282 Van Brunt Street, Brooklyn, N. Y.



A NOVEL ADAPTATION OF THE ARCHIMEDEAN SCREW.

A RIVER OF FISH.

Lake County, one of the most picturesque of the northern counties of California, is so named from Clear Lake, the largest body of fresh water in the State. From its varied scenery of mountain and lake, it has been called the "Switzerland of America."

Several creeks run into Clear Lake, one of the principal being Kelsey Creek. Each spring the fish run from Clear Lake up Kelsey Creek, to spawn, sometimes in so great numbers that wagons, in crossing, crush many of them. It happens in some seasons that the dry weather, coming on suddenly, causes the waters of the creek to subside rapidly. Then the fish are left stranded and die in countless millions. The farmers cart off wagon-loads of them to use on their fields as fertilizer, and the stench arising from their decaying bodies makes the neighborhood almost uninhabitable. The photograph was made by a local druggist and shows Kelsey Creek at a point one mile from the town of Kelseyville and seven miles from Lakeport, the county seat.

A RIVER OF FISH—KELSEY CREEK, CALIFORNIA.

A Lost Invention.

"Fame and fortune await the lucky individual who can rediscover the combination of metals from which the Egyptians, the Aztecs, and the Incas of Peru made their tools and arms. Though each of these nations reached a high state of civilization, none of them ever discovered iron, in spite of the fact that the soil of all three countries was largely impregnated with it. Their substitute for it was a combination of metals which had the temper of steel. Despite the greatest efforts, the secret of this composition has baffled scientists and has become a lost art. The great explorer Humboldt tried to discover it from an analysis of a chisel found in an ancient Inca silver mine, but all that he could find out was that it appeared to be a combination of a small portion of tin with copper. This combination will not give the hardness of steel, so it is evident that tin and copper could not have been its only component parts. Whatever might have been the nature of the metallic combination, these ancient races were able so to prepare pure copper that it equaled in temper the finest steel produced at the present day by the most scientifically approved process. With their bronze and copper instruments they were able to quarry and shape the hardest known stones, such as granite and porphyry, and even cut emeralds and like substances. A rediscovery of this lost art would revolutionize many trades in which steel at present holds the monopoly. If copper could thus be tempered now its advantage over steel would be very great and it would no doubt be preferred to the latter in numerous industries. It is a curious fact that though this lost secret still baffles modern scientists it must have been discovered independently by the three races which made use of it so long ago."

The above item from a Sunday paper is an example of many such floating about which both reflect and impress an exaggerated sense of the importance of a so-called lost invention or art. The writer says: "A rediscovery of this lost art would revolutionize many trades in which steel at present holds the monopoly." Why would there be any revolution? Is any man sighing for a copper razor, or does any boy want a brass jack-knife blade? There is no evidence to prove that the tempered copper tools of the ancients were capable of holding a keen edge like steel; on the contrary, they were probably very crude and unsatisfactory substitutes for what we now have. The United States Government Board, appointed twenty-five years ago to test iron, steel, and other metals, reported through their chairman, Prof. R. H. Thurston, in that portion relating to copper-tin alloys, that alloys of copper 72.89, tin 26.85, tin 29.88, copper 68.58, tin 31.26; copper 67.87, tin 32.10; and copper 65.34, tin 34.47 were all so hard that they could not be turned in a lathe with steel tools. These and other hard combinations have been generally known to the trade for years, but of what good are they? Copper and its alloys are more costly than the ordinary grades of tool steel, and the only apparent advantage possessed is that they are incorrodible. It is difficult to understand that this would be the cause for any revolutionary change, and we are forced to the conclusion that such statements are what, in current slang, is known as "hot air."—Machinery.

According to the Iron Age a compound gas engine has been built with two high-pressure cylinders and a single low-pressure cylinder between them. The high-pressure cylinders work on the Otto cycle, the engine receiving one impulse from them each revolution. The exhaust from the two explosions is expanded in the low-pressure cylinder, the crank of which is 180 degrees behind the high-pressure cranks. Thus at every forward stroke the low-pressure cylinder takes the exhaust gases from one of the high-pressure cylinders. The total effect is thus to produce an impulse every half revolution. With a 12 horse-power engine 13 brake-horse-power were obtained with the low-pressure cylinder in use, and only 8.9 horse-power without it, 46.2 per cent being thus added to the power by the use of the low-pressure cylinder and without the expenditure of any additional fuel.

Pennsylvania, which makes more than half the iron used in the United States, produces less than 2 per cent of the iron ore mined. Ohio, which comes next to Pennsylvania as an iron-maker, mines less than 0.1 per cent of the total. In both cases the ore is brought to the fuel; and this is the policy in this country. Only in Alabama are the ore and fuel found together.